



**Environmental and Combustion Controls  
2010-2011 Canadian Product Catalog**

In addition to the most up-to-date information on all of the Honeywell products you have seen before, the 2010 - 2011 Canadian Tradeline® catalog includes:

- RedLINK™ wireless thermostats and zoning products
- Pressure-regulated Control Valves
- Commercial wireless occupancy sensors
- SOLA Controllers and Displays
- Delphi Combustion Systems
- SmartVFD COMPACT Drives
- SmartHVAC Drives and SmartHVAC BYPASS Drives and bypass assemblies
- TrueDRY Dehumidification
- TrueIAQ Controls
- Bath Fan Controls
- The GlowFly™ Universal HSI Kit

For more information on the products in this catalog, a cross-reference to obsolete products, product pricing, production tools and the latest information about new products please visit our website at <http://customer.honeywell.ca>

The screenshot shows the Honeywell website interface for Environmental & Combustion Controls. At the top, there is a navigation bar with links for HOME, ABOUT US, PRODUCTS, TRAINING, NEWS & EVENTS, SUPPORT & RESOURCES, CONTACT US, HELP, and VIEW QUOTE. Below the navigation bar is a banner with the text: "In more than 100 million homes and five million buildings worldwide, Honeywell products, components and systems deliver temperature control, comfort, energy conservation and safety." The main heading is "Environmental & Combustion Controls" with the subtext "A Honeywell Automation & Control Solutions Business".

The page is divided into several columns:

- What's New:** A list of recent updates including "Hearth Gas Valve Recall", "Commercial Buildings' New Product Showcase", "BBC Collateral Builder", "Hot Fresh Cool", "Energy Savings", "Water Awareness", "Spec Take-Off Service", "Order D2/D3 Dampers", "Product Selection Tool", and "Order Literature".
- Locators:** Links for "Honeywell Distributors", "ACI Locator - Commercial Contractors", and "Residential Contractors".
- Homeowners:** A link for "Homeowners - Click here for assistance".
- Buildings Products:** A section with a "Discover your complete source of components and systems for small to large buildings..." description, a "Select a Buildings Product Category" dropdown, and a featured product "New TR20-Series Wall Modules". The text describes the TR20 family as a replacement for the T7770 product line, offering extended functionality and reliable performance. A "Learn More" link is provided.
- Homes Products:** A section with a "Find out about the innovative solutions that make homes more comfortable and efficient." description, a "Select a Homes Product Category" dropdown, and a featured product "TrueSTEAM™". The text describes TrueSTEAM as a more efficient steam humidifier with better performance and lower water consumption. A "Learn More" link is provided.
- Right Sidebar:** A vertical menu with options: "Welcome", "Login to My Account" (with a "New User Registration" link), "Find Quote", "Product Search" (with a search input field), "Cross Reference Search" (with a search input field), "Search" (with a search input field and an "Advanced Search" link), and "Literature / Image Search" (with dropdowns for "All Literature" and "Model / Part Number", and a search input field).



# Table of Contents

Model Number Index .....	iii	General Information.....	xvi
Subject Index .....	vii	Reference Information.....	xix
ISO 9001 .....	xvi	Authorized Distributors .....	xxv
<b>Home Control Thermostats and Zoning</b>			
Electric Heat Thermostats .....	1	Thermostats Parts and Accessories.....	37
Programmable Thermostats .....	6	Thermostat Guards .....	38
Temperature Sensors.....	15	TrueZONE™ Zoning Panels and Kits .....	40
Non-Programmable Thermostats .....	16	EnviraZONE Panels and Kits .....	47
Freeze Warning .....	24	EnviraZONE Accessories.....	47
RedLINK™ Products .....	25	Zone Control Panel Accessories .....	49
RedLINK™ Accessories .....	32	Zone Control Dampers .....	50
Communicating Thermostats.....	34	Zone Damper Accessories .....	55
Telephone Access Module .....	36		
<b>Indoor Air Quality</b>			
Media Air Cleaners .....	57	Whole House Humidifiers.....	81
Electronic Air Cleaners .....	61	Humidifier Replacement Parts and Accessories .....	86
HEPA Air Cleaners .....	69	Humidity Controllers .....	87
Replacement Filters and Media.....	71	Ultraviolet Air Treatment Systems .....	89
Air Cleaner Parts and Accessories.....	76	Fresh Air Ventilation Systems .....	92
TrueDRY Dehumidification System .....	78	Sail Switch.....	97
TrueSTEAM™ Humidification System.....	79	Carbon Monoxide Alarm.....	98
TrueIAQ Controller.....	80		
<b>Residential Combustion</b>			
Combination Gas Controls.....	99	Relays .....	152
SmartValve® System Controls .....	114	Fan Centers.....	161
Combination Gas Controls Parts and Accessories.....	123	Transformers .....	163
Thermopiles and Thermocouples .....	125	Oil Primaries.....	171
Pilot Burners .....	128	Oil Systems Diagnostics.....	175
Ignition Pilot Modules .....	132	Flame Detectors .....	176
Ignition Pilot Module Accessories .....	137	Magnetic Valves .....	177
Igniter Bracket Replacement Cross Reference .....	138	Pressuretrol Controller .....	178
Igniters and Sensors.....	139	Fan and Limit Controllers .....	179
Air Pressure Switches.....	140	Single and Multi-Function Aquastat Controllers .....	187
Electronic Fan Timers.....	141	Well Assemblies .....	201
Contactors .....	142		
<b>Hydronic Controls</b>			
AQUATROL Zoning System.....	203	Boiler Fill Valves.....	248
Hydronic Switching Relays .....	214	Thermometers and Temperature/Pressure Gauges .....	249
Transformer for Hydronic Heating .....	219	Expansion Tanks.....	250
Residential Heating Valves and Actuators.....	220	Service Check Valves .....	250
Motorized Zone Valves.....	223	Boiler Trim Kits .....	252
Manifold Zone Valves .....	236	Thermostatic Radiator Valves and Actuators .....	253
Differential Pressure Regulators.....	238	Commercial Hydronic Products—Air Eliminator .....	266
Air Vents and Eliminators .....	239	Commercial Hydronic Products—Expansion Tanks.....	267
Backflow Preventers.....	247		
<b>Water Controls</b>			
Thermostatic Mixing Valves.....	269	Float Valves.....	284
Pressure Regulating Valves .....	276	Commercial Mixing Valves .....	285
Water Sediment Filters .....	280		
<b>Building Automation</b>			
Excel 5000 .....	287	Spyder Controllers.....	328
WEBS-AX System.....	299	Building Automation Appliances.....	330
WEBS-AX Security System.....	313	Light Commercial Building Systems.....	332
WEBS R2 System .....	325	Legacy Building Systems .....	342

# Table of Contents

## Commercial Components

Pressure Controllers .....	347	Proportional Thermostats .....	510
Refrigeration Controllers .....	348	Programmable Commercial Thermostats .....	512
Sail Switches .....	350	InfraRed Thermostat Interface (IR-TIM) .....	521
Temperature Controllers .....	351	Communicating Programmable Thermostats .....	522
Commercial Round Dampers .....	371	WebStat Controller .....	523
Direct Coupled Actuators .....	373	Commercial Thermostat Resources .....	524
Direct Coupled Actuator Accessories .....	409	Timers .....	525
Economizer Controllers .....	418	Pressure-regulated Control Valves .....	526
Economizer Controllers and Logic Modules .....	419	Control Ball Valves .....	545
Economizer Logic Modules .....	419	Butterfly Control Valves .....	585
Economizer Damper Actuators .....	424	Flanged Globe Valves .....	629
Economizer Sensors .....	426	Threaded Globe Valves .....	636
Modutrol IV™ Motors .....	428	Globe Valves Accessories and Replacement Parts .....	640
Modutrol IV™ Motor Accessories .....	447	Double-Seated Globe Valves .....	647
Kit Mounted Motors .....	453	Cage Valves .....	648
Kit Mounted Motor Accessories .....	455	Cartridge Globe Valves .....	649
Damper and Valve Linkages .....	456	Cartridge Cage Valves .....	655
Carbon Dioxide (CO2) Sensors .....	461	Cartridge Cage Valve and Actuator Assemblies .....	661
Current Switches .....	463	Cartridge Cage Valve Accessories .....	664
Current Transmitters .....	465	Fan Coil Valves .....	665
Dew Point Sensors .....	466	Direct Coupled Valve Actuators .....	667
Humidity Sensors .....	467	Cartridge Globe Valve Actuator .....	673
Pressure Sensors .....	471	VC Valve Actuators .....	675
Temperature Sensors .....	473	Fan Coil Actuators .....	679
Submeters .....	493	SmartVFD COMPACT .....	681
Fan Coil Thermostats .....	500	SmartVFD HVAC .....	683
Wireless Occupancy Solutions .....	504	Variable Frequency Drives .....	689
Line Volt Thermostats .....	506		

## Pneumatic Controls

Pneumatic Humidistats .....	707	Pneumatic Relays .....	745
Pneumatic Thermostats .....	710	Pneumatic Switches .....	756
Pneumatic Transducer .....	727	Pneumatic Damper Actuators .....	763
Pneumatic Velocity Sensor/Controller .....	728	Pneumatic Valve Actuators .....	777
Pneumatic Temperature Controllers .....	730	Pneumatic Valves .....	782
Pneumatic Pressure Controllers .....	734	Pneumatic Gauges and Accessories .....	800
Pneumatic Humidity Sensors .....	741	Definitions and Abbreviations .....	806
Pneumatic Temperature Sensors .....	742		

## Commercial/Industrial Combustion

Flame Safeguard Systems .....	809	Firing Rate Motors .....	893
Microprocessor Burner Controls .....	828	Butterfly Valve Linkages .....	894
SOLA™ Controllers .....	857	Diaphragm Gas Valves .....	895
SOLA™ Displays .....	858	Butterfly Gas Valves .....	903
ControlLinks® Fuel Air Control System .....	861	Gas Valve Actuators .....	905
Delphi Combustion System .....	867	Pilot Gas Valves .....	918
Advanced Burner Controls .....	869	Solenoid Gas Valves .....	919
Network Communications Interface .....	871	Pressure Switches .....	923
Flame Amplifiers .....	872	Pressure and Limit Controllers .....	927
Flame Rods and Flame Rod Holders .....	875	Modernization and Replacement .....	936
Flame Detectors .....	877	Electromechanical Burner Controls .....	939
Pilot Burners .....	886	Reset Temperature Controllers .....	943
Commercial Hydronic Controllers .....	890	Testers and Demonstrators .....	946
Ignition Transformers .....	891	Flame Safeguard Legacy Parts .....	950

## Training Materials

Training Booklets .....	951	FSG Textbook .....	957
Programmed Instruction Books .....	953	Reference Manuals .....	958
Service Publications .....	954	Lab Trainers .....	960
Classroom Training .....	955	Ordering Information .....	961

# Model Number Index

<b>Numerics</b>			C7076.....95-8269.....882	Excel 50.....74-3030.....292
121371A.....68-0040.....201	C7089.....69-2055EFS.....15	Excel 800.....63-1326.....290	<b>F</b>	
123514A.....65-0093.....947	C7089R.....69-2055EFS.....32		F100F.....68-0239EF.....57	
198162.....63-2230.....449	C7100.....60-2521.....479		F170.....284	
2001.....62-86-25-10.....867	C7130.....63-2044.....480		F200.....68-0238EF.....59	
203659.....65-0093.....947	C7150.....63-2072.....426		F300.....68-0240EF.....61	
220736.....63-2228.....448	C7170.....63-2045.....480		F500.....68-0263.....69	
40003916.....69-0404.....233	C7189U.....69-1710EFS.....15		F52.....68-0074.....66	
50014064-001.....521	C7232.....63-2571.....461		F74C.....62-3061.....280	
50017460.....62-0233.....448	C7400A.....63-1143.....426		F76.....62-3015.....281	
50021579-001.....62-0265.....485	C7400C.....63-1143.....426		FC100.....68-3062.....57, 59	
50022037-001.....69-2043EFS.....47	C7600A,C.....63-2418.....467		FC100A.....62-3062.....72	
50035430.....62-0296.....472	C7600B.....63-2166.....467		FC200E.....72	
51452354.....62-86-33-48.....868	C7632.....63-2615.....427		FC200SB.....246	
99-4218-14-07.....870	C7660.....63-2670EF.....427		FC20R.....73	
<b>A</b>			C7735.....69-1521.....33	
A7184.....176	C7770A.....95-7557.....481		FC2200A.....72	
A7800.....65-0110.....946	C7772.....68-0213.....481		FC2400A.....72	
ABC900A,B.....63-9751.....869	C7835.....69-1463.....48		FC40R.....68-3062.....73	
AM-1 Series.....62-3075EFS.....269	C7915.....65-0292.....883		FF06.....62-3060.....282	
AM100C1070.....62-3098.....270	C7927.....60-2026.....883		FM450.....62-3087.....248	
AM100R.....62-3106.....270	C7961.....65-0267.....884		FM911.....62-3087.....248	
AM100-RP.....62-3105.....271	C7962.....65-0277.....885		FPC.....68-0232.....49	
AMX Series.....62-3074.....272	C8600.....69-1513EF.....98		FSP1535.....95-6910.....948	
AMX300.....62-3113.....273	CARE.....74-5587.....288		FSP5004.....60-0219.....948	
AP400.....243	CLEPAS.....77-2070.....756		FSP5075A1.....95-8271.....942	
AP5027.....69-1581.....140	CP980.....75-7270.....728		FSP5075A3.....95-8271.....942	
AP5210.....69-1581.....140	CP980C,D,E,F.....75-7270.....729		FV147.....243	
AQ1000TN2.....69-2005EF.....212	CR7890.....65-0259.....828		FV180.....62-3086.....242	
AQ1000TP2.....69-2005EF.....213	CSP-C.....63-2650,63-2651.....463		FV183.....62-3086.....242	
AQ12.....211	CSP-O.....63-2650,63-2651.....463			
AQ150.....69-1983.....210	CSS-C.....63-2650,63-2651.....463		<b>G</b>	
AQ151.....69-1983.....210	CSS-O.....63-2650,63-2651.....463		GS.....249	
AQ152.....69-1983.....210	<b>D</b>			GT.....249
AQ1554.....210	D05T.....62-3021.....276		<b>H</b>	
AQ1574.....210	D146.....62-3019.....238		H46C,E.....69-1000EF.....87	
AQ15A.....69-1983.....210	D690.....63-2577.....371		H46D.....95-6171.....87	
AQ250.....69-1982.....203	DG115.....69-2072.....80		H600.....60-2089.....87	
AQ251.....69-1974.....205	DH150.....68-0301.....78		H7012.....74-1868.....468	
AQ252.....69-1986.....207	DM7600.....63-2237.....372		H7015B.....63-2583.....468	
AQ254.....69-1987.....208	DP1025.....69-0874.....143		H7018A.....63-2660.....466	
AQ255.....69-1981.....209	DP1030.....69-0874.....143		H705.....63-2144.....419	
AQ257.....69-1981.....209	DP2020.....69-0874.....144		H7625.....63-1305.....469	
AQ25A.....69-2119.....204	DP2030.....69-0874.....144, 147		H7635.....63-1305.....469	
ARD.....68-0260.....50	DP2040.....69-0874.....144		H7655.....63-2166.....469	
AT120.....68-0054.....163	DP3030.....69-0875.....145		H8908.....69-1341EF.....88	
AT140.....68-0054.....163, 219	DP3040.....69-0875.....145		HE225.....68-0244.....81	
AT140.....69-0251.....55	DP3050.....69-0875.....145		HE265.....68-0244.....81	
AT150A,B.....68-0054.....163	DP3060.....69-0875.....145		HE365.....68-0243.....84	
AT150F.....69-1014.....165	DP3075.....69-0875.....146		HM506.....69-2285EFS.....79	
AT175A.....69-1014.....163	DP3A.....145		HM509.....69-2285EFS.....79	
AT175F.....69-1014.....165	DP3AUX.....69-0875.....147		HM512.....69-2285EFS.....79	
AT20.....60-2254.....166	DP4040.....69-0881.....146		HP970.....77-9832.....707	
AT40.....60-2254.....166	DR65.....69-2089EFS.....78		HP971.....77-9833.....741	
AT72.....60-2254.....167	DR90.....69-2407EFS.....78		HP972.....75-7195.....708	
AT87.....60-2254.....168	DR-SEC-BAC.....319		HR150.....68-0171.....94	
AT88.....60-2254.....169	DR-SEC-LON.....319		HR200.....68-0171.....94	
<b>B</b>			DS05.....62-3041.....277	
BP700.....62-3089.....247	DS06.....62-3052.....278		HV190.....242	
BP900.....62-3088.....247	DSP3452.....947		HVC.....69-2316EFS.....96	
<b>C</b>			DSP3548.....947	
C437.....68-0286.....923, 924	DSP3564.....947		HVFDCD.....62-0312.....681	
C554.....60-2148.....176	DSP3822.....947		HVFDSB.....63-4520.....684	
C6097.....65-0237.....925	DSP3956.....947		HVFSD.....63-4520.....683	
C7005.....60-2033.....886	<b>E</b>			HZ221.....69-2200.....46
C7007.....60-2024.....875	EA122A.....62-3038.....240, 241		HZ221K.....69-2200.....46	
C7008.....60-2024.....875	EA79.....62-3034.....239		HZ311.....69-2069EFS.....46	
C7009.....60-2024.....875	EARD.....68-0266.....50		HZ311K.....69-2069EFS.....46	
C7012.....60-2398.....877	EC7810.....66-2040.....829		HZ322.....69-2199.....41	
C7015.....60-2306.....883	EC7820.....66-2040.....829		HZ322K.....69-2199.....41	
C7024.....65-0156.....878	EC7823.....66-2031.....833		HZ432.....69-2198.....40	
C7027.....60-2026.....879	EC7830.....66-2041.....830		HZ432K.....69-2198.....40	
C7031.....63-2590.....473	EC7850.....66-2041.....830		<b>I</b>	
C7035.....60-2026.....880	EC7885.....66-2035.....840		IO-16-H.....95-7756.....305	
C7041.....63-2590.....475	EC7890.....66-2032.....843		IO-34-H.....95-7753.....305	
C7044.....60-2026.....879	EC7895.....65-0205.....844		<b>L</b>	
C7046.....60-2350.....479	ER150.....68-0171.....92		L4006.....60-2104.....187	
C7061.....65-0223.....881	ER200.....68-0171.....92		L4008.....60-2104.....189	
	Excel 100.....95-2035.....292		L4029.....60-2263.....179	









## Numerics

7800 SERIES 809—856  
 Accessories 856  
 Flame Amplifiers 872—873  
 Flame Switch 833  
 Integrated 828  
 Keyboard Display 853  
 Primary Controls 829  
 Manual Start 840  
   with Purge 835  
 On-Off 834, 843  
 PLC Adaptable 841  
   with VSP  
     On-Off 842  
 Programmers 831, 838  
 Manual Start 836  
   with VPS 832, 839  
     Manual Start 837  
 Programming Controls 830  
 Purge Timers 856  
 Replacement Parts 856  
 Testers 946  
 7800 SERIES Relay Module 828—856  
 Subbase 850

## A

### Accessories

7800 SERIES 856  
 Air Vents 241  
 AQ2000 Series 211  
 AQUATROL 211  
 Butterfly Control Valves 628  
 Butterfly Gas Valves 903  
 Cartridge Cage Valves 664  
 Commercial Hydronic Controllers 890  
 Commercial Mixing Valves 286  
 Commercial Thermostats 521  
 Commercial/Industrial Flame Detectors 885  
 ControlLinks Fuel Air Control System 866  
 ControlLinks Fuel Air Control System Actuator 865  
 Damper and Valve Linkages 456  
 Damper Linkages 457  
 Delphi Combustion System 868  
 Diaphragm Gas Valves 902  
 Direct Coupled Damper Actuators 410—417  
 Direct Coupled Valve Actuators 672  
 Economizer Damper Actuators 425  
 Electromechanical Burner Controls 941  
 EnviraZONE 47  
 Excel 5000 295—298  
 Fan and Limit Controllers 186  
 Fan Coil Thermostats 503  
 Flame Amplifiers 874  
 Flame Rod Detectors 876  
 Fluid Actuators 911  
 Gas Ignition Modules 137  
 Globe Valves 640—646  
 Ignition Transformers 892  
 Kit Mounted Motors 455  
 Line Volt Thermostats 509  
 LonWork Bus 294  
 Magnetic Valves 177  
 Manifold Zone Valves 237  
 Modutrol IV Motors 447—452  
 Network Communications Interface 871  
 Pilot Burners  
   Commercial/Industrial 889  
   Residential 131  
 Pneumatic 800—805  
 Pneumatic Humidistats 709  
 Pneumatic Pressure Controllers 740  
 Pneumatic Relays 755  
 Pneumatic Temperature Controllers 733  
 Pneumatic Temperature Sensors 744  
 Pneumatic Thermostats 722—724  
 Pneumatic Valve Actuators 781  
 Pneumatic Valves 797  
 Pneumatic Velocity Sensor/Controller 729  
 Pressure and Limit Controllers 935  
 Proportional Thermostats 510  
 Relays 152, 157  
 Remote Bulb Controllers 369  
 Remote Temperature Controllers 370  
 Residential Gas Controls 123—124

Residential Ventilation 94  
 Sail Switch 97  
 Single and Multi-function Aquastats 200  
 SmartVFD Compact 682  
 SOLA Controllers 860  
 Spyder Controllers 329  
 Temperature Sensors 474, 478  
 Thermocouple and Thermopile 126  
 Thermostatic Radiator Valve Operators 265  
 Thermostatic Radiator Valves 260, 261  
 TrueDRY 78  
 TrueSTEAM 79  
 V5011 and V5013 641  
 Valve Linkages 458  
 Variable Frequency Drives 706  
 Velocitrol 729  
 Water Sediment Filters 283  
 WEBS-AX Controllers 305  
 Zone Dampers 55  
**Actuators**  
 Cartridge Cage Valve Assemblies 661—663  
   Three-way 662—663  
   Two-way 661—662  
 Cartridge Cage Valves 675—678  
 Fail-Safe Proportional 678  
 Proportional 677  
 Two-position 675  
 Cartridge Globe Valves 673—674  
 ControlLinks Fuel Air Control System 864, 865  
   Accessories 865  
**Dampers** 341  
 Direct Coupled 373—417  
   Accessories 410—417  
   Fire and Smoke 403—408  
   Non-Spring Return 389—402  
   Spring Return 373—388  
 Economizer 424—425  
   Accessories 425  
**Electric**  
 100 lb-in. torque 387  
 175 lb-in. torque 382, 399, 407  
 27 lb-in. torque 373  
 30 lb-in. torque 403  
 300 lb-in. torque 401  
 35 lb-in. torque 389  
 40 lb-in. torque 385  
 44 lb-in. torque 376, 395  
 70 lb-in. torque 392  
 80 lb-in. torque 405  
 88 lb-in. torque 379, 397  
 Direct Coupled 373—417  
   Direct Drive 388  
   Fire and Smoke 403—408  
   Non-Spring Return 389—402  
   Spring Return 373—388  
**Pneumatic** 763—776  
   Accessories 774  
   large dampers 771, 773  
   medium-size dampers 767, 771  
   Replacement Parts 774  
   small dampers 765, 767  
   Torque Ratings 763  
   unit ventilator 764  
   variable volume 765, 767, 770  
**Zoning** 55  
 Delphi Combustion System 867  
**Direct Coupled**  
   Interface Modules 409  
 Fan Coil Valves 679—680  
 Fluid Power 905—911  
   Accessories 911  
   Modulating 910  
   Off/Lo/Hi 909  
   On/Off 906  
   Pressure Ratings 905  
 Gas Valves 905—917  
   Safety Shut-off 908  
 Manifold Zone Valves 237  
 Radiator Valve Operators 262—265  
   Accessories 265  
   High Capacity 264—265  
   Replacement Parts 265  
   Standard Capacity 262—263  
 Residential Heating 220—222  
 Rotary Actuator 221

Thermostatic Radiator Valves  
 Mixing and Diverting 253  
**Valves**  
 Direct Coupled 667—672  
   Accessories 672  
   Linear 670, 671  
   Non-Spring Return 667—668  
   Spring Return 669  
 Pneumatic 777—781  
   Accessories 781  
   Coil Valves 778  
   Low force 780  
   Replacement Parts 781

### Adapter

Wireless 31, 42  
 Advanced Burner Controls 869—870  
 Oxygen Sensor 870

### Air Cleaners

Electronic 61—68  
 HEPA 69  
 Media 57—60  
 Residential 57—77  
 AIRWATCH Indicator 77  
 Filters 71—75  
   Perfect Fit 75  
   POPUP 71  
   Return Grille 73  
 Replacement Parts 76—77

### Air Eliminators

Commercial 266  
 Heating and Cooling systems 246  
 Hydronic heating systems 244, 245  
 SuperVent 244  
 Universal 245  
 Vent top 246

### Air Pressure Switch 140

Pneumatic 756

### Air Purger 243, 252

### Air Vents

Accessories and Replacement Parts 241  
 GoldTop 242  
 Heating and Cooling Systems 243  
 Heating Systems 240  
 Hot water or Steam 242  
 Industrial 239  
 MaxiVent 243  
 Potable water systems 241  
 Service Check Valves 250  
 Universal 242

### Air Vents and Eliminators 239—246

### Airstat Fan Safety Cutoff Controller 185

AIRWATCH Indicator 57, 59, 77

### Alarms

Carbon Monoxide 98

### AM-1 Series 269—271

Pressure Drop Chart 269  
 Replacement Parts 271

### AMX Series 272—274

Replacement Parts 273

### AMX300 Series 273

Approval agencies xviii

### AQ2000 Series

Accessories 211  
 Replacement Control Modules 210  
 Replacement Parts 211  
 Replacement Zoning Modules 210

### Aquastat Controllers 187—200

Accessories 200  
 Electronic 198  
 High Limit 190, 192, 194, 199  
 Immersion 187, 189, 190, 191, 194, 196, 199  
 Low Limit 192, 194, 199  
 Remote Bulb 189  
 Replacement Parts 200

### Aquastats 187—200

Replacement Parts 201

### AQUATROL 203—213

Accessories 211  
 Boiler Control 203  
 Boiler Reset Control 205, 207  
 Expansion Panel 208, 209  
 Programmable Relay 204  
 Replacement Control Modules 210  
 Replacement Parts 211  
 Replacement Zoning Modules 210  
 Sensors 211

# Subject Index

- Atmospheric Vent for Heating Systems 247
- Automatic Round Dampers 50
  - Modulating 51
- Auxiliary Potentiometer 449
- Auxiliary Switches 147
- B**
- Backflow Preventers 247, 252
- Backwash Controls 283
- Ball Valves
  - Control 545–584
- Bathroom Fan 80, 96
- Boiler Fill Valves 248, 252
- Building Automation Appliances 330–331
- Burner Controls 828–847, 869–870
  - Flame Switch 833
  - Integrated 828
  - Keyboard Display 853
  - meets European Community timings 829, 830
  - Oxygen Sensor 870
  - Primary Controls 834, 835, 840, 842, 843
    - PLC Adaptable 841
  - Programmers 831, 836, 838
    - with VPS 832, 839
    - Manual Start 837
  - Subbase 850
  - With VPS 853
- Butterfly Gas Valves 903–904
  - Linkages 894
- Butterfly Valves 585–628
  - Accessories 628
  - Three-way 604–628
  - Two-way 586–603
- C**
- Cad Cell Tester 175
- Cadmium Sulfide Flame Detectors 176
- Cage Valves 648
- Canadian Standards Association xviii
- Carbon Dioxide Sensors 462
- Carbon Monoxide Alarm 98
- CARE 288
- Cartridge Balancing Tool 260
- Cartridge Cage Valve Actuators 675–678
  - Fail-Safe Proportional 678
  - Proportional 677
  - Two-position 675
- Cartridge Cage Valves 222, 655–664
  - Accessories 664
  - Assemblies with Actuators 661–663
  - Replacement Cartridges 664
  - Three-way 662–663
  - Two-way 661–662
- Cartridge Changing Tool 261
- Cartridge Globe Valve Actuators 673–674
- Cartridge Globe Valves 649–654
  - Replacement Parts 654
- CE Mark xviii
- Central Heating 222
- CO2 462
- Combination Gas Controls 99–124
  - Accessories 123–124
  - Continuous Pilot 101–103
  - Direct Ignition 107–109
  - Intermittent Pilot 104–106
  - Line Voltage 99
  - Low Voltage 99
  - Millivoltage 111
  - Pressure Regulator 100
  - Replacement Parts 123–124
  - SmartValves 114–122
  - Universal Electronic Ignition 110
- Combustion Analyzer
  - ControlLinks Fuel Air Control System 866
- Commercial Control Valves 526–666
- Commercial Mixing Valves 285
  - Accessories 286
  - Replacement Parts 286
- Commercial Programmable Thermostat 487
- Commercial Thermostats 500–524
  - Cross Reference 512–513
  - Programmable 512–523
    - Accessories 521
    - Communicating 523
  - Resources 524
- Commercial/Industrial Pilot Burners 886–889
  - Accessories 889
  - Replacement Parts 889
- CommercialPRO 10, 516
- Communicating Thermostats 34–36, 522
  - Hydronic 212
- Compact I/O 293
- Constant Volume Air Handling Unit 337
- Contactors 142–151
  - Auxiliary Switches 147
  - Definite Purpose 142–151
  - Economy 147–151
    - Two pole 147
  - Electric Heat 148
    - Selection Guide 151
  - Four pole 146
  - Order Number Guide 142
  - PowerPro
    - Four pole 146
    - Single pole 143
    - Three pole 145
    - Two pole 144
  - Selection Guide 149
  - Single pole 143
  - Three pole 145
  - Two pole 144, 147, 148
- Control Panel 47
- ControlLinks Fuel Air Control System
  - Accessories 866
  - Actuator 864, 865
    - Accessories 865
  - Combustion Analyzer 866
  - Controller 861, 862
  - Demonstrator 947
  - Software 866
  - System Display 863
  - Wiring Subbase 863
- Controllers
  - Aquastats 187–200
    - Electronic 198
    - High Limit 190, 192, 194, 196, 199
    - Immersion 187, 189, 190, 191, 194, 196, 199
    - Low Limit 192, 194, 199
    - Remote Bulb 189
  - beverage coolers 348
  - Combination High Limit 190
  - Commercial Hydronic 890
    - Accessories 890
  - ControlLinks Fuel Air Control System 861, 862
  - CVAHU 337
  - Discharge Air Temperature 344
  - Discharge Water Temperature 345
  - Economizers 419
  - Enthalpy, Solid State 419
  - Excel 100 292
  - Excel 15 335–336
    - Command Display 336
  - Excel 50 292
  - Excel 800 290
  - Fan and Limit 179–186
    - Airstat Safety Cutoff 185
    - Forced air heating systems 180, 186
    - High Limit 179
  - Fan Coil 339
  - Farm 355
  - for T7530 Thermostat 523
  - freezers 349
  - High Limit 192, 194, 196, 351
  - Humidity 80, 87–88
    - Residential 87–88
  - Hydronic 341
  - Immersion 191, 194, 196
  - Indoor Air Quality 80
  - Limit 344
  - Low Limit 192, 194
  - Pressure 347
  - Pressure and Limits
    - Pressuretrol® 927–930
  - Pressuretrol
    - Residential 178
  - Refrigeration 348–350
  - Remote Bulb 189
  - SOLA 857–859
    - Accessories 860
    - Keyboard Display 858
- Operator Interface 859, 860
- Program Module 860
- Replacement Parts 860
- Spyder 328–329
- Temperature 351–370, 943–945
  - Agricultural 351, 352, 355, 356, 360
  - Changeover 361
  - Electronic 363–365
    - Cross Reference 364
  - Line voltage 354, 356
  - Outdoor Reset 944
  - Proportional 366–368, 945
  - Remote 362, 363–365
  - Remote Bulb 357–359, 366–368, 944
  - Replacement Parts 201
  - Return Air 353
  - Solid State 362
  - Temperature Sensors 363–365
  - Type definition xvii
  - Unit Vent 340
  - VAV 338, 341
  - WEBS R2 System 325
  - WEBS-AX 306–309
  - WEBS-AX Security 317
  - WEBS-AX Suite 304–305
    - Accessories 305
  - WebStat 331
  - WebVision 331
- Controls
  - Pneumatic 707–808
    - Differential Pressure 736
    - Pressure 734–740
    - Static Pressure Regulator 737
    - Static Pressure Sensor 738
- Conversion factors xxi
- Conversion of pressure units xx
- Cool Blue Bypass 695–706
- Cover Assemblies
  - Pneumatic Humidistats 709
  - Pneumatic Thermostats 726
- Cross Reference
  - Commercial Thermostats 512–513
  - CP980 729
  - Electric Heat Sequencer 160
  - Interface Module 452
  - Oil Primaries 171
  - Q3200 Igniter Bracket Replacement 138
  - R8845U Replacement 216
  - RA889A Replacement 218
  - Temperature Controllers 364
  - Thermostatic Radiator Valves 258
  - Velocity Sensor Controller 729
  - ZonePRO® 511
- Current Sensors 496
- Current Switches 463–465
- Current Transmitters 465
- D**
- Damper Actuators 373–417
  - Accessories Compatibility Chart 410
- Enclosures
  - Conduit Connection 417
  - NEMA 4 417
  - Weather 417
- Pneumatic 763–776
  - Accessories 774
  - large dampers 771, 773
  - medium-size dampers 767, 771
  - Replacement Parts 774
  - small dampers 765, 767
  - Torque Ratings 763
  - unit ventilator 764
  - variable volume 765, 767, 770
- Residential 55
- Spring Return 55
- Damper Linkages 456–460
- Modutrol Motors 457
- Damper Motors
  - Kit Mounted 453–455
    - Accessories 455
    - Replacement Parts 455
  - Two-position 454
- Dampers
  - Actuators 372
  - Interface Module 48
  - Residential

- Fresh Air 50
  - Modulating 51
  - Rectangular 52, 53
  - Retrofit 51
  - Round 50, 51, 52
  - Square 53
  - Static Pressure Regulating 52
    - Parts 52
  - Round
    - Commercial 371—372
    - Low leakage 371
    - Residential 50, 51, 52
  - Zone
    - Commercial 372
    - Residential 50—54
  - Definite Purpose Contractors 142—151
    - Auxiliary Switches 147
    - Four pole 146
    - Single pole 143
    - Three pole 145
    - Two pole 144, 147
  - Definitions
    - Pneumatic 806—808
  - Dehumidification 80
  - Dehumidification Systems
    - True DRY 78
  - Dehumidistats 88
  - Delphi Combustion System 867—868
    - Accessories 868
    - Efficiency Panel 867
    - Herculine Actuator 867
    - Replacement Parts 868
  - Dew Point Sensors 466
  - Differential Pressure Regulators 238
  - Differential Pressure Switch
    - Pneumatic 740
  - Diffuser Thermostat 721
  - Digital Fan Coil Thermostats 503
  - Digital Temperature Indicator 345
  - Direct Coupled Actuators 373—417
    - 100 lb-in. torque 387
    - 175 lb-in. torque 382, 399, 407
    - 27 lb-in. torque 373
    - 30 lb-in. torque 403
    - 300 lb-in. torque 401
    - 35 lb-in. torque 389
    - 40 lb-in. torque 385
    - 44 lb-in. torque 376, 395
    - 70 lb-in. torque 392
    - 80 lb-in. torque 405
    - 88 lb-in. torque 379, 397
  - Direct Drive 388
  - Fire and Smoke 403—408
  - HVAC 373—402
  - Direct Ignition 139
  - Direct Spark Ignition Module 132, 133
  - DirectConnect Mixing Valves 272—274
    - Replacement Parts 273
    - Valves and Kits 273
  - Discharge Air Temperature Controller 344
  - Discharge Air Temperature Sensor 40, 41, 48
  - Discharge Water Temperature Controller 345
  - Displays
    - ControLinks Fuel Air Control System 863
    - SOLA 858—860
    - WEBS-AX 310
  - Distributed I/O 291
  - Distributors
    - 7800 Series xxv
    - Authorized Distributors xxv
    - Authorized Systems xxv
    - Combustion Solutions xxv
    - Commercial Controls xxv
    - ControLinks™ xxv
  - Double-Seated Globe Valves 647
  - Drives
    - Variable Frequency 681—706
      - SmartVFD BYPASS 683—688
      - SmartVFD COMPACT 681—682
      - SmartVFD HVAC 683—684
- E**
- Economizer Logic Modules
    - Interface Modules 409
  - Economizer Motors
    - Linkages 456
  - Economizer Systems Quick Selection Guide 418
  - Economizers 418—427
    - Controllers
      - Enthalpy, Solid State 419
    - Damper Actuators 424—425
      - Accessories 425
    - Enclosures, Terminal 425
    - Logic Modules 419—423
    - Sensors 426—427
  - Electric Furnace 148
  - Electric Heat
    - Relays 155, 156
    - Sequencer 156
  - Electric Heat Contactor 148
    - Selection Guide 151
  - Electric Heat Sequencer
    - Cross Reference 160
    - Selection Guide 159
  - Electric Heat Thermostats 1—5
    - Economy 3
    - High Performance 5
    - Non-Programmable 2
    - Programmable 1, 2
  - Electrical usage in multi-family, commercial and industrial applications 493, 494
  - Electromechanical Burner Controls 939—942
    - Accessories 941
    - Flame Amplifier Modules 942
    - Wiring Subbase 942
  - Electronic Air Cleaner
    - Filters 65
  - Electronic Air Cleaners 61—68
    - Replacement Parts 64
    - Return Grille 66
      - Replacement Parts 68
  - Electronic Fan Timers 141
  - Electronic-Pneumatic Transducer 727
  - Enclosures
    - Conduit Connection 417
      - dust-proof 356
    - Explosion proof 448, 877, 878, 881
    - NEMA 1 409, 828
    - NEMA 3R 924
    - NEMA 4 356, 417, 828, 905
    - NEMA Standards xx
    - Relays 157
    - Replacement for AQ2000 211
    - Terminal 425
    - Thermostats 38—39
    - watertight 356
    - Weather 417
    - Weatherproof 924
  - Energy Management Timers 525
  - Energy Recovery Ventilation Systems 92
    - Replacement Parts 93
  - EnviraCOM
    - Serial Adapter 48
  - EnviraZONE 47, 48
    - Accessories 47
  - EnviraZONE Panels and Kits 47
  - Excel 10 487
  - Excel 100 Controllers 292
  - Excel 15 Controllers 335—336
    - Command Display 336
  - Excel 50 Controllers 292
  - Excel 5000 287—298
    - Accessories 294, 295—298
    - CARE 288
    - Compact I/O 293
    - Excel 100 Controllers 292
    - Excel 50 Controllers 292
    - Excel 800 Controllers 290
    - Excel Distributed I/O 291
    - Smart I/O 293
  - Excel 5000 System 481, 488
  - Excel 800 Controllers 290
  - Expansion Tanks
    - Boiler Trim Kit with Air Purger 252
    - Boiler Trim Kit with SuperVent 252
    - Commercial 267—268
    - Heating systems 251
    - Potable hot water systems 250
    - Residential 250—252
    - Service Check Valves 250
    - Sizing 251, 267
- F**
- Factory Mutual xviii
  - Fan and Limit Controllers 179—186
    - Accessories 186
    - Airstat Fan Safety Cutoff 185
    - Forced air heating systems 180, 186
    - High Limit Controller 179
  - Fan Centers 161—162
    - Control Center 161
    - Selection Guide 162
  - Fan Coil Actuators 679—680
  - Fan Coil Thermostats 500—503, 517
    - Accessories 503
    - Digital 503
    - Replacement Parts 502
  - Fan Coil Unit Controllers 339
  - Fan Coil Valves 665—666
  - Fan Manager 157
  - Fan Relays 154
  - Fan Timers 141
  - Farm Controllers 355
  - Fast response temperature controllers 366, 367
  - Filters
    - Humidifier 86
    - Residential Air Cleaners 71—75
      - Perfect Fit 75
      - POPUP 71
      - Return Grille 73
    - Water Sediment 280—283
      - Accessories 283
      - Exploded View 282
      - High Capacity 281
      - Replacement Parts 283
      - Reverse Rinsing Filters 280
      - Rinseable 282
  - Firing Rate Gas Valve Parts 903
  - Firing Rate Motors 893
  - Flame Amplifier Modules 942
  - Flame Amplifiers
    - 7800 SERIES 872—873
      - Accessories 874
      - Solid State 873, 874
  - Flame Detectors
    - Cadmium Sulfide 176
    - Commercial/Industrial 877—885
      - Accessories 885
      - Replacement Parts 885
    - Infrared 883
    - Lead Sulfide 883
    - Pyrostat 174
    - Residential 176
    - Self-Check 884
    - Solid State 882, 883, 884
    - Solid State Electronic 877, 878
    - Ultraviolet 828, 877, 878
      - Adjustable sensitivity 882
      - Compact 879, 880
      - Dynamic Self-check 881, 882, 884
      - Solid State 883, 884
      - Visible light 885
  - Flame Quality Monitor 175
    - Portable Tester/Analyzer 175
  - Flame Rectifier Pilots 886, 887
    - Miniature 888
  - Flame Rod Holders 875—876
  - Flame Rods 130, 875—876
    - Accessories 876
  - Flame Safeguard Systems
    - Product Selection Matrix 810—827
  - Flame Sensors 139
  - Flame Simulator Tester 949
  - Flame Simulators 947
  - Flame Switch 833
  - Float Valves 284
    - Floats 284
    - Polystyrene 284
    - Replacement Parts 284
    - Stainless Steel 284
  - FlowCheck Valves 246
  - Fluid Power Actuators 905—911
    - Accessories 911
    - Modulating 910
    - Off/Lo/Hi 909
    - On/Off 906
    - Valve-Actuator Pressure Ratings 905

# Subject Index

- FocusPRO 13, 17, 29, 42
  - Communicating 35
  - Wireless 30, 31, 43
- Foot Mounted Motors 428–452
  - Accessories 447–452
  - Dimensions 433, 435
  - Enclosures
    - Explosion-proof Housing 448
  - Floating 434
    - Slaving Applications 436, 437
  - Linear feedback 438
  - Low voltage 432
  - Series 3 Motors 443, 445, 446
- Forced air heating systems
  - Fan and Limit Controllers 180, 186
- Freeze Warning 24
- Fresh Air Ventilation 96
  - Bath Fan Control 96
  - HVAC 96
  - Perfect Window 94
  - Exploded View 95
- Furnace
  - Electric 148, 156
  - Oil 141
- G**
- Gas capacity ratings xx
- Gas Valve Actuators
  - Safety Shut-off 908
- Gas Valves 99–124
  - Accessories 123–124
  - Butterfly 903–904
  - Continuous Pilot 101–103
  - Diaphragm 895–902
    - Accessories 902
    - High Temperature 896
    - On/Off 897
    - Pressure Regulating 898, 900
    - Replacement Parts 902
    - Single Stage 898
    - Two Stage 900
  - Direct Ignition 107–109
  - Industrial 905–918
    - Safety Shut-off 912
  - Intermittent Pilot 104–106
  - Line Voltage 99
  - Low Voltage 99
  - Millivoltage 111
  - Pressure Regulator 100
  - Replacement Parts 123–124
  - SmartValves 114–122
  - Universal Electronic Ignition 110
- Gas Valve Actuators 905–917
- Gas/Air Pressure Switches 923, 924
- Gauges
  - Pneumatic 800
  - Temperature 249
  - Temperature/Pressure 249
- Globe Valves 629–646
  - Accessories 640–646
  - Double-Seated 647
  - Flanged 629–632, 633–635
  - Replacement Parts 640–646
  - Threaded 636–638, 639
  - Three-way 633–635, 639
  - Two-way 629–632, 636–638
- Glowfly™ 139
- GoldTop™ 242
- Gravity Check Valves 246
- Guards
  - Thermostats 38–39
- H**
- Heat Sequencers 152
- Heavy Duty Relays 153, 154
- HEPA Air Cleaners
  - Replacement Part 70
  - Whole House 69
- High Limit Controller 190
- High Pressure 791
- Honeywell Authorized Distributors xxv
- Horsepower ratings xix
- Hot Surface Ignition Module 133, 134
- Humidification 80
- Humidification System 79
- Humidifiers 79–88
  - Bypass Flow-through 81
    - Exploded View 83
  - Fan Flow-through 84
    - Exploded View 85
  - Filters 86
  - Replacement Pads 86
  - Replacement Parts 83, 85, 86
- Humidistsats 88
  - Pneumatic 707–709
    - Accessories 709
    - Cover Assemblies 709
- Humidity Controllers 87–88
  - Residential 87–88
- Humidity Sensors 467–470
  - Pneumatic 741
  - Room Temperature 468
  - Temperature Transmitters 469
- Humidity Transducers 468
- Hydronic Controllers
  - Commercial 341, 857, 890
    - Accessories 890
- Hydronic Heating
  - Control 192, 194
  - Transformer 219
- Hydronic Heating Systems 199, 215, 217, 220–221, 240
- Hydronic Switching Relays 214–218
  - Cross Reference 216, 218
  - Universal 215
- Hydronic Thermostats 1
  - Non-programmable 212
  - Programmable 213
- Hydronic Zoning System 203–213
  - Accessories 211
  - Boiler Control 203
  - Boiler Reset Control 205, 207
  - Expansion Panel 208, 209
  - Programmable Relay 204
  - Replacement Control Modules 210
  - Replacement Parts 211
  - Replacement Zoning Modules 210
  - Sensors 211
- Hygrovent 242
- I**
- I/O Modules 291, 293, 298
- Igniter Bracket Replacement Cross Reference 138
- Igniter Kit
  - Universal Hot Surface Igniter 139
- Igniter-Burner 130
- Igniters and Sensors 139
- Ignition Pilot Modules 132–136
  - Accessories 137
  - Direct Spark Ignition 132, 133
  - Hot Surface Ignition 133
  - Selection Guide 136
  - Universal Hot Surface Ignition 134
  - Universal Intermittent Pilot 134, 135
- Ignition Systems
  - Retrofit 135
- Ignition Transformers 891, 892
  - Accessories 892
- Ignitor Pilots
  - Commercial 891
- Industrial Gas Valves 905–918
  - Safety Shut-off 912
- Infrared Flame Detectors 883
- Integrated Valve Train 904, 915, 920, 921
  - Pipe Adapters 917
- Integration Nodes 499
- Interface Modules 452
  - Cross Reference 452
  - Direct Coupled Actuators 409
  - Wireless 31
- Intermittent Pilot Ignition System 135
- Intermittent Pilot Module 134
- Internal Auxiliary Switch 448, 450
- Internal Transformers 448, 449
- International Approval Services xviii
- IR-TIM 521
- ISO 9001 xvi
  - Registered Facilities xvi
- K**
- Keyboard Displays
  - 7800 SERIES 853
  - SOLA 858
- Kit Mounted Motors
  - Damper 453–455
- L**
- Lead Sulfide Flame Detectors 883
- Legacy Building Systems 342–346
  - Load Analyzer 343
  - Logic Panel 346
  - Potentiometer 346
  - Switching Subbase 342
  - Thermostats 342, 343
- Light Commercial Building Systems 332–341
- Limit Controller 344
- Line Volt Thermostats 506–509
  - Accessories 509
  - Heavy Duty 507, 508
  - Light Duty 506
  - Medium Duty 506
  - Replacement Parts 509
  - Subbase 509
- Line voltage Pressure Controllers 934
- Line voltage Zone Valves 223, 225
- LineVoltPRO Thermostats 1–2
- Linkages
  - Damper 456
    - Accessories 457
  - Damper and Valve 456–460
    - Accessories 456
  - Economizer Motors 456
  - Globe Valve 459, 460
  - Valve 458, 460
    - 459
    - Accessories 458
- Load Analyzer 343
- Logic Panel 346
- LON
  - Compact I/O 293
- LonSpec 333
- LonStation 333
- LonWorks Bus
  - Accessories 294
- Low voltage Zone Valves 226, 228, 230, 231, 232
- M**
- Magnetic Valves 177
  - Accessories 177
- Manifold Zone Valves 236–237
  - Accessories 237
  - Pre-assembled 237
- Manual Potentiometer 449, 451
- MaxiVent™ 243
- Media Air Cleaners 57–60
- Meters
  - Networked Power 497
- Microprocessor Burner Controls 828–856
  - Flame Switch 833
  - Integrated 828
  - Keyboard Display 853
  - Primary Controls 829, 834, 835, 840, 842, 843
    - PLC Adaptable 841
  - Programmable 831, 836, 838
    - With VPS 832, 839
    - Manual Start 837
  - Programming Controls 830
  - Subbase 850
- Milk cooling tanks 348
- Millivolt Gas Valves 111
- Mixing Valves
  - Commercial 285
    - Accessories 286
    - Replacement Parts 286
  - Residential 269–275
    - Replacement Parts 271
  - Thermostatic 269–275
    - DirectConnect 272–274
      - Replacement Parts 273
      - Valves and Kits 273
    - Installation 274
    - Replacement Parts 271
    - Undersink 275



- Modernization
  - Fireye 936
- Modernization and Replacement
  - Flame Safeguard 936–938
- Modules
  - Economizer Logic 419–423
  - Outdoor Reset 200
  - WEBS-AX Security 318
- Modutrol IV Motors 893
  - Dimensions 433, 435
  - Order Number Guide 431
  - Series 2 and Series 3 Motors 428–452
- Series 2 Motors
  - Accessories 447–452
  - Floating 434
    - Slaving Applications 436, 437
  - Linear feedback 438
  - Low voltage 432
- Series 3 Motors 443, 445, 446
- Modutrol IV Series
  - Auxiliary Potentiometer 449
  - Interface Modules 452
  - Internal Auxiliary Switch 448, 450
  - Internal Transformers 448, 449
  - Manual Potentiometer 449, 451
- Modutrol Motor
  - Damper Linkages 457
  - Valve Linkages 458
- Motorized Zone Valves
  - Built-in balancing 234–235
  - Line voltage 223–225
- Motors
  - Action xvii
  - Firing Rate 893
  - Foot Mounted 428–452
  - Modutrol 893
- Multi-function Aquastats 187–200
- MultiPRO 11, 517
- MX Series 285
  - Accessories 286
  - Replacement Parts 286
- N**
- NEMA Standard xx
- NEMA Standard Transformer 166, 167, 168
- Network Communications Interface 871
  - Accessories 871
  - Data Acquisition Module 871
  - ModBus Gateway 871
- Network Interface 334
- Networked Power Meters 497
- Non-programmable Thermostats 16–23, 34
  - 12 VDC or 750 mV 21
  - Communicating 212
  - Economy 21–22
  - Hydronic 212
  - Single-stage 22, 23
- O**
- Occupancy
  - Wireless 504–505
- Oil burner Valves 177
- Oil fired burners 172
- Oil Furnace 141
- Oil Primaries 171–174
  - Cross Reference 171
  - Intermittent ignition 173, 174
  - Interrupted Electronic 172
  - Protectorelay 173, 174
  - stack-mounted 174
- Operator Interface, SOLA
  - Local 860
  - System 859
- Optical Flame Detectors
  - Accessories 885
  - Replacement Parts 885
- Order Number Guide xvii
  - Contactors 142
  - Modutrol IV Motor 431
- Outdoor Reset Module 200
- Outdoor Sensors 211
- Outdoor Temperature Reset 198
- Oxygen Sensor
  - High Temperature 870
- P**
- Parts and Accessories
  - V5011 and V5013 641
- Perfect Fit Replacement Media Filters 75
- Pilot Burners
  - Combination 130
  - Commercial/Industrial 886–889
    - Accessories 889
    - Replacement Parts 889
  - Insert orifice-type 128
  - Residential 128–131
    - Accessories 131
    - Flame Rod Assemblies 130
    - Replacement Parts 131
  - Spud orifice-type 129
- Pilot Gas Valves 918
- Pilot Modules 132–136
  - Accessories 137
  - Direct Spark Ignition 132, 133
  - Hot Surface Ignition 133
  - Universal Hot Surface Ignition 134
  - Universal Intermittent Pilot 134, 135
- Pilotstat safety control 128, 129
- Pneumatic Abbreviations 806–808
- Pneumatic Controls 707–808
  - Accessories 800–805
  - Damper Actuators 763–776
    - Accessories 774
    - large dampers 771, 773
    - medium-size dampers 767, 771
    - Replacement Parts 774
    - small dampers 765, 767
    - Torque Ratings 763
    - unit ventilator 764
    - variable volume 765, 767, 770
  - Definitions and Abbreviations 806–808
  - Differential Pressure Controllers 736
  - Differential Pressure Switch 740
  - Gauges 800
  - Humidity Sensor 741
  - Pressure Controllers 734–740
    - Accessories 740
    - Replacement Parts 740
  - Pressure Reducing Valves 734
  - Pressure Regulator 737
  - Pressure Sensor 738
  - Relays 745–755
    - Accessories 755
    - Averaging 754
    - Capacity 751
    - Electric/Pneumatic 745
    - Hesitation 755
    - Load Analyzer 749
    - Potentiometer 750
    - Ratio Relay 752
    - Replacement parts 755
    - Reversing 753
    - Selector Relay 746
    - Snap-Acting 747
    - Switching 748
  - Sensor 741–744
  - Switches 756–762
  - Temperature 730, 731
    - Accessories 733
    - Replacement Parts 733
  - Temperature Sensor 742–744
    - Accessories 744
    - One-pipe 742, 743, 744
    - Two-pipe 744
- Thermostats
  - Covers 726
- Valve Actuators 777–781
  - Accessories 781
  - Coil Valves 778
  - Low force 780
  - Replacement Parts 781
- Velocity Sensor/Controller 728
  - Accessories 729
  - Replacement Parts 729
- Pneumatic Cross Reference 729
- Pneumatic Damper Actuators 763–776
  - Accessories 774
  - large dampers 771, 773
  - medium-size dampers 767, 771
  - Replacement Parts 774
  - small dampers 765, 767
- Torque Ratings 763
- unit ventilator 764
- variable volume 765, 767, 770
- Pneumatic Fittings 802–805
- Pneumatic Humidistats 707–709
  - Accessories 709
  - Cover Assemblies 709
- Pneumatic Pressure Controls
  - Differential Pressure Switch 740
  - One-pipe 739
- Pneumatic Switches
  - Air Pressure 756
  - Diverting 760
  - Manual 761
  - Minimum Position 761
  - SP970 Operation 762
- Pneumatic Thermostats 710–726
  - Accessories 722–724
  - Convertstat Kit 715, 717, 719, 721
  - Cover Assemblies 726
  - Day/Night 716
  - Diffuser 721
  - Heating/Cooling 718
  - Insertion 710
  - Low Capacity 720
  - Modernization Kit 715, 717, 719, 721
  - One-pipe 710, 713, 720, 721
  - Remote Bulb 711
  - Replacement Parts 725
  - Three-pipe 716
  - Tradeline Kit 715, 717, 719, 721
  - Two-pipe 711, 713, 714, 716, 718, 720
- Pneumatic Valve Actuators 777–781
  - Accessories 781
  - Coil Valves 778
  - Low force 780
  - Replacement Parts 781
- Pneumatic Valves 782–796
  - Accessories 797
  - Radiator Valves 789
  - Replacement Parts 798–799
  - Terminal Unit Valves 795
  - Three-way 787
    - High Pressure 791
  - Three-way Air 786
  - Unit Vent 782
    - Close-off rating 783
  - Water Valve 784
    - Sequencing 787
  - Water Valves 791, 793
- Pneumatic/Electric Switches 757, 758
- POPUP Replacement Media Filters 71
- Portable Comfort Control 32
- Potable water systems 222, 241, 247, 250, 269–286
- Potentiometer 346, 451
  - Pneumatic 750
- PowerPro 142–146
- Prepurge 844
- Prepurge Timers 856, 941
- Pressure and Limit Controllers 927–935
  - Accessories 935
  - Pressuretrol® 927–930
  - Proportional 932
  - Vaporstat® 931
- Pressure Controllers 347
  - Line voltage 934
  - Pneumatic 734–740
    - Accessories 740
    - Differential 736
    - One-pipe 739
    - Replacement Parts 740
    - Static Pressure Regulator 737
    - Static Pressure Sensor 738
  - Residential 178
- Pressure Gauges 249
- Pressure Reducing Valves
  - Pneumatic 734
- Pressure Regulating Valves 276–279
  - "DialSet" 277, 278
  - Accessories 279
  - Compact Design 276
  - Gas 898, 900
  - Repair Parts 279
- Pressure Regulators 100
  - Differential 238

# Subject Index

- Pressure Sensors 471—472
  - Gauge 472
  - Wet Differential 472
- Pressure Switches 923—926
  - Differential Air 140
  - Gas/Air 923, 924
  - Positive pressure 925
- Pressure-regulated Control Valves 526—544
  - female-NPT 526—542
  - Wafer flange 543—544
- Pressuretrol 736
- Pressuretrol® 927—930
- Prestige™ Comfort System 6, 25
- Primary Controls 937, 939
  - Accessories 941
  - Manual Start 840
    - with Purge 835
    - meets European Community timing 829
  - On/off with Prepurge 938
  - On-Off 834, 843
  - PLC Adaptable 841
  - Protorelay™ 940, 941
  - Tester 948
    - with Purge 939
    - with VSP
      - On-Off 842
- Primary Relay Modules 809
- PRO 1000 19
- PRO 2000 14
- PRO 3000 18
- PRO 4000 14
- Product Date Code xix
- Product Selection Matrix for Flame Safeguard Systems 810—827
- Program Module
  - SOLA Controllers 860
- Programmable Thermostats 6—14
  - 7-Day 1, 34
  - Commercial 512—523
    - Accessories 521
    - Communicating 523
    - Hydronic 213
- Programmer Relay Modules 809
- Programmings 831, 838
  - Manual Start 836
  - with VPS 832, 839
  - Manual Start 837
- Programming Controls
  - meets European Community timing 830
- Properties of saturated steam xxiv
- Proportional Thermostats 510—511
  - Accessories 510
  - Modulating/Floating Control 511
  - ZonePRO 511
- Protorelay® 173, 174, 199
- Purge Timers 856, 939, 941
- Pyrostat® 174
- Q**
- QuickFit® Zone Valves 226
- R**
- R8845U Replacement Cross Reference 216
- RA889A Replacement Cross Reference 218
- Radiator Valves
  - Pneumatic 789
  - Pressure Regulators 238
- Radiators
  - Residential 222
- RapidZone 334
- RedLINK™ 25—32
- RedLINK™ enabled 6, 12, 16
- Refrigeration and air conditioning equipment
  - Relays 153, 154
- Refrigeration Controllers 348—350
- Relay Modules 809, 828—847
  - Flame Switch 833
  - Integrated 828
  - Plug In Purge Timers 856
  - Primary Controls 829, 834, 835, 840, 842, 843
    - PLC Adaptable 841
  - Programmings 831, 836, 838
    - with VPS 832, 839
    - Manual Start 837
- Relays 152—160
  - Accessories 152, 157
  - Case and Cover Assembly 157
  - Electric Furnace Sequencer 156
  - Electric Heat 155, 156
  - Fan 154
  - Fan Manager 157
  - General purpose 153, 154
  - Heat Sequencers 152
  - Heavy Duty Switching 153, 154
  - Hydronic Switching 214—218
    - Universal 215
  - Installation 152
  - Plate-mounted Receptable 152
  - Pneumatic 745—755
    - Accessories 755
    - Averaging 754
    - Capacity 751
    - Electric/Pneumatic 745
    - Hesitation 755
    - Load Analyzer 749
    - Potentiometer 750
    - Ratio Relay 752
    - Replacement parts 755
    - Reversing 753
    - Selector Relay 746
    - Snap-Acting 747
    - Switching 748
  - Selection Guide 158
- Remote Bulb
  - Controllers 189
    - Accessories 369
    - Parts 370
  - Temperature Controllers 361
    - Pneumatic 370
    - Thermostats 711
- Remote Bulb Temperature Controllers 357—359, 366—368
- Remote Control
  - Temperature 32
- Remote Input/Output Device
  - Controllers
    - Remote I/O 340
- Remote Temperature Controller Accessories 370
- Replacement Cartridges
  - Cartridge Cage Valves 664
- Replacement Control Modules
  - AQUATROL 210
- Replacement Heads
  - Zone Valves 233
- Replacement Parts
  - 7800 SERIES 856
  - Air Vents 241
  - AQ2000 Series 211
  - Aquastats 200, 201
  - AQUATROL 211
  - Cartridge Globe Valves 654
  - Commercial Mixing Valves 286
  - Commercial/Industrial Flame Detectors 885
  - Delphi Combustion System 868
  - Diaphragm Gas Valves 902
  - DirectConnect Mixing Valves 273
  - Electronic Air Cleaners 64
  - Energy Recovery Ventilation Systems 93
  - Fan Coil Thermostats 502
  - Float Valves 284
  - Globe Valves 640—646
  - HEPA Air Cleaner 70
  - Kit Mounted Motors 455
  - Line Volt Thermostats 509
  - Perfect Window System 95
  - Pilot Burners
    - Commercial/Industrial 889
    - Residential 131
  - Pneumatic Pressure Controllers 740
  - Pneumatic Relays 755
  - Pneumatic Temperature Controllers 733
  - Pneumatic Thermostats 725
  - Pneumatic Valve Actuators 781
  - Pneumatic Valves 798—799
  - Pneumatic Velocity Sensor/Controller 729
  - Remote Bulb Controllers 370
  - Residential Air Cleaners 76—77
  - Residential Gas Controls 123—124
- Residential Humidifiers 83, 85, 86
- Residential Ventilation 94
- Return Grille Electronic Air Cleaners 68
- SOLA Controllers 860
- Solenoid Gas Valves 921
- Static Pressure Regulating Dampers 52
- Temperature Controllers 201
- Temperature Sensors 474, 489
- Thermostatic Mixing Valves 271
- Thermostatic Radiator Valve Operators 265
- Thermostatic Radiator Valves 253
- UV Air Treatment Systems 91
- Water Sediment Filters 283
- Zone Valves 232
- Replacement Zoning Modules
  - AQUATROL 210
- Residential Air Cleaners 57—77
  - AIRWATCH Indicator 77
  - Filters 71—75
    - Perfect Fit 75
    - POPUP 71
    - Return Grille 73
  - Replacement Parts 76—77
- Residential Air Quality Control 80
- Residential Gas Controls
  - Selection Guide 112, 121
    - Ignition Pilot Modules 136
    - Thermopiles and Thermocouples 127
- Residential Heating Valves and Actuators 220—222
  - Rotary Actuator 221
- Residential Humidification 79—88
  - Bypass Flow-through 81
  - Fan Flow-through 84
  - Filters 86
  - Replacement Pads 86
  - Replacement Parts 83, 85, 86
- Residential Pilot Burners 128—131
  - Accessories 131
  - Combination 130
  - Flame Rod Assemblies 130
  - Insert orifice-type 128
  - Replacement Parts 131
  - Spud orifice-type 129
- Residential Valves
  - Float 284
    - Polystyrene 284
    - Stainless Steel 284
  - Heating 220—222
  - Zone 223—237
- Residential Ventilation
  - Accessories 94
  - Replacement Parts 94
- Residential Zoning 40—55
  - Kits 40, 41
- Retrofit Dampers 51
- Retrofit Ignition Systems 135
- Return Air Duct 97
- Return Grille
  - Electronic Air Cleaners 66
  - Media Filters 73
- Rotary Valves 220
- Round Dampers
  - Commercial 371—372
  - Low leakage 371
  - Zone 372
- S**
- Sail Switch 97
  - Accessories 97
- Sail Switches 350
- Selection Guide
  - Contactors 149
  - Economizer Systems 418
  - Electric Heat Contractors 151
  - Electric Heat Sequencer 159
  - Fan Center 162
  - Ignition Pilot Modules 136
  - Relays 158
  - Residential Gas Valves 112
  - SmartValve™ 121
  - Thermopiles and Thermocouples 127
  - Transformers 170
- Selection Matrix
  - Flame Safeguard Systems 809—827

- Sensors 462
  - Current 496
  - Dew Point 466
  - Differential Pressure 472
  - Economizers 426—427
  - Enthalpy 426
  - Flame Rectification 139
  - Humidity 467—470
    - Pneumatic 741
  - Humidity and Temperature 468, 469
  - Mixed Air 426
  - Outdoor 211
    - Residential 47
    - Wireless 27
  - Oxygen
    - Burner Controls 870
  - Pipe 211
  - Pneumatic 741—744
    - Humidity 741
    - Replacement Parts 744
    - Static Pressure 738
    - Temperature 742—744
      - Accessories 744
  - Pneumatic Velocity Sensor/Controller 728
  - Pressure 471—472
  - Replacement Parts
    - Pneumatic 744
  - Residential 27, 32, 33, 48
  - Return Air 33
  - Slab/Floor 211
  - Temperature 473—492
    - 20K ohm NTC 475
      - Accessories 474, 478
      - Averaging 479
      - Discharge Air 40, 41, 48, 479
      - Duct 479, 481
      - Electronic 473, 485
      - Flush Mount 481
      - Immersion 480
      - Indoor 15
      - Outdoor 15
      - Pneumatic 742—744
        - Accessories 744
        - One-pipe 742, 743, 744
        - Two-pipe 744
      - Remote 482, 483
      - Replacement Parts 474, 489
      - Residential 15, 32
      - Return Air 482
      - Selectable 427
      - Wall Module 484, 487—489
        - Temperature and Humidity 492
      - Wall Mount 480
        - Temperature Wireless 32
  - Service Check Valves 250
  - Single Function Aquastats 187—200
  - Single-Seated Cage Valves 648
  - Slab/Floor Sensors 211
  - Slaving applications motors 436, 437
  - Smart I/O 293
  - SmartValve
    - Selection Guide 121
  - SmartValves 114—122
  - SmartVFD COMPACT 681—682
    - Accessories 682
  - SmartVFD HVAC 683—688
  - SmartVFD HVAC BYPASS 684—688
  - Software
    - ControlLinks 866
    - Light Commercial Buildings 333—334
    - SymmetrE 288
    - WEBS R2 327
    - WEBS-AX Platform 311
    - WEBS-AX Security Enterprise 315—316
    - WEBS-AX System 300
  - SOLA Controllers 857—859
    - Accessories 860
    - Keyboard Display 858
    - Operator Interface 859, 860
    - Program Module 860
    - Replacement Parts 860
  - SOLA Displays 858—860
  - Solenoid Gas Valves 919—922
    - Normally Open 921
    - replacement Parts 921
    - Safety Shut-off 920
  - Spark Generator
    - Commercial 892
  - Spark Igniter 139
  - Spyder Controllers 328—329, 488
    - Accessories 329
  - Standalone Controller 363—365
  - Static Pressure Regulating Dampers 52
    - Parts 52
  - Steam heating boilers 178
  - Steam Thermostatic Radiator Valves 259
  - Steam valve selection xxii
  - Steam Valves 230
  - Subbase
    - ControlLinks Fuel Air Control System 863
    - Electromechanical Burner Controls 942
    - Line Volt Thermostats 509
    - Switching 342
  - Subbases
    - 7800 SERIES 850
    - S7830 Expanded Annunciator 850
  - Submeters 493—499
  - SuperVent® 244, 252, 266
    - Universal 245
    - Vent top 246
  - Supply/Return/Mixed Loop Pipe Sensor 211
  - Switches
    - Current 463—465
    - Pneumatic 756—762
      - Diverting 760
      - Manual 761
      - Minimum Position 761
      - SP970 Operation 762
    - Pneumatic/Electric 757, 758
    - Pressure 923—926
      - Gas/Air 923, 924
      - Positive pressure 925
    - Sail 97
  - Switching Relays
    - Hydronic 214—218
      - Cross Reference 216, 218
      - Universal 215
  - Sylk™ 492
  - SymmetrE Building Management System 288
  - Systems
    - Forced Air 172
    - Hydronic 172
    - Hydronic Heating 199, 215, 217, 219, 220—221, 240
    - Hydronic Zoning 203—213
    - Oil burner 173, 174
    - UV Air Treatment 89—91
    - Ventilation 94
- T**
- Tandem DCA Linkages 460
- Temperature Control
  - Remote 32
  - storage tanks 187, 189
- Temperature Controllers 351—370
  - Accessories 370
  - Agricultural 351, 352, 355, 356, 360
  - Air or water 361, 366, 367
  - Changeover 361
  - Electronic 363—365
    - Cross Reference 364
  - High Limit 351
  - Line voltage 353, 354, 356
  - Outdoor Reset 944
  - Pneumatic 731
    - Accessories 733
    - Remote Bulb 730
    - Replacement Parts 733
  - Proportional 366—368, 945
  - Refrigeration 348—350
  - Remote 362, 363—365
  - Remote Bulb 357—359, 366—368, 944
    - Accessories 369
    - Parts 370
  - Replacement Parts 201
  - Reset 943—945
  - Solid State 362
- Temperature Gauges 249
- Temperature Indicator
  - Digital 345
- Temperature Sensors 473—492
  - 20K ohm NTC 475
    - Accessories 474, 478
    - Averaging 479
    - Digital
      - Excel 5000 System 484
    - Discharge Air 479
    - Duct 479, 481
    - Electronic 473, 485
    - Flush Mount 481
    - Immersion 480
    - Indoor 15
    - Outdoor 15, 32
    - Pneumatic 742—744
      - Accessories 744
      - One-pipe 742, 743, 744
      - Two-pipe 744
    - Remote 482, 483
    - Replacement Parts 474, 489
    - Residential 15
    - Return Air 482
    - Wall Module 484, 487—489
      - Temperature and Humidity 492
    - Wall Mount 480
      - Wireless 25, 491
        - Receivers 491
        - Wireless Kits 490
  - Terminal Unit Valves 795
    - Valve Actuators
      - Pneumatic 780
- Testers
  - Cad Cell 176
- Testers and Demonstrators
  - 946—949
  - 7800 SERIES 946
  - ControlLinks 947
  - Flame Safeguard Trainer 947
- The Round® Thermostat 20
- Thermocouples 125—127
  - Accessories 126
  - Selection Guide 127
  - Universal 125
- Thermometers 249
- Thermopiles 125—127
  - Accessories 126
  - Replacement 125
  - Selection Guide 127
- Thermostat Guards 38—39
- Thermostatic Mixing Valves 269—275
  - DirectConnect 272—274
    - Replacement Parts 273
  - Installation 274
  - Replacement Parts 271
  - Undersink 275
    - Valves and Kits 273
- Thermostatic Radiator Valves
  - Accessories 260, 261
  - Cartridge Changing Tool 261
  - Cross Reference 258
  - High Capacity 254—255
  - Mixing and Diverting 253
    - Replacement Parts 253
  - Standard Capacity 256—257
  - Steam 259
- Thermostatic Radiator Valves Actuators
  - High Capacity 264—265
  - Mixing and Diverting 253
  - Standard Capacity 262—263
- Thermostatic Radiator Valves and Actuators 253—265
- Thermostats 482, 483
  - 12 VDC or 750 mV 21
  - Commercial 500—524
    - Resources 524
  - Communicating 34—36, 522
  - Cross Reference 512—513
  - Economy
    - Electric Heat 3
  - Electric Heat 1—5
    - Non-Programmable 2
    - Programmable 1, 2
  - Electronic Dual Setpoint 343
  - Fan Coil 500—503, 517
    - Accessories 503
    - Digital 503
    - Replacement Parts 502

# Subject Index

- FocusPRO 29, 35, 42
- High Performance
  - Electric Heat 5
- Hydronic 1
- Line Volt 506—509
  - Accessories 509
  - Heavy Duty 507, 508
  - Light Duty 506
  - Medium Duty 506
  - Replacement Parts 509
  - Subbase 509
- LineVoltPRO 1—2
- Non-programmable 16—23, 30, 34, 43
  - Economy 21—22
  - Hydronic 212
  - Single-stage 22, 23
- Pneumatic 710—726
  - Accessories 722—724
  - Convertastat Kit 715, 717, 719, 721
  - Cover Assemblies 726
  - Covers 726
  - Day/Night 716
  - Diffuser 721
  - Heating/Cooling 718
  - Insertion 710
  - Low Capacity 720
  - Modernization Kit 715, 717, 719, 721
  - One-pipe 710, 713, 720, 721
  - Remote Bulb 711
  - Replacement Parts 725
  - Three-pipe 716
  - Tradeline Kit 715, 717, 719, 721
  - Two-pipe 711, 713, 714, 716, 718, 720
- Programmable 6—14, 30, 43
  - 7-Day 1, 34
  - Commercial 512—523
    - Accessories 521
    - Communicating 523
    - Electric Heat 1
    - Hydronic 213
- Proportional 510—511
  - Accessories 510
  - Modulating/Floating Control 511
  - ZonePRO 511
- Remote Bulb
  - Pneumatic 711
- Switching Subbase 342
- The Round® 20
- Thermostat and transmitter 342
- VisionPRO 34
- Wireless 25—30, 42, 43
  - Outdoor Sensor 27
- Wireless System Kits 12, 16
- TIM 521
- Timers
  - Energy Management 525
  - Fan 141
  - Prepurge 856, 941
  - Purge 939, 941
- Torque Ratings 763
- Transducer
  - Electronic-Pneumatic 727
- Transducers
  - Humidity 468
- Transformers 40, 41, 163—170
  - 19 VA 166
  - 24 V 55
  - 40 VA 167
  - 48 VA 168
  - 50 VA 165
  - 75 VA 163, 165, 169
  - Circuit Breaker 165
  - General Purpose 163
  - Hydronic Heating 219
  - Ignition 892
    - Accessories 892
  - NEMA Standard 166, 167, 168
  - Selection Guide 170
  - Solid State Ignition 891
  - Solid State Spark Generator 892
  - Universal 166
- Transmitters
  - Current 465
  - Differential Pressure 471
  - Humidity and Temperature 469
- TrueDRY 31, 42, 78
  - Accessories 78
- TrueIAQ 80
- TrueSTEAM 31, 42, 79
  - Accessories 79
- TrueZONE 30, 40—46, 53
- U**
- Ultraviolet Air Treatment Systems 89—91
  - Replacement Lamps 91
- Ultraviolet Flame Detectors 828, 877, 878
  - Adjustable sensitivity 882
  - Compact 879, 880
  - Dynamic Self-check 881, 882, 884
  - Self-Check 884
  - Solid State 883, 884
- UMV Series 275
- Undersink Mixing Valves 275
- Underwriters Laboratories Inc xviii
  - of Canada xviii
- Unit Vent Controllers 340
- V**
- Valve Actuators
  - Pneumatic 777—781
    - Accessories 781
    - Coil Valves 778
    - Low force 780
    - Replacement Parts 781
    - Terminal Unit Valves 780
- Valve Linkages 456—460
  - Accessories 458
  - Butterfly Valves 894
  - Modutrol Motors 458, 894
  - Tandem 460
- Valve Proving System (VPS) 832, 837, 839, 842, 847, 853
- Valves
  - Accessories for V5011, V5013 641
  - Actuators
    - Direct Coupled 667—672
      - Accessories 672
      - Linear 670, 671
      - Non-Spring Return 667—668
      - Spring Return 669
  - Boiler Fill 248
  - Butterfly
    - Gas/Air 903—904
    - Replacement Parts 903
  - Cage 648
  - Cartridge Cage 222, 655—664
    - Accessories 664
    - Actuators 675—678
      - Fail-Safe Proportional 678
      - Proportional 677
      - Two-position 675
    - Assemblies with Actuators 661—663
    - Replacement Cartridges 664
  - Cartridge Globe 649—654
    - Actuators 673—674
    - Replacement Parts 654
  - Commercial Control 526—666
  - Control Ball 545—584
  - Control Butterfly 585—628
    - Accessories 628
  - Diaphragm Gas 895—902
    - Accessories 902
    - High Temperature 896
    - On/Off 897
    - Pressure Regulating 898, 900
    - Replacement Parts 902
    - Single Stage 898
    - Two Stage 900
  - Diverting
    - Zone Valves 232
  - Double-Seated Globe Valves 647
  - Fan Coil 665—666
  - Fan Coil Actuators 679—680
  - Flanged Globe 629—635
  - Float
    - Replacement Parts 284
  - FlowCheck 246
  - Gas 99—124
    - Continuous Pilot 101—103
    - Direct Ignition 107—109
    - Intermittent Pilot 104—106
    - Line Voltage 99
    - Low Voltage 99
    - Millivoltage 111
    - Pressure Regulators 100
    - SmartValves 114—122
    - Universal Electronic Ignition 110
- Globe
  - Accessories 640—646
  - Double-Seated 647
  - Replacement Parts 640—646
- Gravity Check 246
- Industrial Gas 905—918
  - Safety Shut-off 912
- Magnetic 177
  - Accessories 177
- Mixing 269—275
- Mixing and Diverting 285
  - Accessories 286
  - Replacement Parts 286
- Oil burner 177
- Pilot Gas 918
- Pneumatic 782—796
  - Radiator Valves 789
  - Terminal Units 795
  - Three-way
    - High Pressure 791
    - Water Valve 787
  - Three-way Air 786
  - Unit Vent 782
    - Close-off rating 783
  - Water Valve 784
    - Sequencing 787
  - Water Valves 793
    - High Pressure 791
- Pressure regulated control 526—544
  - female-NPT 526—542
  - Wafer flange 543—544
- Pressure Regulating 276—279
  - "DialSet" 277, 278
  - Accessories 279
  - Compact Design 276
  - Repair Parts 279
- QuickFit® 226
- Rebuilt Kits 641—646
- Residential Float 284
  - Polystyrene 284
  - Stainless Steel 284
- Residential Gas 99—124
  - Accessories 123—124
  - Replacement Parts 123—124
  - Selection Guide 112
- Residential Heating 220—222
- Rotary 220
  - Actuators 221
- Service Check 250
- Solenoid Gas 919—922
  - Normally Open 921
  - Replacement Parts 921
  - Safety Shut-off 920
- Steam
  - Zone 230
- Terminal Unit
  - Actuators 780
- Thermostatic Radiator 253—265
  - Accessories 260
  - Cartridge Changing Tool 261
  - Cross Reference 258
  - High Capacity 254—255
  - Mixing and Diverting 253
  - Replacement Parts 253
  - Standard Capacity 256—257
  - Steam 259
- Threaded Globe 636—639
- Three-way
  - Cartridge Cage 658—660, 664
  - Cartridge Cage Assemblies 662—663
  - Cartridge Globe 652—654
  - Control Butterfly 604—628
  - Diverting Zone valves 225
  - Fan Coil 666
  - Flanged Control Ball 550—553
  - Globe 633—635, 639
  - Pneumatic Air 786
  - Threaded Control Ball 576—584
  - Zone valves 232

- Two-way
    - Cartridge Cage 655–657, 664
    - Cartridge Cage Assemblies 661–662
    - Cartridge Globe 649–651
    - Control Butterfly 586–603
    - Fan Coil 665
    - Flanged Control Ball 546–549
    - Globe 629–632, 636–638
    - Pressure regulated control 526–544
    - Threaded Control Ball 554–575
    - Zone valves 223, 226, 228, 230, 231
  - Water and Stream 526–666
  - Zone 223–237
    - Built-in balancing 234–235
    - Line voltage 223–225
    - Low voltage 226, 228, 230, 231, 232
    - Radiant Manifold 236–237
      - Accessories 237
      - Actuator 237
      - Pre-assembled 237
    - Replacement Heads 233
    - Replacement Parts 232
  - Vaporstat® Controller 931
  - Variable Air Volume Controllers 338, 341
  - Variable Frequency Drives 681–706
    - Accessories 706
    - SmartVFD BYPASS 683–688
    - SmartVFD COMPACT 681–682
    - SmartVFD HVAC 683–684
    - with Bypass 684–688
    - Cool Blue 695–706
  - Velocitrol 728
    - Accessories 729
  - Velocity Sensor/Controller
    - Accessories 729
    - Pneumatic 728
    - Replacement Parts 729
  - Ventilation 96
    - Bath Fan Control 96
    - Fresh Air 94, 96
    - HVAC 96
    - Perfect Window 94
      - Replacement Parts 95
  - Ventilation Systems
    - Energy Recovery 92
    - Replacement Parts 93
  - Versaguard 38–39
  - Visible light Flame Detectors 885
  - VisionPRO 8–9
    - Commercial 8, 515
    - IAQ 34
    - Residential 9
  - VisionPRO IAQ 7
  - Voltmeter 949
- W**
- Water Heaters 191
    - oil-fired 190
  - Water Sediment Filters 280–283
    - Accessories 283
    - Backwash Control 283
    - Exploded View 282
    - High Capacity 281
    - Replacement Parts 283
    - Reverse Rinsing Filters 280
    - Rinseable 282
  - WEBS R2 System 325–327
    - Controllers 325
  - WEBS-AX
    - Controllers 306–309
    - Displays 310
  - WEBS-AX Security 313–324
    - Compact Security Solution 319
    - Controllers 317
    - Enclosures and Power Supplies 324
    - Modules 318
    - Readers and Keypads 321–322
    - Request to Exit Devices 323
  - WEBS-AX Suite
    - Controllers 304–305
    - Accessories 305
  - WEBS-AX System 299–312
    - Architecture 299
    - Software Platform 300
  - WebStat® Controller 331, 523
  - WebVision Controller 331
  - Well Assemblies 201
  - Whole house air quality 57, 59, 61, 69
  - Whole house humidification 81, 84
  - Winter Watchman 24
  - Wireless 25
    - Adapter 31, 42
    - Adapter Kits 29, 42
  - Interface Module 31
  - Temperature Control 32
  - Temperature Sensors 32
  - Thermostats 42, 43
  - Wall Sensor Kits 490
  - Wall Sensors 491
    - Receivers 491
  - Wireless Occupancy Solution 504–505
  - Wireless Systems 25–28
    - Kits 12, 16
    - Outdoor Sensor 27
- Z**
- Zone Dampers 50–54
    - Accessories 55
    - Actuators 55, 454
    - Commercial 372
  - Zone Valves 223–237
    - Built-in balancing 234–235
    - Dimensions 224
    - Line voltage 223–225
    - Low voltage 226, 228, 230, 231, 232
    - Radiant Manifold 236–237
      - Actuator 237
      - Pre-assembled 237
    - Replacement Heads 233
    - Replacement Parts 232
  - ZonePRO® 511
    - Cross Reference 511
  - Zoning Adapter Kits
    - Wireless 29, 42
  - Zoning Panels and Kits 40–48
  - Zoning Systems 40–48, 50, 52, 53
    - Damper Interface Module 48
    - Hydronic 203–213
      - Accessories 211
      - Boiler Control 203
      - Boiler Reset Control 205, 207
      - Expansion Panel 208, 209
      - Programmable Relay 204
      - Replacement Control Modules 210
      - Replacement Parts 211
      - Replacement Zoning Modules 210
      - Sensors 211
    - Sensor Interface Module 47



# ISO 9001

## Honeywell Environmental and Combustion Controls Maintains ISO 9001:2008 Registration

### What is ISO?

ISO is the International Organization for Standardization. ISO standards used to apply only to manufacturing, but now can be applied to many types of businesses. This promotes a common standard for accessing systems worldwide.

### What does ISO 9001 registration involve?

ISO 9001 is part of the ISO 9000 family. Registration is evidence that a Quality Management System has been put in place to verify that customer requirements are being identified and met. This means that an Organization has demonstrated the capability to define, document, and control the processes that define the product or service being supplied. Continuous improvement is assured through the preventive and corrective actions that result from a comprehensive system of Internal Audits and Agency (3<sup>rd</sup> party) Audits.

Registration focuses on the concept of companies using a process approach to quality management. ISO requires that companies meet some very specific requirements, which include defining the process used and controls for each level of every process, from design, through delivery of the finished product or service. Systems, procedures and documentation are required for all processes.

Each facility must be registered separately since it is the quality management system of each facility that is registered, not the products that are manufactured by the system.

### Characteristics of ISO Compliant Businesses

ISO Management system standards provide the organization with a model to follow in setting up and operating the management system. This model incorporates the features on which experts in the field have reached a consensus as representing the international state of the art. A management system, which follows the model - or "conforms to the standard" - is built on a firm foundation of state-of-the-art practices. It is a well-organized operation with trained and motivated people. It continually rethinks how it runs its business and focuses on meeting and exceeding customer specifications through eliminating non-value-added functions.

It welcomes outside auditors who review its processes and ensure continual improvement against a universally recognized standard of performance.

### What does Honeywell ISO registration offer you?

It offers the confidence and peace of mind that the Honeywell quality system requires production processes that meet highest standards for consistency and control, which translates to consistent product quality.

### Honeywell ISO Registered Facilities

Many of the products described in this catalog are built in ISO registered facilities.

The following facilities are registered under ISO 9001:2008 registered by Quality Management Institute; Certificate # CERT-0038166:

#### ACS ECC – Golden Valley Facility

1985 Douglas Drive North  
Golden Valley, MN 55422-3992  
USA  
File No: 014498

#### Honeywell Limited - Honeywell Limitée Control Products

35 Dynamic Drive  
Scarborough, Ontario M1V 4Z9  
Canada  
File No: 001082

#### Honeywell International ACS ECC (West Coast Operations)

2055 Dublin Drive  
San Diego, CA 92154-8203  
USA  
File No: 014499

#### Honeywell International Manufacturas de Chihuahua S de RL de CV

Avenida Cristobal Colon #11364 Complejo Ind. Chihuahua  
Chihuahua, C.P. 31136  
México  
File No: 014501

#### Honeywell International ACS ECC (Mexhon)

Mexhon S.A. de C.V. Blvd. Insurgentes No. 8503-2  
Tijuana, Baja, CA  
México  
File No: 014504

#### Honeywell International Inc., A Delaware Corporation ACS ECC

304 S. Chicago Avenue  
Freeport, IL 61032  
USA  
File No: 014587

#### Honeywell International Inc., A Delaware Corporation

25 E. Spring Street  
Freeport, IL 61032  
USA  
File No: 014588

#### Honeywell International Manufacturas de Chihuahua S de RL de CV

Ave. Parque Industrial Juárez #3328  
Parque Industrial Juárez  
Juárez, Chihuahua 32630  
México  
File No: 1065696

## Order Specification Number System

### TYPE LETTER V

### TYPE NUMBER 4055

### SUFFIX LETTER A

### OS NUMBER 1007

The type letter is the single letter, or two letter group, which begins the model number. This letter usually indicates the general type of device involved, however, some product model numbers may not follow these designations exactly. If you have questions about a particular product designation, please contact your Honeywell sales representative. A list of type letters used is shown below (some may fit in more than one category):

A	—Testers.
AT	—Transformers.
BC	—Microcomputer burner control system.
C or CS	—Combustion controls; sensors.
D or DM	—Dampers.
DSP	—Demonstrators.
EL	—Lighting controls.
ER	—Energy recovery ventilators.
F	—Electronic air cleaners.
H	—Humidity controls, including combination temperature and humidity controllers.

L, LA or LS	—Limit controllers.
M	—Motors.
P	—Pressure controllers.
PM	—Program modules.
Q	—Accessories.
QS	—Communication interface modules.
R, RA or RW	—Relays.
RM	—Primary controls.
S	—Switches and ignition modules.
ST	—Electronic fan timers.
SV	—Integrated controls.
T, TA or TS	—Thermostats and remote bulb temperature controllers.
TG	—Thermostat guards.
V, VR, VS or VW	—Valves.
W	—Load control panels, accessories.
Y	—Package sets.
ZM	—Software packages.

## Summary of Honeywell Control Series Designations

Series Designation	Controller Type	Controller Action	Relay or Valve Type	Motor Action	Example
Series 20	3-wire, low voltage (2-position)	Makes circuit to start; makes second circuit to stop.	—	Low voltage; rotates 180 to open, continues 180 to close; stops on power interruption.	V2045
Series 40	2 wire, line voltage (2-position)	Makes circuit to start; breaks it to stop.	Line voltage coil circuit; makes (opens) when powered; breaks (closes) when power interrupted.	Line voltage; motor drives open when powered; spring returns on power interruption.	T42, L4064, L4008
Series 50	Mechanical (nonelectrical) series.				V5011
Series 60	3-wire, line voltage (2-position)	Makes circuit to start; makes second circuit to stop.	—	Old style—line voltage equivalent to series 20. New style—line or low voltage drives open when powered open; reverses and drives closed when powered closed; stops on power interruption.	M6284
Series 70	Electronic series.				M7285, C7031
Series 80	2-wire, low voltage (2-position)	Makes circuit to start; breaks it to stop.	Low voltage coil circuit; makes (opens) when powered; breaks (closes) when power interrupted.	Low voltage; motor drives open when powered; spring return closed on power interruption.	T87, L8124
Series 90	3-wire, low voltage (modulating)	Varies resistance between common terminal and two end terminals in response to controlled variable.	—	Low voltage; motor modulates position in response to changes in controlled variable signaled by controller.	T921, M9164, W899

# General Information

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## Approval Bodies

Most of the devices described in this catalog have been approved or listed by one or more of the approval bodies listed below.

### **Underwriters Laboratories Inc.**

Underwriters Laboratories Inc., is a not-for-profit organization that examines and tests devices, systems and materials. Its membership represents a broad cross section of industry, education, and government.

Field inspectors for Underwriters Laboratories Inc., do not normally inspect equipment installed on job sites, but restrict their activities entirely to periodic inspections of products coming off manufacturers' assembly lines.

The three general categories of acceptance of a product by Underwriters Laboratories Inc., are:

1. Listing
2. Component Recognition
3. Classification

Listed devices are structurally and functionally complete and suitable for field installation.

Component Recognized devices are incomplete in some way that makes them unsuitable for general field installation. They are intended to be factory installed as part of some other piece of equipment. Classified devices or products have been evaluated as to specific hazards only.

**Underwriters Laboratories of Canada** can also provide certification services to Canadian standards, which is displayed as a "c" adjacent to the UL mark (cUL).

### **Canadian Standards Association**

The Canadian Standards Association is a not-for-profit, membership-based, non-governmental organization which provides a national standardizing body for Canada.

The Canadian Standards Association Testing Laboratories, inaugurated in May 1940, is a division of the Canadian Standards Association, and is recognized as a testing and investigating agency by Inspection Authorities and by Fire Marshals and Fire Commissioners throughout Canada.

The Canadian Standards Association Laboratories test and examine electrical products submitted for approval in compliance with pertinent Canadian Standards Association codes and standards.

The Canadian Standards Association now includes International Approval Services (IAS).

CSA can also provide certification services to UL standards, which is indicated by a "US" adjacent to the CSA mark.

### **International Approval Services—U.S.**

IAS, now part of CSA and no longer known as IAS, is the testing organization of the American gas industry with laboratories in Cleveland, Ohio and Irvine, Calif. The CSA sponsors the American National Standards Institute Z21 and Z83 Committees on standards for gas-fired equipment.

Any manufacturer of gas appliances or gas appliance accessories may submit their products to the Laboratories and secure certification of

their designs upon compliance with the appropriate national standards. Upon such compliance, the manufacturer is granted an Appliance Certificate or an Accessory Certificate and is permitted to display the trademarked Laboratories' Certification Seal or trademarked Laboratories' Certification Symbol on the appliance or accessory.

### **International Approval Services—Canada**

IAS, now part of CSA and no longer known as IAS, represents all segments of the Canadian gas industry, has been accredited by the Standards Council of Canada and the Standards Advisory Committee to prepare National Standards in the area of equipment for use with natural gas and propane. CSA has laboratories in Toronto, Canada.

Each standard is intended to be used within the scope of the standard by the manufacturing sector, those applying the equipment or those responsible for its application. It is the responsibility of the user to determine in each case that the standard is suitable for the application.

IAS operates a certification program for gas appliances, equipment, and accessories.

Canadian Gas Association (CGA), is now part of CSA and is no longer known as CGA, although some legacy products still may display the CGA mark.

American Gas Association (AGA) is also now part of CSA and is no longer known as AGA, although some legacy products still may display the AGA mark.

### **Factory Mutual**

Factory Mutual is an association of mutual insurance companies dedicated to loss prevention. Through its research arm, the Factory Mutual Research Corporation, it investigates means of preventing and minimizing fire and other losses. Factory Mutual Laboratories test and approve two broad categories of devices and materials:

1. Those used for the control or prevention of property damage.
2. Those that in themselves would present serious hazards if not properly designed.

Factory Mutual Acceptance refers to a specific installation or arrangement of equipment. Installations using approved devices, if found satisfactory following review of plans and inspection of completed work, are "accepted".

A continuing follow-up program is carried out through periodic plant inspections and reports of performance in actual use.

### **CE Mark ("Conformité Européene" European Self-Certification mark)**

CE marking is mandatory for products covered by one or more Directives. The manufacturer must apply the CE mark and declare conformity to the applicable Directives in order to bring a product on the market in the European Community. CE marking requirements vary from Directive to Directive, and even within Directives.

Some of the Directives (e.g. Gas Appliance Directive) require third party testing by Notified Bodies, in which case a product surveillance contract with a Notified Body is also mandatory. Other Directives can be satisfied by Declarations of Conformity provided by the manufacturer as a result of internal testing and documentation.

## Date Code

A date code is stamped on each device to identify the date of manufacture.

In October 1975, Honeywell adopted the industry standard date code system of a 4-digit code. The first 2 digits indicate the year; the second 2 digits indicate the week of the year. EXAMPLE: 7812—the last week of March 1978.

For devices manufactured before October 1975, the following date code was used. If the letter "R" is added as a third letter, it indicates a repair date.

A January	G July	H 1962	Z 1970
B February	H August	G 1963	Y 1971
C March	I September	F 1964	X 1972
D April	J October	E 1965	W 1973
E May	K November	D 1966	V 1974
F June	L December	C 1967	U 1975
		B 1968	T 1976
		A 1969	

## Taxes

The amount of any and all present or future taxes or other government charges upon the production, shipment, installation or sale of the equipment covered hereby, including use or occupation taxes, shall be added to the price and paid by the Purchaser; or in lieu thereof, the Purchaser shall furnish the Company with a tax-exemption certificate acceptable to the taxing authorities.

## International Controls

Some Honeywell controls are available with Celsius scales and/or at 110/220V, 50 Hz. For information on the availability of these devices, contact:

Commercial/Industrial Combustion Controls  
 Honeywell International Inc., MN10-181B  
 1985 Douglas Drive North  
 Golden Valley, MN 55422-3992

All other controls and systems:  
 International Marketing MN10-131A  
 Honeywell International Inc.  
 1985 Douglas Drive North  
 Golden Valley, MN 55422-3992

## Terms of Payment and Prices

Contact your local Honeywell TRADELINE Wholesaler or Authorized Distributor for your discount and terms of payment.

## Horsepower Ratings

Ratings of Honeywell controls listed herein are in amperes, and correspond generally to the values for various horsepower as shown in this chart. Full load ratings are taken from the National Electrical Code, 1978 edition; locked motor ratings are 6 times full load rating (ac) or 10 times full load rating (dc).

All motors do not necessarily come within the maximum ampere ratings shown in the table, and control devices must be used which have a rating equal to, or greater than, the actual motor running and starting currents.

Approximate Horsepower	120V		240V	
	Full Load	Locked Rotor	Full Load	Locked Rotor
1/6 ac	4.4	26.4	2.2	13.2
dc	—	—	—	—
1/4 ac	5.8	34.8	2.9	17.4
dc	3.1	31.0	1.6	16.0
1/3 ac	7.2	43.2	3.6	21.6
dc	4.1	41.0	2.0	20.0
1/2 ac	9.8	58.8	4.9	29.4
dc	5.4	54.0	2.7	27.0
3/4 ac	13.8	82.8	6.9	41.4
dc	7.6	76.0	3.8	38.0
1 ac	16.0	96.0	8.0	48.0
dc	9.5	95.0	4.7	47.0
1-1/2 ac	20.0	120.0	10.0	60.0
dc	13.2	132.0	6.6	66.0
2 ac	24.0	144.0	12.0	72.0
dc	17.0	170.0	8.5	85.0
3 ac	34.0	204.0	17.0	102.0
dc	25.0	250.0	12.2	122.0

# Reference Information

## NEMA Standard Classification Code for Flame Safeguard Enclosures

**NEMA 1**—General purpose. for indoor protection, where conditions are not unusually severe.

**NEMA 2**—Driptight. Designed to exclude falling moisture or dirt. Particularly applicable to cooling rooms, laundries, etc., where condensation is prevalent. For indoor use.

**NEMA 3**—Weather Resistant (weatherproof). For outdoor use; designed to withstand all normal exposure to natural elements. Controls mounted on pullout racks for easy access. With rain hood and weather seals.

**NEMA 4**—Watertight. Withstands water pressure from 1 in. hose nozzle, 65 gallons per minute, from distance of not less than 10 ft for five minutes. Suitable for maritime applications, breweries, etc.

**NEMA 5**—Dust-tight. Equipped with dust-tight gaskets. Suitable for mills and other high-dust atmospheres.

**NEMA 6**—Submersible. For submerged operation under specified pressures and time.

**NEMA 7**—Hazardous Locations, National Electrical Code Class 1 (circuit breaks in air).

**NEMA 8**—Hazardous Locations, National Electrical Code Class 1 (circuit breaks immersed in oil).

**NEMA 9**—Hazardous Locations, National Electrical Code Class 2.

**NEMA 10**—Explosion-proof. Meets U.S. Bureau of Mines requirements for explosive atmospheres.

**NEMA 11**—Acid or Fume Resistant. Provides for immersion of enclosed equipment in oil.

**NEMA 12**—Industrial Use. Excludes oils, dust, moisture, to satisfy individual requirements.

## Conversion of Pressure Units

(Convert by multiplying value in known pressure units by factor listed under required pressure unit.)

Known Pressure Unit	Required Pressure Unit								
	Kilo-pascals	Pounds per sq in.	Ounces per sq in.	Millimeters of Mercury	Kilograms per sq cm	Inches of Water	Inches of Mercury	Feet of Water	Centimeters of Water
Centimeters of Water	0.0981	0.0142	0.227	0.735	0.000999	0.394	0.0289	0.0328	—
Feet of Water	2.99	0.433	6.94	22.4	0.0305	12.0	0.883	—	30.5
Inches of Mercury	3.39	0.491	7.86	25.4	0.0345	13.6	—	1.13	34.6
Inches of Water	0.249	0.0361	0.578	1.87	0.00254	—	0.0735	0.0833	2.54
Kilograms per sq cm	98.1	14.2	228.0	735.0	—	394.0	29.0	32.8	1000.0
Millimetres of Mercury	0.133	0.0193	0.308	—	0.00136	0.535	0.0394	0.0446	1.36
Ounces per sq in.	0.431	0.0625	—	8.24	0.00439	1.73	0.128	0.144	4.40
Pounds per sq in.	6.89	—	16.0	51.7	0.0703	27.7	2.04	2.31	70.4
Kilopascals	—	0.145	2.32	7.52	0.010	4.02	0.295	0.334	10.2

Absolute Pressure = Gauge Pressure +14.74 psi.

## Capacities

Most gas capacities listed in this catalog are stated for natural gas, based on 1,000 Btu per cu ft, 0.64 sp. gr. nat. gas, at a pressure drop of 1.0 in. w.c. (37.3 MJ/m<sup>3</sup>, 0.64 sp. gr. at a pressure drop of 0.25 kPa).

To calculate the Btu/h capacity for other gases, multiply the listed Btu/h capacity by the conversion factor.

Total Heating Value for Gas X		At sp. gr.	Conversion Factor (multiply)
Btu/cu ft	MJ/m <sup>3</sup>		
500 to 800	18.7 to 29.8	0.60	0.516 <sup>a</sup>
800 to 950	29.8 to 35.4	0.70	0.765 <sup>a</sup>
2500	93.3	1.53 (LP gas)	1.62

<sup>a</sup> Nominal conversion factor for range of total heat value.

For gases not listed in table, use one of the following formulas:

$$\left( \frac{\text{Listed Btu/h Capacity}}{(0.64 \text{ sp. gr.})} \right) \left( \sqrt{\frac{0.64}{\text{sp. gr. gas X}}} \right) \left( \frac{\text{Btu/cu ft (MJ/m}^3 \text{ gas X)}}{1000 \text{ Btu/cu ft (37.3 MJ/m}^3)} \right) = \text{Btu/h Capacity gas X}$$

or

$$\left( \frac{\text{Btu/h Capacity}}{(\text{gas A})} \right) \left( \sqrt{\frac{\text{sp. gr. gas A}}{\text{sp. gr. gas B}}} \right) \left( \frac{\text{Btu/cu ft (MJ/m}^3 \text{ gas B)}}{\text{Btu/cu ft (MJ/m}^3 \text{ gas A)}} \right) = \text{Btu/h Capacity gas B}$$

M18317



**Power & Heat**

1 Btu	776 ft-lb 0.293 Watt-hr 252 cal
1 cal	0.003968 Btu 0.0011619 Watt-hr
1 Btu/h	0.293 Watt 4.2 cal/min
1 Watt	3.413 Btu/h
1 Watt-hr	3.413 Btu
1 kW (1000 Watts)	3413 Btu/h
1 kW-hr	3413 Btu
1 hp	0.746 kW 2544.65 Btu/h 33,000 ft-lb./min
1 Bohp <sup>a</sup>	9.809 kW 33,479 Btu/h 34.5 lb of steam per hour

<sup>a</sup> Boiler Output Horsepower is the equivalent of the heat required to evaporate 34.5 lb of water per hour into dry, saturated steam at 212 F.

**Btu Contents of Fuels**

Grade or Type	Unit	Btu
No. 1 Oil	Gallon	137,400
No. 2 Oil	Gallon	139,600
No. 3 Oil	Gallon	141,800
No. 4 Oil	Gallon	145,100
No. 5 Oil	Gallon	148,800
No. 6 Oil	Gallon	152,400
Nat. Gas	cu ft	950 to 1,150
Propane	cu ft	2,550
Butane	cu ft	3,200

**Commercial/Industrial Combustion Conversion Factors**

**Simplified method of determining combustion air required to completely burn a given amount of fuel.**

$$Cf/h \text{ Air} = \frac{\text{Btu/hr input}}{100}$$

M18318

Normally useful for determining standard cubic feet of fuel consumed when metering pressure is other than standard; e.g., gas passing through a volumetric gas meter at 5 psig. (The heating value of fuel gases is based on Btu/cf at standard gas conditions.)

**To correct gas volume from one set of conditions to another.**

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

- P = Absolute pressure.  
= 14.7 + gauge psi.
- T = Absolute temperature in -R = 460.
- V = Volume in any consistent terms.

**Turndown ratio of fixed area burner.**

$$T.D. = \sqrt{\frac{\text{Maximum Pressure Drop across Burner}}{\text{Minimum Pressure Drop across Burner}}} = \frac{\text{Maximum Firing Rate}}{\text{Minimum Firing Rate}}$$

M18319

Where pressure drops are expressed in the same units.

**Relationship between flow capacity at a specified pressure drop and Cv factor.**

Cv = Flow Factor. Defined as the amount of water at 60 F in gallons per minute which will flow through a valve in the open position with a pressure drop through the valve of 1 pound per square inch.

For capacity conversion to gases the following may be used for pressure ratios less than critical ratios.

$$Q = 1360 C_v \sqrt{\frac{(P_1 - P_2) P_2}{GT}}$$

M18320

- Q = Standard cubic feet per hour at 14.7 psia and 60 F.
- P1 = Inlet pressure, psia.
- P2 = Outlet pressure, psia.
- T = Absolute temperature in -R = -F+460.
- G = Specific gravity of the gas.

# Reference Information

## Steam Valve Selection

There are five steps in choosing the appropriate steam valve:

1. Determine the steam medium temperature, pressure, and the pressure drop across the valve. (This is often determined using inlet vs. outlet pressures. For example, a valve with a 75 psi inlet and a 50 psi outlet would have a pressure drop of 25 psi.)
2. Using this information (and Tables 1 and 2), calculate the  $C_v$  or select the pipe size.
3. Check the average pressure and the temperature to determine the quality of the steam medium. The quality of the steam is:
  - Saturated
  - Superheated
4. Establish the required valve body configuration for the application. This is typically fixed by the particular application and is often part of the design specifications. Standard body configurations are:
  - Two-way
  - Straight-through
  - Angle Body
5. See valve and actuator Product Overview Table and individual catalog pages.

NOTE: Traditionally, steam valves use a linear flow characteristic, but equal percentage characteristics are used in Europe.

All steam valves are two-way valves. There are two valve operation control types; two-position (open/closed) and modulating (proportional).

### Two-Position

Two-position steam valves are typically selected based on the pipe size of the line, which is matched to the coil to deliver the amount of steam required at design conditions. For example, if the pipe size is three inches in diameter, you would select a three inch steam valve. Delivered heat is a function of steam pressure, valve capacity index ( $C_v$ ), and the percentage open time of the valve (duty cycle). The condensed steam may be returned to the boiler by active or passive methods.

Table 1. Calculations of Factor A for Steam Valves

Supply (psig)	Return Pressure (psig)																				Supply (Bar)	
	0	1	2	3	4	5	6	7	8	9	10	11	12	15	20	25	30	40	50	60		70
2	4.0	5.5																				0.1
3	3.2	3.9	5.4																			0.2
4	2.7	3.1	3.7	5.2																		0.3
5	2.4	2.7	3.0	3.7	5.1																	0.3
6	2.2	2.3	2.6	2.9	3.6	5.0																0.4
7	2.0	2.1	2.3	2.5	2.9	3.5	4.9															0.5
8	1.8	1.9	2.1	2.2	2.5	2.8	3.4	4.8														0.6
9	1.7	1.8	1.9	2.0	2.2	2.4	2.8	3.3	4.7													0.6
10	1.6	1.7	1.7	1.8	2.0	2.1	2.4	2.7	3.3	4.6												0.7
11	1.5	1.6	1.6	1.7	1.8	1.9	2.1	2.3	2.6	3.2	4.5											0.8
12	1.4	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.3	2.6	3.1	4.4										0.8
15	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.5									1.0
20	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.8								1.4
25	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.7							1.7
30	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.6						2.1
40	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1.0					2.8
50	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.9				3.4
60	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.9			4.1
70	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.8		4.8
80	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.8	5.5
	.00	.07	.14	.21	.28	.34	.41	.48	.55	.62	.69	.76	.83	1.03	1.38	1.72	2.07	2.76	3.45	4.14	4.83	
	Return Pressure (Bar)																					

### Modulating

Two-way modulating steam valves are typically used to throttle the flow of steam in proportion to the load. Similar to water valves, when sizing a modulating valve for steam, consider the pressure throughout the valve travel. The pressure drop must be large enough so that, as the valve starts to close, it can diminish the flow. If this is not accomplished, the valve is not able to maintain control throughout its entire range of travel. However, a pressure drop that is too large causes noisy valve operation and decreases the life-span of the valve.

### Calculating $C_v$

To determine the appropriate  $C_v$  rating, one must know:

- Supply pressure (psi)
- Valve differential pressure ( $\Delta p$ )
- Flow rate (lb/hr)

$$C_v = \frac{Q\sqrt{v}}{63.5\sqrt{\Delta p}}$$

- Q = Quantity of Steam (pounds per hour)
- v = specific volume of steam (cubic feet per pound) at the average pressure in the valve
- 63.5 = scaling constant
- $\Delta p$  = pressure drop in psi

When Btu/hr (heat output) is known:

Using the supply pressure, differential pressure and the Table 1, determine the value of Factor A for the application. Then using Factor A, the flow rate and Table 2, determine the  $C_v$  for the application.

# Reference Information

**Table 2. Steam valve Cv final Calculation**

		Steam Flow Rate (in lb/hr)																						
		5	10	25	50	75	100	200	300	400	500	600	700	800	900	1k	2k	3k	4k	5k	7.5k	10k	20k	30k
<b>FACTOR A</b>	0.4			0.16	0.31	0.47	0.63	1.26	1.9	2.5	3.1	3.8	4.4	5.0	5.7	6.3	13	19	25	31	47	63	126	189
	0.5		0.08	0.20	0.39	0.59	0.79	1.6	2.4	3.1	3.9	4.7	5.5	6.3	7.1	7.9	16	24	31	39	59	79	157	236
	0.6		0.09	0.24	0.47	0.71	0.94	1.9	2.8	3.8	4.7	5.7	6.6	7.6	8.5	9.4	19	28	38	47	71	94	189	283
	0.7		0.11	0.28	0.55	0.83	1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	22	33	44	55	83	110	220	331
	0.8		0.13	0.31	0.63	0.94	1.3	2.5	3.8	5.0	6.3	7.6	8.8	10.1	11.3	13	25	38	50	63	94	126	252	378
	0.9		0.14	0.35	0.71	1.1	1.4	2.8	4.3	5.7	7.1	8.5	9.9	11.3	13	14	28	43	57	71	106	142	283	425
	1		0.16	0.39	0.79	1.2	1.6	3.1	4.7	6.3	7.9	9.4	11.0	13	14	16	31	47	63	79	118	157	315	472
	1.1		0.17	0.43	0.87	1.3	1.7	3.5	5.2	6.9	8.7	10.4	12	14	16	17	35	52	69	87	130	173	346	520
	1.2		0.19	0.47	0.94	1.4	1.9	3.8	5.7	7.6	9.4	11.3	13	15	17	19	38	57	76	94	142	189	378	567
	1.3	0.10	0.20	0.51	1.0	1.5	2.0	4.1	6.1	8.2	10.2	12	14	16	18	20	41	61	82	102	154	205	409	614
	1.4	0.11	0.22	0.55	1.1	1.7	2.2	4.4	6.6	8.8	11.0	13	15	18	20	22	44	66	88	110	165	220	441	
	1.5	0.12	0.24	0.59	1.2	1.8	2.4	4.7	7.1	9	12	14	17	19	21	24	47	71	94	118	177	236	472	
	1.6	0.13	0.25	0.63	1.3	1.9	2.5	5.0	7.6	10.1	13	15	18	20	23	25	50	76	101	126	189	252	504	
	1.7	0.13	0.27	0.67	1.3	2.0	2.7	5.4	8.0	10.7	13	16	19	21	24	27	54	80	107	134	201	268	535	
	1.8	0.14	0.28	0.71	1.4	2.1	2.8	5.7	8.5	11.3	14	17	20	23	26	28	57	85	113	142	213	283	567	
	1.9	0.15	0.30	0.75	1.5	2.2	3.0	6.0	9.0	12	15	18	21	24	27	30	60	90	120	150	224	299	598	
	2	0.16	0.31	0.79	1.6	2.4	3.1	6.3	9.4	13	16	19	22	25	28	31	63	94	126	157	236	315	630	
	2.1	0.17	0.33	0.83	1.7	2.5	3.3	6.6	9.9	13	17	20	23	26	30	33	66	99	132	165	248	331		
	2.2	0.17	0.35	0.87	1.7	2.6	3.5	6.9	10.4	14	17	21	24	28	31	35	69	104	139	173	260	346		
	2.3	0.18	0.36	0.91	1.8	2.7	3.6	7.2	10.9	14	18	22	25	29	33	36	72	109	145	181	272	362		
	2.4	0.19	0.38	0.94	1.9	2.8	3.8	7.6	11.3	15	19	23	26	30	34	38	76	113	151	189	283	378		
	2.5	0.20	0.39	0.98	2.0	3.0	3.9	7.9	12	16	20	24	28	31	35	39	79	118	157	197	295	394		
	2.6	0.20	0.41	1.0	2.0	3.1	4.1	8.2	12	16	20	25	29	33	37	41	82	123	164	205	307	409		
	2.7	0.21	0.43	1.1	2.1	3.2	4.3	8.5	13	17	21	26	30	34	38	43	85	128	170	213	319	425		
	2.8	0.22	0.44	1.1	2.2	3.3	4.4	8.8	13	18	22	26	31	35	40	44	88	132	176	220	331	441		
	2.9	0.23	0.46	1.1	2.3	3.4	4.6	9.1	14	18	23	27	32	37	41	46	91	137	183	228	343	457		
	3	0.24	0.47	1.2	2.4	3.5	4.7	9.4	14	19	24	28	33	38	43	47	94	142	189	236	354	472		
	3.1	0.24	0.49	1.2	2.4	3.7	4.9	9.8	15	20	24	29	34	39	44	49	98	146	195	244	366	488		
	3.2	0.25	0.50	1.3	2.5	3.8	5.0	10.1	15	20	25	30	35	40	45	50	101	151	202	252	378	504		
	3.3	0.26	0.52	1.3	2.6	3.9	5.2	10.4	16	21	26	31	36	42	47	52	104	156	208	260	390	520		
3.4	0.27	0.54	1.3	2.7	4.0	5.4	10.7	16	21	27	32	37	43	48	54	107	161	214	268	402	535			
3.5	0.28	0.55	1.4	2.8	4.1	5.5	11.0	17	22	28	33	39	44	50	55	110	165	220	276	413	551			
3.6	0.28	0.57	1.4	2.8	4.3	5.7	11.3	17	23	28	34	40	45	51	57	113	170	227	283	425	567			
3.7	0.29	0.58	1.5	2.9	4.4	5.8	11.7	17	23	29	35	41	47	52	58	117	175	233	291	437	583			
3.9	0.31	0.61	1.5	3.1	4.6	6.1	12	18	25	31	37	43	49	55	61	123	184	246	307	461	614			
4.4	0.35	0.69	1.7	3.5	5.2	6.9	14	21	28	35	42	49	55	62	69	139	208	277	346	520				
4.5	0.35	0.71	1.8	3.5	5.3	7.1	14	21	28	35	43	50	57	64	71	142	213	283	354	531				
4.6	0.36	0.72	1.8	3.6	5.4	7.2	14	22	29	36	43	51	58	65	72	145	217	290	362	543				
4.7	0.37	0.74	1.9	3.7	5.6	7.4	15	22	30	37	44	52	59	67	74	148	222	296	370	555				
4.8	0.38	0.76	1.9	3.8	5.7	7.6	15	23	30	38	45	53	60	68	76	151	227	302	378	567				
4.9	0.39	0.77	1.9	3.9	5.8	7.7	15	23	31	39	46	54	62	69	77	154	231	309	386	579				
5	0.39	0.79	2.0	3.9	5.9	7.9	16	24	31	39	47	55	63	71	79	157	236	315	394	591				
5.2	0.41	0.82	2.0	4.1	6.1	8.2	16	25	33	41	49	57	66	74	82	164	246	328	409	614				
5.3	0.42	0.83	2.1	4.2	6.3	8.3	17	25	33	42	50	58	67	75	83	167	250	334	417					
5.4	0.43	0.85	2.1	4.3	6.4	8.5	17	26	34	43	51	60	68	77	85	170	255	340	425					
5.5	0.43	0.87	2.2	4.3	6.5	8.7	17	26	35	43	52	61	69	78	87	173	260	346	433					

# Reference Information

## IMPORTANT

If the steam is superheated, it can require a valve with a larger  $C_v$ . Use the following equation to determine the correct  $C_v$  to use:

$$C_v = C_v \text{ Calculated} \times [1 + (0.00075 \times S)]$$

Where:  $S$  = degrees of superheat (in Fahrenheit).

If the calculated  $C_v$  falls between two valve sizes, use a valve with the next higher  $C_v$  value unless the calculated  $C_v$  is within 10 percent of the next lower  $C_v$  value.



## CAUTION

**Pressure reducing valves can also produce superheated steam and exceed the valve's temperature rating.**

For example: 100 psi steam at 338F passing through a pressure reducing valve gives up no heat as it expands to 10 psi, so the 10 psi steam downstream will be at 338F not 239F. This is 99 Fahrenheit degrees of superheat and downstream valves and piping will be exposed to the higher temperature. To correct for superheated steam, 1 Btu/lb is added for each Fahrenheit degree of superheat.

**Superheat**—The additional heat contained in a vapor at a temperature higher than the saturation (boiling) temperature corresponding to the pressure of the vapor.

Table 3. Properties of Saturated Steam

Vacuum, Inches of Mercury	Boiling Point or Steam Temperature Deg. F	Specific Volume (V), cu. ft/lb	$\sqrt{V}$ (For valve sizing)	Maximum Allowable Pressure Drop, psi. (For valve sizing)	Heat of the Liquid, Btu	Latent Heat of Evap., Btu	Total Heat of Steam, Btu
29	76.6	706.00	26.57	0.23	44.7	1048.6	1093.3
25	133.2	145.00	12.04	1.2	101.1	1017.0	1118.1
20	161.2	75.20	8.672	2.4	129.1	1001.0	1130.1
15	178.9	51.30	7.162	3.7	146.8	990.6	1137.4
14	181.8	48.30	6.950	3.9	149.7	988.8	1138.5
12	187.2	43.27	6.576	4.4	155.1	985.6	1140.7
10	192.2	39.16	6.257	4.9	160.1	982.6	1142.7
8	196.7	35.81	5.984	5.4	164.7	980.0	1144.7
6	201.0	32.99	5.744	5.9	168.9	977.2	1146.1
4	204.8	30.62	5.533	6.4	172.8	974.8	1147.6
2	208.5	28.58	5.345	6.9	176.5	972.5	1149.0
<b>Gage Pressure, psig</b>							
0	212.0	26.79	5.175	7.4	180.0	970.4	1150.4
1	215.3	25.20	5.020	7.8	183.3	968.2	1151.5
2	218.5	23.78	4.876	8.4	186.6	966.2	1152.8
3	221.5	22.57	4.751	8.8	189.6	964.3	1153.9
4	224.4	21.40	4.626	9.4	192.5	962.4	1154.9
5	227.1	20.41	4.518	9.8	195.3	960.6	1155.9
6	229.8	19.45	4.410	10.4	198.0	958.8	1156.8
7	232.3	18.64	4.317	10.8	200.5	957.2	1157.7
8	234.8	17.85	4.225	11.4	203.0	955.5	1158.5
9	237.1	17.16	4.142	11.8	205.4	954.0	1159.4
10	239.4	16.49	4.061	12.4	207.7	952.5	1160.2
11	241.6	15.90	3.987	12.8	209.9	951.1	1161.0
12	243.7	15.35	3.918	13.4	212.1	949.7	1161.8
15	249.8	13.87	3.724	14.8	214.2	948.3	1162.5
20	258.8	12.00	3.464	17.4	227.4	939.5	1166.9
25	266.8	10.57	3.251	19.8	235.6	934.0	1169.6
30	274.0	9.463	3.076	22.4	243.0	928.9	1171.9
40	286.7	7.826	2.797	27.4	255.9	919.9	1175.8
50	297.7	6.682	2.585	32.4	267.1	911.9	1179.0
60	307.3	5.836	2.416	37.4	277.1	904.7	1181.8
70	316.0	5.182	2.276	42.4	286.1	898.0	1184.1
80	323.9	4.662	2.159	47.4	294.3	891.9	1186.2
90	331.2	4.239	2.059	52.4	301.9	886.1	1188.0
100	337.9	3.888	1.972	57.4	308.9	880.7	1189.6
120	350.0	3.337	1.827	67.4	321.7	870.7	1192.4
140	360.9	2.923	1.710	77.4	333.1	861.5	1194.6

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## LineVoltPRO® 8000 7-Day Programmable Hydronic Thermostat



The TL8100 Hydronic Thermostat offers the energy savings of a programmable control for a wide variety of applications. With the TL8100 there's no need to carry multiple thermostats for different applications. It can be used to control 2-way zone valves, 3-way zone valves or circulator pumps in both line volt and low volt applications. It also offers special protection modes to prevent system seizures and to reduce callbacks. Easy to install, the TL8100 is exactly what you need to provide your customers with cost-efficient programmable control of hydronic heating systems.

**Application:** Baseboards; Convectors; Fan-forced Heaters; Radiant Ceilings; Central Heating (Conventional)  
**Dimensions, Approximate:** 83 mm X 79 mm X 13 mm (3.3 in. X 3.1 in. X 0.5 in.)  
**Color:** White  
**Programmability:** 7-Day Program  
**Electrical Connections:** 6 in. (150 mm) tinned copper lead wires  
**Electrical Ratings:** Maximum Load: 5 A (resistive), 2 A (inductive) @ 24 VDC, 120 Vac, 240 Vac; Compatible with millivolt systems  
**Voltage:** Millivolt Compatible; 24 Vdc; 120 Vac; 240 Vac

**Operating Humidity Range (% RH):** 0% to 95%, non-condensing  
**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)  
**Differential Temperature:** 0.1 C (0.1 F)  
**Accuracy:** 0.5 C  
**Power Method:** 2 X AA (LR6) batteries  
**Sensor Element:** Thermistor  
**Switch Type:** Relay  
**Mounting:** Vertical  
**Approvals:** Underwriters Laboratories, Inc. Approved

Product Number	Switch Positions		Stages	Setting Temperature Range		Terminal Designations	Comments	Used With
	System	Fan		(C)	(F)			
TL8100A1008	No switch		1 Heat	5 C to 30 C	40 F to 85 F	R, W, (X, C, optional remote input)	Remote input for telephone controller or home automation system; Comfort, Economy and Vacation Presets; With Backlit Display	Aube CT240-02 Telephone Controller

## LineVoltPRO® 8000 7-Day Programmable Electric Heat Thermostat



The LineVoltPRO® programmable thermostat provides electronic control of 208/240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, convectors and fan forced heaters.

- 7 day programmable - maintain the pre-set program schedule for up to 20% energy savings, or modify the schedule to fit your lifestyle.
- Electronic temperature control - precision of ±1 F saves up to an additional 10% on heating bills.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Soundproofed for quiet operation - reduces the clicking noise commonly heard with conventional thermostats.
- On/Off or On/Standby switch allows you to turn the thermostat off at the end of the heating season.
- Early start - ensures programmed temperature is reached by programmed time.
- Heating indicator - at a glance confirmation that the heat is on.
- Maintenance free - no batteries required.

**Application:** Electric baseboards, convectors and fan forced heaters (resistive rated loads).  
**Dimensions, Approximate:** 124 mm high x 70 mm wide x 23 mm deep (4 7/8 in. high x 2 3/4 in. wide x 7/8 in. deep)  
**Color:** Premier White®  
**Display Size:** 2.67 sq. in.  
**Programmability:** 7 Day Program  
**Electrical Connections:** 5.5 in. (140mm) tinned copper lead wires

**Operating Temperature Range:** 0 C to 50 C (32F to 122 F)  
**Voltage:** 208/240 Vac  
**Frequency:** 50 Hz; 60 Hz  
**Sensor Element:** Thermistor  
**Mounting:** Vertical  
**Approvals:** Canadian Standards Association: cCSAus, File Number: LR76030  
 Underwriters Laboratories, Inc. UL Listed 9R12, File Number: E183695

Product Number	Electrical Ratings	Switch Positions		Switching Action	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
TL8130A1005	16.7 Amps Max; 4000 Watts at 240 VAC, 3470 Watts at 208 VAC	No switch		SPST	1 Heat	5 C to 30 C	40 F to 86 F
TL8230A1003	15 Amps Max; 3600 Watts at 240 VAC, 3120 Watts at 208 VAC	No switch		DPST	1 Heat	5 C to 30 C	40 F to 86 F

# Electric Heat Thermostats

## LineVoltPRO® 7000 Digital Non-Programmable Electric Heat Thermostats



The LineVoltPRO® non-programmable digital thermostat provides electronic control of 208/240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, convectors and fan forced heaters. If used as directed, electronic thermostats can save up to 10% on annual heating costs. Savings may vary based on geographic region and usage.

- Electronic temperature control - precision of  $\pm 1$  F saves up to 10% on heating bills.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Soundproofed for quiet operation - reduces the clicking noise commonly heard with conventional thermostats.
- On/Off switch allows you to turn the thermostat off at the end of the heating season.
- Heating indicator - at a glance confirmation that the heat is on.
- Maintenance free - no batteries required.

**Application:** Electric baseboards, convectors and fan forced heaters (resistive rated loads).

**Dimensions, Approximate:** 124 mm high x 70 mm wide x 23 mm deep (4 7/8 in. high x 2 3/4 in. wide x 7/8 in. deep)

**Accuracy:**  $\pm 0.5$  C ( $\pm 1$  F)

**Switch Type:** Relay

**Frequency:** 50 Hz; 60 Hz

**Sensor Element:** Thermistor

**Color:** Premier White®

**Mounting:** Vertical Mount

**Approvals:**

**Canadian Standards Association:** cCSAus, File Number: LR76030

**Underwriters Laboratories, Inc.** UL Listed 9R12, File Number: E183695

Product Number	Electrical Ratings	Switch Positions		Switching Action	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
TL7135A1005	16.7 Amps Max; 4000 Watts at 240 VAC, 3470 Watts at 208 VAC	No switch		SPST	1 Heat	5 C to 30 C	40 F to 86 F
TL7235A1003	15 Amps Max; 3600 Watts at 240 VAC, 3120 Watts at 208 VAC	No switch		DPST	1 Heat	5 C to 30 C	40 F to 86 F

## LineVoltPRO 6000® Programmable Thermostat



The LineVoltPRO® programmable thermostat provides electronic control of 240 Vac resistive rated electric baseboard heaters, radiant ceiling heat, convectors and fan forced heaters.

- 5-2 day programmable - maintain the pre-set program schedule for up to 20% energy savings, or modify the schedule to fit your lifestyle.
- Electronic temperature control - precision of  $\pm 0.27$  F saves up to an additional 10% on heating bills.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Silent operation.
- Heating indicator - at a glance confirmation that the heat is on.
- Maintenance free - no batteries required.
- 5-year limited warranty.

**Application:** Electric baseboards, convectors and fan forced heaters (resistive rated loads).

**Dimensions, Approximate:** 120 mm high x 115 mm wide x 26 mm deep (4 13/16 in. high x 4 1/2 in. wide x 1 in. deep)

**Color:** Premier White®

**Programmability:** 5-2 Day Program

**Electrical Connections:** 6 in. (150 mm) tinned copper lead wires

**Electrical Ratings:** 12.5 Amps Max; 3000 Watts at 240 VAC, 2 Amps Min.

**Operating Temperature Range:** 0 C to 70 C (32 F to 99 F)

**Differential Temperature:**  $\pm 0.15$  C ( $\pm 0.27$  F)

**Frequency:** 50 Hz; 60 Hz

**Sensor Element:** Thermistor

**Mounting:** Vertical

**Approvals:**

**Underwriters Laboratories, Inc.** UL Listed 9R12, File Number: E183695

Product Number	Switch Positions		Switching Action	Stages	Setting Temperature Range	
	System	Fan			(C)	(F)
TL6120A1016	No switch		SPST	1 Heat	5 C to 27 C	40 F to 80 F



## T410 Electric Heat Thermostats



Economy thermostats that provide reliable line voltage control of resistive rated electric heating equipment. Snap-action switch makes heating circuit on temperature fall.

- Economical.
- Replace virtually any two-wire (T410A) or four-wire (T410B) line voltage wall-mounted electric heating thermostat.
- Easy to install; 6 in. (150 mm) color-coded leads.
- Include long-lasting Micro Switch® mechanism.
- Rugged, plastic mounting base and one-piece cover with vents.
- Ideally suited to new construction applications.

**Application:** Electric baseboards, convectors and fan forced heaters (resistive rated loads).

**Dimensions, Approximate:** 115 mm high x 70 mm wide x 57 mm deep (4 1/2 in. high x 2 3/4 in. wide x 2 1/4 in. deep)

**Electrical Ratings:**

Noninductive Resistive 22A at 120/208/240 Vac. 19A at 277 Vac.

**Accuracy:** 2 C

**Switching Action:** SPST

**Differential Temperature:** 2 C (3 F)

**Frequency:** 60 Hz

**Sensor Element:** Bimetal

**Mounting:** Vertical Mount

**Approvals:**

**Canadian Standards Association:** Listed; File No. LR1322

**Underwriters Laboratories, Inc.** Listed; File No. E47434, Guide No. XAPX

**Accessories:**

**272804A** Range Stop and Locking Screws Assembly

Product Number	Color	Switch Positions		Stages	Setting Temperature Range		Includes
		System	Fan		(C)	(F)	
T410A1013	Premier White®	No switch		1 Heat	—	40 F to 80 F	—
T410A1047	Beige	No switch		1 Heat	5 C to 25 C	—	—
T410A1054	Premier White®	No switch		1 Heat	5 C to 25 C	—	—
T410A1088	Premier White®	No switch		1 Heat	5 C to 25 C	—	—
T410A1104	Beige	No switch		1 Heat	5 C to 25 C	—	—
T410A1138	Beige	No switch		1 Heat	5 C to 25 C	—	—
T410B1004	White	No switch		1 Heat	—	40 F to 80 F	Positive OFF
T410B1020	Premier White®	No switch		1 Heat	5 C to 25 C	—	Positive OFF
T410B1129	Premier White®	No switch		1 Heat	5 C to 25 C	—	Positive OFF

# Electric Heat Thermostats

## T498 Electric Heat Thermostats



**Electric Heat Thermostats provide line voltage control of electric heating systems.**

- Easy to install; color-coded leads.
- Include thermometer. Include long-lasting Micro Switch® mechanism; makes on temperature fall.
- Rugged, plastic mounting base.
- Mount on standard 2 x 4 in. outlet box or 4 x 4 in. junction box.
- Select models include extra knob decal for recalibration, if necessary.

**Application:** Electric baseboards, convectors and fan forced heaters (resistive rated loads).

**Dimensions, Approximate:** 116 mm high x 73 mm wide x 33 mm deep (4 9/16 in. high x 2 7/8 in. wide x 1 15/16 in. deep)

**Electrical Ratings:**

Noninductive Resistive 22A at 120/208/240 Vac. 19A at 277 Vac.

**Accuracy:** 2 C (1 F)

**Ambient Temperature Range:** 5 C to 27 C (40 F to 80 F)

**Switching Action:** SPDT

**Differential Temperature:** 2 C (3 F)

**Frequency:** 60 Hz

**Sensor Element:** Bimetal

**Mounting:** Vertical Mount

**Approvals:**

**Canadian Standards Association:** Listed; File No. LR1322

**Underwriters Laboratories, Inc.** Listed; File No. E47434, Guide No. XAPX

**Accessories:**

**272804A** Range Stop and Locking Screws Assembly

**272823** Blind Locking Cover and Range Stop Assembly

Product Number	Color	Switch Positions		Stages	Setting Temperature Range		Includes
		System	Fan		(C)	(F)	
T498A1778	Beige	No switch		1 Heat	5 C to 27 C	40 F to 80 F	Range stops, locking cover and extra knob decal for recalibration
T498A1786	Brush gold finish	No switch		1 Heat	5 C to 25 C	—	—
* T498A1794	Brush gold finish	No switch		1 Heat	5 C to 25 C	—	Thermometer, range stops and locking cover
T498A1810	Brush gold finish	No switch		1 Heat	—	40 F to 80 F	—
T498A1927	Premier White®	No switch		1 Heat	5 C to 25 C	—	—
* T498A1935	Premier White®	No switch		1 Heat	5 C to 25 C	—	Thermometer, range stops and locking cover
* T498B1512	Brush gold finish	No switch		1 Heat	—	40 F to 80 F	Positive OFF, Range stops, locking cover and extra knob decal for recalibration
T498B1553	Brush gold finish	No switch		1 Heat	—	40 F to 80 F	Positive OFF
T498B1652	Brush gold finish	No switch		1 Heat	5 C to 25 C	—	Positive OFF
T498B1678	Premier White®	No switch		1 Heat	5 C to 25 C	—	Positive OFF
* T498B1686	Premier White®	No switch		1 Heat	5 C to 25 C	—	Thermometer, Positive OFF, locking cover and range stops

\* TRADELINE models • SUPER TRADELINE models

## T4398 High Performance Electric Heat Thermostats



**High Performance Electric Heat Thermostats provide precise line voltage control of resistive-rated electric heating equipment.**

- For control of resistive-rated baseboard electric heaters.
- Extremely sensitive to temperature changes.
- Replace virtually all standard wall-mounted line voltage thermostats.
- Color-coded leads allow easy installation.
- Include long-lasting Micro Switch® mechanism.
- Rugged, plastic mounting base.
- Cover thermometer indicates room temperature.
- Well suited for upgrades and high-end new construction.
- Mounts directly on vertical 2 x 4 in. outlet box, or on 4 x 4 in. outlet box.

**Application:** Electric baseboards, convectors and fan forced heaters (resistive rated loads).

**Dimensions, Approximate:** 115 mm high x 73 mm wide x 67 mm deep (4 1/2 in. high x 2 7/8 in. wide x 2 5/8 in. deep)

**Electrical Ratings:**

Noninductive Resistive 22A at 120/208/240 Vac. 19A at 277 Vac.

**Accuracy:** 1 C

**Ambient Temperature Range:** 10 C to 25 C (50 F to 80 F)

**Differential Temperature:** 1 C (2 F)

**Switching Action:** SPST

**Frequency:** 60 Hz

**Sensor Element:** Vapor filled dual diaphragm

**Color:** Premier White®

**Mounting:** Vertical Mount

**Approvals:**

**Canadian Standards Association:** Listed; File No. LR1322

**Underwriters Laboratories, Inc.** Listed; File No. E47434, Guide No. XAPX

**Accessories:**

**272804A** Range Stop and Locking Screws Assembly

Product Number	Switch Positions		Stages	Setting Temperature Range		Includes
	System	Fan		(C)	(F)	
T4398A1005	No switch		1 Heat	5 C to 25 C	—	Thermometer
T4398A1013	No switch		1 Heat	10 C to 25 C	—	—
* T4398A1021	No switch		1 Heat	—	50 F to 80 F	Thermometer, range stops and locking cover screws
T4398B1003	No switch		1 Heat	10 C to 25 C	—	Thermometer, Positive OFF
* T4398B1029	No switch		1 Heat	—	50 F to 80 F	Thermometer, range stops, locking cover screws, Positive Off

\* TRADELINE models • SUPER TRADELINE models

# Programmable Thermostats

## Prestige™ Comfort System



High Definition Color Touchscreen Thermostat



Standard Definition Touchscreen Thermostat

The Prestige™ HD thermostat provides control of 24Vac of heating and cooling systems. RedLINK™ enabled to work with compatible wireless accessories. The Prestige™ HD Thermostat Kits contains Wireless Outdoor Sensor and High Definition (HD) Color Touchscreen Thermostat.

**Application:** Up to 2 Heat/2 Cool Conventional Systems  
Up to 3 Heat/2 Cool Heat Pumps

**Dimensions, Approximate:** 100 mm. high, 175 mm. wide,  
38 mm. deep (3 15/16 in. high, 6 7/8 in. wide, 1 1/2 in. deep)

**Display Size:** 8.06 sq. in.

**Color:** Arctic White

**Programmability:** 7-Day Multiple Day Programming or Non-Programmable

**Changeover:** Auto or Manual

**Electrical Connections:** Screw terminals

**Electrical Ratings:** 18 to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**Voltage:** 18 to 30 Vac

**Operating Humidity Range (% RH):** 0 to 90% RH, non-condensing

**Humidity Setting Range:** Cooling: 40 to 80% RH.

Heating: 10 to 80% RH.

**Dehumidification Setting Range:** 40 to 80% RH

**Humidification Setting Range:** 10 to 60% RH.

**Setting Temperature Range:**

Heat: 4.5 C to 32.0 C; Cool: 15.5 C to 37.0 C

(Heat: 40 F to 90 F; Cool 60 F to 99F)

- Large, easy-to-read backlit full color display shows current indoor temperature and humidity, temperature setting, date and time on the home screen. Also displays outdoor temperature and humidity on home screen (if wireless outdoor sensor is installed)
- Adjustable backlight level allows thermostat to be on full brightness at all times or dim to the brightness level of choice when the thermostat is not being used
- Interview-Based Programming wizard to easily and confidently schedule thermostat temperatures and times
- USB Port allows downloading of installer settings to quickly and consistently perform setup of thermostats in similar applications
- USB Port also allows easy setup of dealer logo and contact information on thermostat screen
- Real-Time Clock keeps time during power failure; automatically updates for daylight saving time
- Precise Temperature Control ( $\pm 1 \times F$ ) for reliable and consistent temperature.
- Multiple HOLD options allows modification of schedule as needed
- Change Reminders to inform it is time to replace Air Filter, humidifier pad, ultraviolet bulb or batteries in connected devices
- RedLINK™ Enabled to communicate with compatible wireless devices
- Kit Includes Portable Comfort Control, Wireless Outdoor Sensor and Prestige™ HD Thermostat



**Operating Temperature Range:** 0 C to 48.9 C (32 F to 120 F)

**Stages:** Up to 3 Heat/2 Cool Heat Pump

or Up to 2 Heat/2 Cool Conventional

**Power Method:** Hardwired

**Outdoor Sensor:** Yes, optional

**Remote Sensor:** No

**Comments:** Tri-Lingual Display (selectable for English, French or Spanish)

**Used With:** RedLINK™ enabled thermostats and accessories

### Accessories:

**50028399-001** Cover plate for Prestige Thermostats 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience.

RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**THP9045A1007** THP9045 WireSaver

Product Number	Switch Positions		Terminal Designations	Includes
	System	Fan		
THX9321R1008	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat
THX9321R5000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat
YTHX9321R1000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R1011	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor
YTHX9321R5003	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R5012	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor

## VisionPRO® IAQ Total Home Comfort System



The VisionPRO IAQ touchscreen universal programmable thermostat provides electronic control of 24 Vac heating and cooling systems in addition to humidification, dehumidification and ventilation all with just 3 wires to the thermostat.

- Advanced dual-fuel control.
- Three wires to the living space allows for easy equipment upgrade without having to run additional thermostat wire.
- Thermostat connects with Equipment Interface Module or EnviraZONE panel to control temperature, humidification, dehumidification and ventilation from a single point in the home.
- Automatically raises humidity levels throughout all rooms in the home, moisturizing air to prevent symptoms of dryness and to protect hardwood flooring and woodwork.
- Removes air pollutants by exchanging the stale air in a house with fresh, filtered air better than having an open window.

**Thermostat Dimensions, Approximate:** 116 mm high x 152 mm wide x 32 mm deep (4 9/16 in. high x 6 in. wide x 1 1/4 in. deep)

**Color:** Premier White®

**Programmability:** 7 Day Multiple Day Programming or Non-Programmable

**Changeover:** Auto/Manual Selectable

**Thermostat Display Size:** 10 sq. in.

**Electrical Ratings:** THM5421 is rated 20 to 30 Vac

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Differential Temperature:** ±0.5 C (± 1 F)

**Stages:** Up to 3 Heat/2 Cool Conventional; Up to 4 Heat/2 Cool Heat Pump

**Power Method:** Communicating

**Voltage:** 20 to 30 Vac

**Dehumidification Setting Range:** 40 to 80% RH.

**Humidification Setting Range:** 10 to 60% RH.

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Switch Type:** Yes, optional

**Outdoor Sensor:** Yes, optional

**Remote Sensor:** Yes, optional

**Accessories:**

**32003796-001** Premier White® cover plate 200 mm (7 7/8 in.) 140 mm x 5 1/2 in.

**C7089U1006** Remote Outdoor Sensor

**C7189U1005** Remote Indoor Sensor

Product Number	Application	Mounting	Switch Positions		Terminal Designations	Setting Temperature Range		Comments	Used With	Includes
			System	Fan		(C)	(F)			
TH9421C1004	Conventional and Heat Pump systems	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3	Heat: 4.5C to 32 C; Cool: 15 C to 37C	Heat: 40 F to 90 F; Cool: 60 F to 99F	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	THM5421C1008 Equipment Interface Module	Thermostat only
THM5421C1008	Heat/Cool or Heat Pump with Auxiliary Heat	Vertical	—	—	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	—	—	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	TH9421 VisionPRO IAQ Thermostat	Equipment Interface Module Only
YTH9421C1002	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 4.5C to 32 C; Cool: 15 C to 37 C	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	—	TH9421C1004 Thermostat and THM5421C1008 Equipment Interface Module
YTH9421C1010	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 4.5C to 32 C; Cool: 15 C to 37 C	Heat: 40 F to 90 F; Cool: 60 F to 99 F	Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.	—	TH9421C1004 Thermostat, THM5421C1008 Equipment Interface Module and C7089U1006 Outdoor Temperature Sensor

# Programmable Thermostats

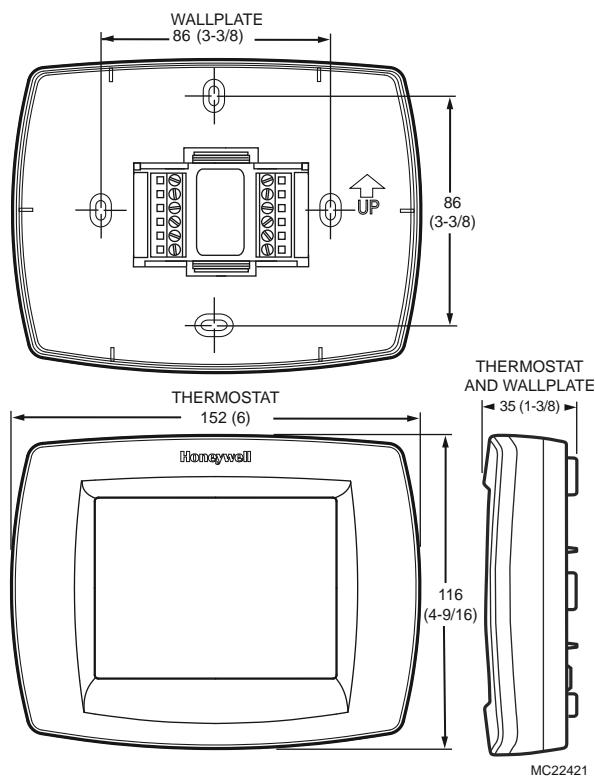
## Commercial VisionPRO® 8000



The TB8220 Commercial VisionPRO 8000 Touchscreen Programmable Thermostat is an effortless, seven day programmable thermostat that provides universal system compatibility, precise comfort control and is easy to-program. The TB8220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Touchscreen interaction Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

### Dimensions in millimeters (inches)



**Color:** Premier White®

**Electrical Connections:** 24 VAC or Battery

**Network Communications:** None

**Dimensions, Approximate:** 152 mm wide x 116 mm high x 35 mm deep (6 in. wide x 4 9/16 in. high x 1 3/8 in. deep)

### Accessories:

**32003796-001** Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

**C7189U1005** Remote Indoor Sensor

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**C7089U1006** Remote Outdoor Sensor

**W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
<b>TB8220U1003</b>	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, L, A, G, C, S1, S2	Up to 2 Heat/ 2 Cool Conventional; Up to 3 Heat/ 2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	The L-terminal is an input only; Selectable programmable or non-programmable; Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

## VisionPRO® 8000 Touchscreen 7-Day Programmable Thermostat



The VisionPRO Touchscreen Universal Programmable Thermostats provides electronic control of 24 Vac heating and cooling systems or 750 mV heating system.

**Dimensions, Approximate:** 116 mm high x 152 mm wide x 32 mm deep (4 9/16 in. high x 6 in. wide x 1 1/4 in. deep)

**Display Size:** 10 sq. in.

**Color:** Premier White®

**Programmability:** 7 Day Multiple Day Programming or Non-Programmable

**Changeover:** Auto/Manual Selectable

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Frequency:** 50 Hz; 60 Hz

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Differential Temperature:** ±0.5 C (± 1 F)

**Cooling:** 1.0 A running

**Heating:** 1.0 A running

- Large, Clear Display with Backlighting current temperature, set temperature and time are easy-to-read and all are displayed on the home screen.
- Menu Driven Programming Guides you through the scheduling process, showing only necessary information and choices on each screen.
- Ability to Select Multiple Days allows you to easily customize the thermostat for your unique schedule.
- Real-Time Clock keeps time during power failure; automatically updates for daylight saving time.
- Armchair Programming allows you to remove thermostat from wall to set the schedule.
- Precise Temperature Control (±1 F) reliable, consistent comfort.
- Multiple HOLD options allow you to modify schedule indefinitely or for a specific time.
- Change Reminders reminds you to service or replace the air filter, humidifier pad, ultraviolet lamp or thermostat batteries.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.
- Temperature range stops - prevents user from setting the temperature too high or too low.
- Keypad lockout options for partial or full lockout.

**Fan:** 0.6A running

**Power Method:** Battery or Hardwired

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Outdoor Sensor:** Yes, optional outdoor or indoor remote

**Accessories:**

**32003796-001** Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

**C7089U1006** Remote Outdoor Sensor

**C7189U1005** Remote Indoor Sensor

**C7735A1000** Discharge Air Sensor (used with TH8321U1097 for desert humidification)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
TH8110U1003	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON-CIRC	R, RC, C, W (O/B), Y, G, S1, S2	Up to 1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Selectable: Programmable or Non-Programmable; Selectable; Heat Only or Cool Only
TH8320U1008	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	R, RC, W (O/B), W2 (AUX), Y, Y2, L, E, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Selectable: Programmable or Non-Programmable. The L terminal is an input or output.
TH8321U1006	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	R, RC, W (O/B), W2 (AUX), Y, Y2, L, E, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Includes Dehumidification Control. Selectable: Programmable or Non-Programmable. The L terminal is an input or output.
TH8321U1097	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	R, C, W (O/B), W2 (E/AUX), Y, Y2, G, L, U1, U1, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Includes a set of Universal IAQ contacts to control humidification, dehumidification or ventilation. Also has advanced Dual Fuel control. Selectable Programmable or Non-Programmable. The L terminal is an input or an output.

# Programmable Thermostats

## CommercialPRO® 7000

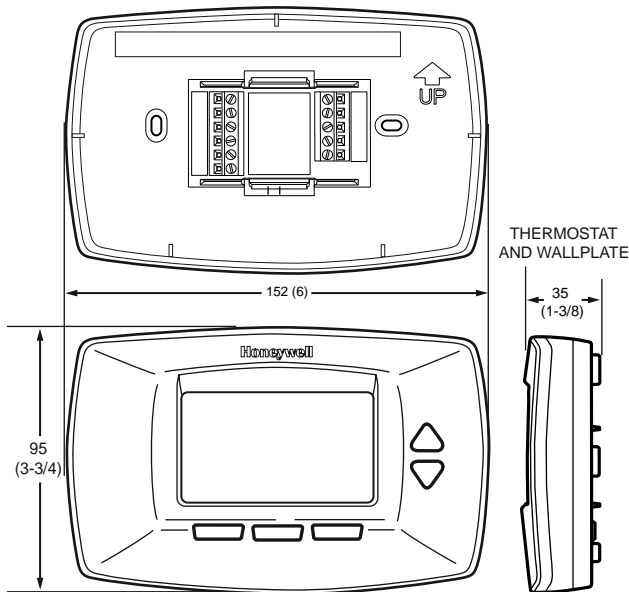


The COMMERCIALPRO® 7000 Programmable Thermostat is an effortless, seven-day programmable thermostat that provides universal system compatibility, precise comfort control and is easy-to-program.

The TB7220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

### Dimensions in millimeters (inches)



MC13668

**Color:** Premier White®

**Electrical Connections:** 24 VAC or Battery

**Network Communications:** None

**Dimensions, Approximate:** 152 mm wide x 96 mm high x 35 mm deep (6 in. wide x 3 3/4 in. high x 1 3/8 in. deep)

### Accessories:

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

**C7189U1005** Remote Indoor Sensor

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**C7089U1006** Remote Outdoor Sensor

**W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
<b>TB7220U1012</b>	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, A, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Selectable programmable or non-programmable; Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay



## MultiPRO™ 7000



The MultiPRO™ Multispeed and Multipurpose Thermostat is an effortless, seven-day programmable or non-programmable thermostat that provides universal system compatibility, precise comfort and is easy to program.

**Color:** Premier White®

**Electrical Connections:** 24 VAC or Battery

**Network Communications:** None

**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

**C7189U1005** Remote Indoor Sensor

The MultiPRO provides temperature control for gas, oil, electric, heat pumps, PTACs, and fan-coil equipment for the following types of applications: 1H/1C conventional; Up to 2H/1C heat pump; 4 pipe fan coil (3 fan speeds); 2 pipe fan coil (3 fan speeds); 2 pipe fan coil w/Auxiliary Heat (3 fan speeds); PTAC (Hi, Lo fan speeds).

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.
- Programmable or non-programmable modes.
- Remote setback input for occupancy sensors or timeclocks.
- VersaSpeed™ fan ramping algorithm and fan reset algorithm (fan coil and PTAC applications).
- Up to 3 speeds for fan coil and 2 fan speeds for PTAC applications.
- Remote Indoor air sensing option (20K ohm or 10K ohm)

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**WSK-24** Wireless Occupancy Solution

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
<b>TB7100A1000</b>	Conventional, Heat Pump, Fan Coil, and PTAC Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON; Fan Coil: HI-MED-LO-AUTO; PTAC: HI-LO-AUTO	R, Rc, W1, O/B, Y, G, G2, G3, C, S1, S2	1 Heat/ 1Cool Conventional; Up to 2 Heat/ 1 Cool Heat Pump; 2 or 4 pipe Fan Coil; Up to 2 Heat/ 1 Cool PTAC	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Includes 3 speed fan control and configurable sensor input for indoor temperature, occupancy sensor, or changeover; Selectable programmable or non-programmable

# Programmable Thermostats

## Wireless System Kits



Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes the Portable Comfort Control to sense and control temperature from any room and a Wireless Outdoor sensor to display outdoor temperature and humidity on all devices.

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.

**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Electrical Ratings:**

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

**Changeover:** Auto/Manual Selectable

**Currents (Cooling):** 1.0 A running

**Currents (Heating):** 1.0 A running

**Currents (Fan):** 0.6 A running

**Power Method:** Thermostat--Battery

- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **PERSONAL COMFORT STATION:** Allows homeowners to sense and control temperature from any room in the home to provide comfort where they spend their time. Manage comfort and energy savings from one convenient control. Touchscreen interface with backlit display. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning.
- **WIRELESS OUTDOOR SENSOR:** Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH6320R1015	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/ 2 Cool Heat Pump; Up to 2 Heat/ 2 Cool Conventional	REM5000R1001 Portable Comfort Control; TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; C7089R1013 Wireless Outdoor Sensor; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

See page 25 through page 32 for more RedLINK™ products

## FocusPRO® 6000 5-1-1 Day Programmable Thermostat



Standard Display

Large Display

The FocusPRO® programmable thermostat provides electronic control of 24 Vac conventional and heat pump systems or 750 mV heating systems.

**Dimensions, Approximate:** 91 mm high x 147 mm wide x 38 mm deep (3 9/16 in. high x 5 13/16 in. wide x 1 1/2 in. deep)

**Color:** Premier White®

**Programmability:** 5-1-1 Day Program or 5-2 Day Program

**Changeover:** Auto/Manual Selectable

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Differential Temperature:** ±0.5 C (± 1 F)

**Currents (Cooling):** 0.02 A to 1.0 A running

**Currents (Heating):** 0.02 A to 1.0 A running

**Currents (Fan):** 0.02 A to 0.5 A running

**Frequency:** 50 Hz; 60 Hz

- Selectable to 5-1-1 (Weekdays, Saturday, Sunday) or 5-2 (Weekdays, Weekend) programmable thermostat.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Display size options - available in large screen or standard.
- Precise comfort control (±1 F) - maintains consistent comfort to the highest level of accuracy.
- Simplified programming and operation.
- Easy change battery door - flip out door allows for easy battery replacement without removing or disassembling the thermostat.
- Built in instructions - simple, pull out instruction manual.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.
- Temperature range stops - prevents user from setting the temperature too high or too low.

**Power Method:** Battery or Hardwired

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
TH6110D1005	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	Rc, R, W (O/B), Y, G, C	Up to 1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Standard display size 3.75 sq. in.
TH6110D1021	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	Rc, R, W (O/B), Y, G, C	Up to 1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Large display size 5.09 sq. in.
TH6220D1002	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/1 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Standard display size 3.75 sq. in.
TH6220D1028	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/1 Cool Heat Pump; up to 2 Heat/2 Cool Conventional	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Large display size 5.09 sq. in.
TH6320U1000	Heat/Cool or Heat Pump with Auxiliary Heat	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX/E), Y, Y2, G, L, C	Up to 3 Heat /2 Cool Heat Pump; Up to 2 Heat /2 Cool Conventional	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Large display size 5.09 sq. in.

# Programmable Thermostats

## PRO 4000 5-2 Day Programmable Thermostat



**Dimensions, Approximate:** 97 mm high x 137 mm wide x 32 mm deep  
(3 13/16 in. high x 5 3/8 in. wide x 1 1/4 in. deep)

**Display Size:** 1.73 sq. in.

**Color:** Premier White®

**Programmability:** 5-2 Day Program

**Changeover:** Manual

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Differential Temperature:** ±0.5 C (± 1 F)

**Currents (Cooling):** 0.02 A to 1.0 A running

The PRO programmable series provides 24 Vac control for conventional and heat pump systems.

- Weekday/Weekend programming - 5-2 (Weekdays, Weekend) programming.
- Backlit digital display - both current and set temperatures are easy to read in various lighting conditions.
- Precise comfort control [±1 F (± 0.5 C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.
- Built in instructions - simple, pull out instruction manual.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.

**Currents (Heating):** 0.02 A to 1.0 A running

**Frequency:** 50 Hz; 60 Hz

**Power Method:** Dual Powered: Battery or Hardwire

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
TH4110D1007	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B, C	1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F
TH4210D1005	Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, Y, AUX, E, G, O, B, L, C	2 Heat/1 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F

## Basic PRO 2000 Programmable Thermostat



**Dimensions, Approximate:** 120 mm high x 74 mm wide x 28 mm deep  
(4 11/16 in. high x 2 7/8 in. wide x 1 1/8 in. deep)

**Color:** Premier White®

**Programmability:** 5-2 Day Program

**Changeover:** Manual

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Currents (Cooling):** 0.02 A to 1.0 A running

**Currents (Heating):** 0.02 A to 1.0 A running

**Frequency:** 50 Hz; 60 Hz

The PRO programmable series provides 24 Vac control for conventional and heat pump systems.

- Weekday/Weekend programming - 5-2 (Weekdays, Weekend) programming.
- Backlit digital display - both current and set temperatures are easy to read in various lighting conditions.
- Precise comfort control [±1 F (±0.5 C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.
- Adaptive Intelligent Recovery® - ensures programmed temperature is reached by programmed time.

**Power Method:** Dual Powered: Battery or Hardwire

**Sensor Element:** Thermistor

**Accuracy:** ±0.5 C (± 1 F)

**Switch Type:** Relay

**Mounting:** Vertical

**Accessories:**

**50022893-001** Premier White® cover plate 5 3/4 in. (146 mm) x 7 3/8 in. (187 mm)

	Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
			System	Fan			(C)	(F)
*	TH2110D1009	Heat/Cool or Heat Pump without Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, C W, Y G, O/B	1 Heat/1 Cool	Heat: 4.5 to 32 C; Cool: 10 to 37 C	Heat: 40 to 90 F; Cool: 50 to 99 F
	TH2210D1007	Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, C, Aux, Y, G, O/B	2 Heat/1 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F

\* TRADELINE models • SUPER TRADELINE models

## C7089 Outdoor Sensor



Remote outdoor temperature sensor, when installed, the current outdoor temperature is displayed. Also can be used to manage dual fuel and lock-out expensive auxiliary heat in heat pump applications.

- Mounting clip allows easy sensor positioning on siding or soffit.
- Includes 60 in. leadwires.
- Factory calibrated; no field calibration required.
- Maximum wire run of 200 feet.

**Dimensions, Approximate:** 57 mm x 10 mm with 1524 mm leadwires (2 1/4 in. x 3/8 in. with 60 in. leadwires.)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -40 C to +53 C (-40 F to +128 F)

**Mounting:** Mounting Clip provided and screws provided.

Product Number	Application	Used With
* C7089A1002	Outdoor sensor for PC8900/W8900 Perfect Climate Comfort Control Center	PC8900/W8900
* C7089B1000	Outdoor sensor for Chronotherm IV thermostats and TZ-4 Zone Panel	Chronotherm IV T8600 and T8500 Thermostat families and TZ-4 Zone Panel; Chronotherm® IV T8600 and T8500 Thermostat families
C7089U1006	Outdoor sensor for VisionPRO and VisionPRO IAQ Thermostats	VisionPRO® Series Thermostats, VisionPRO® IAQ Thermostat

\* TRADELINE models • SUPER TRADELINE models

## C7189 Remote Indoor Sensor



The Remote Indoor Temperature Sensor is used to sense temperature remotely.

- Used to sense temperature if the thermostat is installed in a poor temperature sensing location.
- Small remote temperature sensor to match any room decor.
- Easy to install and use.
- Factory calibrated; no field calibration required.
- Works with a maximum 200 foot wire run.

**Dimensions, Approximate:** 38 mm wide x 57 mm high x 19 mm deep (1 1/2 in. wide x 2 1/4 in. high x 3/4 in. deep)

**Color:** Premier White®

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** 7 C to 32 C (45 F to 88 F)

**Mounting:** Mounts directly on the wall using mounting screws and anchors provided

Product Number	Application	Setting Temperature Range		Used With
		(C)	(F)	
* C7189U1005	Remote Indoor Temperature Sensor for VisionPRO and VisionPRO IAQ Thermostats	See Thermostats		VisionPRO® and VisionPRO® IAQ Series Thermostats

\* TRADELINE models • SUPER TRADELINE models

# Non-Programmable Thermostats

## Wireless System Kits



- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **PERSONAL COMFORT STATION:** Allows homeowners to sense and control temperature from any room in the home to provide comfort where they spend their time. Manage comfort and energy savings from one convenient control. Touchscreen interface with backlit display. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning.
- **WIRELESS OUTDOOR SENSOR:** Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.

Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes the Portable Comfort Control to sense and control temperature from any room and a Wireless Outdoor sensor to display outdoor temperature and humidity on all devices.

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.

**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Electrical Ratings:**

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

**Changeover:** Auto/Manual Selectable

**Currents (Cooling):** 1.0 A running

**Currents (Heating):** 1.0 A running

**Currents (Fan):** 0.6 A running

**Power Method:** Thermostat--Battery



**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1017	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/ 2 Cool Heat Pump; Up to 2 Heat/ 2 Cool Conventional	REM5000R1001 Portable Comfort Control; C7089R1013 Wireless Outdoor Sensor; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

See page page 25 through page 32 for more RedLINK™ products

## FocusPRO® 5000 Digital Non-Programmable Thermostats

Standard Display

Large Display



TH5110



TH5220

The FocusPRO® non-programmable digital thermostat provides control when connected to an EnviraZone Zone Panel or an EnviraCOM equipment interface module or an EnviraCOM control board at the equipment.

- Non-programmable digital thermostat.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Display size options - available in large screen or standard.
- Precise comfort control ( $\pm 1$  F) - maintains consistent comfort to the highest level of accuracy.
- Easy change battery door - flip out door allows for easy battery replacement without removing or disassembling the thermostat.
- Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional.
- Dual-powered (battery and/or hardwire).

**Dimensions, Approximate:**

**TH5110:** 86 mm high x 114 mm wide x 33 mm deep  
(3 7/16 in. high x 4 1/2 in. wide x 1 5/16 in. deep)

**TH5220:** 91 mm high x 147 mm wide x 38 mm deep  
(3 9/16 in. high x 5 13/16 in. wide x 1 1/2 in. deep)

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Changeover:** Auto/Manual Selectable

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Accuracy:**  $\pm 0.5$  C ( $\pm 1$  F)

**Cycles per Hour:** Heating 1-12 CPH; Cooling 1-6 CPH

**Switch Type:** Relay

**Cooling:** 1.0 A running

**Heating:** 1.0 A running

**Fan:** 0.5A running

**Frequency:** 50 Hz; 60 Hz

**Power Method:** Dual Powered: Battery or Hardwire

**Sensor Element:** Thermistor

**Color:** Premier White®

**Mounting:** Horizontal

**Accessories:**

**50001137-001** FocusPRO® TH5110 Cover Plate Assembly

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007297-001** 12 pack of small coverplates (4 5/16 in. x 5 1/2 in.)

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**Replacement Parts:**

**50000951-001** Replacement Battery Holder for FocusPRO® TH5110 Thermostat

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
TH5110D1006	Up to 1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	R, Rc, C, W (O/B), Y, G	Up to 1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Standard display size 1.95 sq. in.
TH5110D1022	Up to 1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL-AUTO	AUTO-ON	R, Rc, C, W (O/B), Y, G	Up to 1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Large display size 2.98 sq. in.
TH5220D1003	Up to 2 Heat/2 Cool Conventional Systems; Up to 2 Heat/1 Cool Heat Pumps	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/2 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Standard display size 3.75 sq. in.
TH5220D1029	Up to 2 Heat/2 Cool Conventional Systems; Up to 2 Heat/1 Cool Heat Pumps	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX), Y, Y2 (E), G, L, C	Up to 2 Heat/2 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Large display size 5.09 sq. in.
TH5320U1001	Up to 2 Heat/2 Cool Conventional Systems; Up to 3 Heat/2 Cool Heat Pumps	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Rc, R, W (O/B), W2 (AUX/E), Y, Y2, G, L, C	Up to 3 Heat/2 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Large display size 5.09 sq. in.

# Non-Programmable Thermostats

## PRO 3000 Non-Programmable Thermostats



The PRO series provides non-programmable thermostats for 24 Vac conventional and heat pump systems or 750 mV heating systems.

- Non-programmable digital thermostat.
- Backlit digital display - both current and set temperatures are easy to read in various lighting conditions.
- Shows both current and set temperatures at the same time.
- Precise comfort control [ $\pm 1$  F ( $\pm 0.5$  C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.

**Dimensions, Approximate:** 97 mm high x 137 mm wide x 32 mm deep  
(3 13/16 in. high x 5 3/8 in. wide x 1 1/4 in. deep)

**Display Size:** 1.32 sq. in.

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Changeover:** Manual

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Accuracy:**  $\pm 1$  F ( $\pm 0.5$  C)

**Cycles per Hour:** Heating 1-12 CPH; Cooling 1-6 CPH

**Switch Type:** Relay

**Cooling:** 0.02 A to 1.0 A running

**Heating:** 0.02 A to 1.0 A running

**Frequency:** 50 Hz; 60 Hz

**Power Method:** Dual Powered: Battery or Hardwire

**Sensor Element:** Thermistor

**Color:** Premier White®

**Mounting:** Horizontal

**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
TH3110D1008	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B, C	1 Heat/1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F
TH3210D1004	2 Heat/1 Cool Heat Pump Systems	HEAT-OFF-COOL-EM. HT	AUTO-ON	R, Y, AUX, E, G, O, B, L, C	2 Heat/1 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F



# Non-Programmable Thermostats

## PRO Basic 1000 Non-Programmable Thermostats



The PRO non-programmable digital thermostat provides electronic control of 24 Vac conventional and heat pump systems or 750 mV heating systems.

- Non-programmable digital thermostat.
- Easy-to-read backlit display - easy to read in various lighting conditions.
- Precise comfort control [ $\pm 1$  F ( $\pm 0.5$  C)] - maintains consistent comfort to the highest level of accuracy.
- Basic operation - easy-to-use slide switches allow you to select the heat or cool mode, and operate the fan.

**Dimensions, Approximate:** 120 mm high x 74 mm wide x 28 mm deep  
(4 11/16 in. high x 2 7/8 in. wide x 1 1/8 in. deep)

**Display Size:** 1.32 sq. in.

**Electrical Ratings:** 20 to 30 Vac or 750 mV

**Changeover:** Manual

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Accuracy:**  $\pm 0.5$  C ( $\pm 1$  F)

**Cycles per Hour:** Heating 2-6 CPH

**Switch Type:** Relay

**Heating:** 0.02 A to 1.0 A running

**Frequency:** 50 Hz; 60 Hz

**Power Method:** Dual Powered: Battery or Hardwire

**Sensor Element:** Thermistor

**Color:** Premier White®

**Mounting:** Vertical

**Accessories:**

**50022893-001** Premier White® cover plate 5 3/4 in. (146 mm) x 7 3/8 in. (187 mm)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Comments
		System	Fan			(C)	(F)	
TH1100D1001	Heat Only	HEAT-OFF	—	R, C, W,	1 Heat	Selectable Heat 4.5 C to 32 or 1.5 C to 32 C	Selectable Heat: 40 F to 90 F or 35 F to 90 F	Adjustable Temperature Scale: Standard selection of 40 to 90F or Garage selection of 35 to 90F
TH1110D1000	1 Heat/1 Cool Conventional Systems and Heat Pumps with No Auxiliary Heat	HEAT-OFF- COOL	AUTO-ON	R, C, W, Y, G, O/B	1 Heat/ 1 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	—
TH1210D1008	2 Heat/1 Cool Heat Pump Systems	HEAT-OFF- COOL- EM. HT	AUTO-ON	R, C, Aux, Y, G, O/B	2 Heat/ 1 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	—

# Non-Programmable Thermostats

## T8775A,C The Digital Round® Non-Programmable Thermostats



The Digital Round® Thermostats provide 24V control of heating only or heat/cool systems.

- Attractive styling complements any decor.
- One-touch backlit display.
- Familiar twist-to-see operation. Available in Heat/Cool and Heat Only models.

**Dimensions, Approximate:** 94 mm diameter x 37 mm deep  
(3 11/16 in. diameter x 1 7/16 in. deep)  
**Operating Humidity Range (% RH):** 5 to 90% RH (non-condensing)  
**Accuracy:** ±0.5 C (±1 F)  
**Cycles per Hour:** Adjustable 1, 3, 6, 9  
**Ambient Temperature Range:** 4.5 C to 43.3 C (40 F to 110 F)  
**Switch Type:** Electronic  
**Frequency:** 60 Hz  
**Power Method:** Powered through system heating controls  
**Sensor Element:** Thermistor  
**Color:** Premier White®

**Mounting:** Round  
**Comments:** Large easy-to-see backlit display.  
**Includes:** Wallplate, resistor assembly, mounting screws and wall anchors

**Accessories:**  
**50000066-001** Decorative Cover Plate for T8775 or T87K,N

**Replacement Parts:**  
**32007680-001** Replacement Cover for T8775

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
T8775A1017	Heat Only	—	—	R, W	1 Heat	Heat: 4 to 32; Cool: 7 to 37	Heat: 40 to 90; Cool: 45 to 99
T8775C1013	1 Heat/1 Cool Conventional and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	Heat: 4 to 32; Cool: 7 to 37	Heat: 40 to 90; Cool: 45 to 99

## T87K,N The Round®



The Round® thermostats provide electronic control of 24Vac heating and cooling systems with the classic twist to set dial.

- Mercury Free
- Classic Styling
- Premier White®
- The T87K heat only works with 2 or 3 wire heat-only systems

**Dimensions, Approximate:** 94 mm diameter x 45 mm deep  
(3 11/16 in. diameter x 1 3/4 in. deep)  
**Electrical Ratings:** 20 to 30 Vac  
**Operating Humidity Range (% RH):** 5 to 90% RH (non-condensing)  
**Accuracy:** ±1 C (±1 F)  
**Cycles per Hour:** Adjustable 1, 3, 5, 9  
**Switch Type:** Relay  
**Heating:** 0.02 A to 1.0 A running  
**Frequency:** 50 Hz; 60 Hz

**Power Method:** Battery assisted power stealing  
**Sensor Element:** Thermistor  
**Color:** Premier White®  
**Mounting:** Round

**Accessories:**  
**50000066-001** Decorative Cover Plate for T8775 or T87K,N  
**50010944-001** Range Stop Assembly

Product Number	Application	Switch Positions		Terminal Designations	Stages	Setting Temperature Range
		System	Fan			(C)
T87K1015	Heat Only	—	—	R, W, Y	1 Heat	5 to 30
T87N1018	1 Heat/1 Cool Conventional and Heat Pumps with No Auxiliary Heat	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	5 to 30

# Non-Programmable Thermostats

## Mercury Free T822 Econo Thermostats



Heat-Off

No Heat-Off

Dual Scale

Thermostats provide 24 Vac control of heating or cooling systems.

- Vented cover for improved temperature sensing.
- Setting lever and thermometer scale on thermostat cover.
- Mounts directly on the wall or on vertical outlet box.
- Integrated thermometer and setting scale.

**Dimensions, Approximate:** 121 mm high x 73 mm wide x 35 mm deep (4 3/4 in. high x 2 7/8 in. wide x 1 3/8 in. deep)

**Electrical Ratings:** 20 to 30 Vac

**Accuracy:** ±1 C (±2 F)

**Switch Type:** Precision Snap Action

**Switching Action:** SPST

**Heating:** 0.02 A to 1.0 A running

**Sensor Element:** Bimetal

**Color:** Premier White®

**Mounting:** Vertical

Product Number	Application	Switch Positions	Terminal Designations	Stages	Setting Temperature Range		Comments
		System			(C)	(F)	
T822K1026	Heat Only	HEAT-OFF	R, W	1 Heat	7 to 32	—	
T822K1034	Heat Only	—	R, W	1 Heat	7 to 32	—	
T822L1000	Cool Only or Heat Only for Normally Open Hot Water Zone Valves	—	R, Y	1 Cool	7 to 32	45 to 95	Dual Scale; No System switch, No Fan switch

\* TRADELINE models • SUPER TRADELINE models

## Mercury Free T827 Econo Thermostats



The EconoStat series mechanical thermostats provide control of 12 Vdc or 750 mV heat only systems.

- Integrated thermometer and temperature setting scale.
- Precise Snap-action switch.
- Mount directly on wall or outlet box.
- Includes dealer logo pocket.

**Dimensions, Approximate:** 121 mm high x 73 mm wide x 35 mm deep (4 3/4 in. high x 2 7/8 in. wide x 1 3/8 in. deep)

**Accuracy:** ±1 C (±2 F)

**Switch Type:** Precision Snap Action

**Switching Action:** SPST

**Sensor Element:** Bimetal

**Color:** Premier White®

**Mounting:** Vertical

Product Number	Application	Switch Positions	Terminal Designations	Stages	Setting Temperature Range
		System			(C)
T827K1017	Heat Only	HEAT-OFF	R, W	1 Heat	7 to 32

# Non-Programmable Thermostats

## Mercury Free T834; T8034 Econo Thermostats



**Thermostats for low voltage control of single-stage heating, cooling or heating-cooling systems.**

- Integrated thermometer and temperature setting scale.
- Precise Snap-action switch.
- Mount directly on wall or outlet box.
- Includes dealer logo pocket.

**Dimensions, Approximate\*:** 121 mm high x 73 mm wide x 35 mm deep (4 3/4 in. high x 2 7/8 in. wide x 1 3/8 in. deep)

\*Rotated for the Horizontal mounting models

**Electrical Ratings:** 20 to 30 Vac

**Accuracy:** ±1 C (±2 F)

**Switch Type:** Precision Snap Action

**Switching Action:** SPST

**Cooling:** 0.02 A to 1.0 A running

**Heating:** 0.02 A to 1.0 A running

**Sensor Element:** Bimetal

**Color:** Premier White®

**Accessories:**

**50019661-001** Range Stop Assembly for Econostat

Product Number	Application	Mounting	Switch Positions		Terminal Designations	Stages	Setting Temperature Range	
			System	Fan			(C)	(F)
T834L1004	Cool Only	Vertical	COOL-OFF	AUTO-ON	R, Y, G, O	1 Cool	7 to 32	45 to 95
T834N1010	1 Heat/1 Cool Conventional and Heat Pumps with No Auxiliary Heat	Vertical	HEAT-OFF-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	7 to 32	—
T8034N1015	1 Heat/1 Cool Conventional and Heat Pumps with No Auxiliary Heat	Horizontal	OFF-HEAT-COOL	AUTO-ON	R, Rc, W, Y, G, O, B	1 Heat/1 Cool	10 to 32	—

# Non-Programmable Thermostats

## T812; TS812 Heating and/or Cooling Thermostats



**Thermostats for low voltage control of single-stage heating, cooling or heating-cooling systems.**

- Snap-acting bimetal switch uses no mercury and does not require leveling.
- Thermostat is streamlined and economical.
- Model available for 12 Vdc (T812B) and 750 mV (TS812).
- Includes dealer logo pocket.

**Dimensions, Approximate:** 79 mm high x 79 mm wide x 23 mm deep  
(3 1/8 in. high x 3 1/8 in. wide x 7/8 in. deep)

**Operating Humidity Range (% RH):** 5 to 90% RH

**Accuracy:** ±1.5 C (±3 F)

**Ambient Temperature Range:** 7 C to 35 C (45 F to 95 F)

**Setting Temperature Range:** 7 to 35 C (45 to 95 F)

**Switch Type:** Snap action

**Heating:** 1.0A running, 2.5A inrush at 24 Vac

**Fan:** 1.0A running, 5A inrush at 24 Vac

**Sensor Element:** Bimetal

**Color:** Premier White®

**Mounting:** Square

**Accessories:**  
**50005625-001** Premier White® Cover Plate Assembly 4 3/4 in. (120 mm) x 4 3/4 in. (120 mm)

Product Number	Application	Switch Positions		Terminal Designations	Stages	Electrical Ratings	Switching Action	Description
		System	Fan					
T812A1002	Heat Only	—	—	W, R	1 Heat	18 to 30 Vac	SPST	Premier White 1 Heat Stage Thermostat with W,R terminals for 24 volt control of heating only systems
T812A1010	Heat Only	Positive Off	—	W, R	1 Heat	18 to 30 Vac	SPST	Premier White 1 Heat Stage Thermostat with W,R terminals for 24 volt control of heating only systems
T812B1001	Heat Only - 12 Vdc	Positive Off	—	W, R	1 Heat	12 Vdc	SPST	Premier White 1 Heat Stage Thermostat with W,R terminals for 12 Vdc control of heating only systems
T812C1000	1 Heat/1 Cool Conventional Systems	OFF-HEAT-COOL	AUTO-ON	R, W, Y, G	1 Heat/ 1 Cool	18 to 30 Vac	SPDT	Premier White 1 Heat/1 Cool Stage Thermostat for 24 Vac heating and cooling systems
T812D1009	Cool Only	—	—	R, Y	1 Cool	18 to 30 Vac	SPST	Premier White 1 Cool Stage Thermostat with Y,R terminals for 24 volt control of cooling only systems
* TS812A1007	Heat Only - Millivolt	Positive Off	—	R, W	1 Heat	750 mV	SPST	Premier White 1 Heat Stage Thermostat with R,W terminals for heat only 750 mV applications

\* TRADELINE models • SUPER TRADELINE models

# Freeze Warning

## S483 Winter Watchman



Used as a freeze warning device. Completes circuit to household lamp on temperature fall, indicating inoperative heating equipment.

- Plugs directly into wall outlet.
- Lamp plugs into receptacle at bottom of Winter Watchman device.
- Useful when house is unoccupied to notify a neighbor of a temperature drop so heating source fault can be rectified before freeze-up occurs.
- Not precision calibrated for use as a thermostat.

**Dimensions, Approximate:** 86 mm high x 54 mm wide x 21mm deep  
(3 3/8 in. high x 2 1/8 in. wide x 13/16 in. deep)

**Electrical Ratings:** Load: 120W maximum for incandescent lamp load only.

**Accuracy:** ±3 C (±5 F)

**Ambient Temperature Range:** -1 C to +16 C (30 F to 60 F)

**Switching Action:** SPST

**Heating:** 1.0A

**Frequency:** 60 Hz

**Sensor Element:** Bimetal

**Color:** Beige

**Mounting:** Vertical Mount

Product Number	Application	Setting Temperature Range	
		(C)	(F)
S483B1002	Incandescent Lamp	-1 C to 16 C	30 to 60

## Prestige™ Comfort System



High Definition Color Touchscreen Thermostat



Standard Definition Touchscreen Thermostat

The Prestige™ HD thermostat provides control of 24Vac of heating and cooling systems. RedLINK™ enabled to work with compatible wireless accessories. The Prestige™ HD Thermostat Kits contains Wireless Outdoor Sensor and High Definition (HD) Color Touchscreen Thermostat.

- Large, easy-to-read backlit full color display shows current indoor temperature and humidity, temperature setting, date and time on the

**Application:** Up to 3 Heat/2 Cool Heat Pumps  
Up to 2 Heat/2 Cool Conventional Systems

**Dimensions, Approximate (Thermostat):**  
100 mm. High, 175 mm. Wide, 38 mm. Deep  
(3 15/16 in. High, 6 7/8 in. Wide, 1 1/2 in. Deep)

**Display Size:** 8.06 sq. in.

**Color:** Arctic White

**Programmability:**

7-Day Multiple Day Programming or Non-Programmable

**Changeover:** Auto or Manual

**Electrical Connections:** Screw terminals

**Electrical Ratings:** 18 to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**Voltage:** 18 to 30 Vac

**Operating Humidity Range (% RH):** 0 to 90% RH, non-condensing

**Humidity Setting Range:**

Cooling: 40 to 80% RH. Heating: 10 to 80% RH.

**Dehumidification Setting Range:** 40 to 80% RH.

**Humidification Setting Range:** 10 to 60% RH.

**Operating Temperature Range:** 0 C to 48.9 C (32 F to 120 F)

- home screen. Also displays outdoor temperature and humidity on home screen (if wireless outdoor sensor is installed)
- Adjustable backlight level allows thermostat to be on full brightness at all times or dim to the brightness level of choice when the thermostat is not being used
- Interview-Based Programming wizard to easily and confidently schedule thermostat temperatures and times
- USB Port allows downloading of installer settings to quickly and consistently perform setup of thermostats in similar applications
- USB Port also allows easy setup of dealer logo and contact information on thermostat screen
- Real-Time Clock keeps time during power failure; automatically updates for daylight saving time
- Precise Temperature Control ( $\pm 1$  F) for reliable and consistent temperature.
- Multiple HOLD options allows modification of schedule as needed
- Change Reminders to inform it is time to replace Air Filter, humidifier pad, ultraviolet bulb or batteries in connected devices
- RedLINK™ Enabled to communicate with compatible wireless devices
- Kit Includes Portable Comfort Control, Wireless Outdoor Sensor and Prestige™ HD Thermostat



**Setting Temperature Range:**

Heat: 4.5 C to 32.0 C; Cool: 15.5 C to 37.0 C  
(Heat: 40 F to 90 F; Cool 60 F to 99F)

**Stages:** Up to 3 Heat / 2 Cool Heat Pump or  
Up to 2 Heat / 2 Cool Conventional

**Power Method:** Hardwired

**Indoor Sensor:** Yes, optional

**Remote Sensor:** No

**Comments:** Tri-Lingual Display (selectable for English, French or Spanish)

**Used With:** RedLINK™ enabled thermostats and accessories

**Accessories:**

**50028399-001** Cover plate for Prestige Thermostats 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience.

RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**THP9045A1007** THP9045 WireSaver

Product Number	Switch Positions		Terminal Designations	Includes
	System	Fan		
THX9321R1008	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat
THX9321R5000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat
YTHX9321R1000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R1011	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	Standard Definition Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor
YTHX9321R5003	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; REM5000R1001 Portable Comfort Control and C7089R1013 Wireless Outdoor Sensor
YTHX9321R5012	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	C, R, Rc, W-O/B, W2-AUX/E, Y, Y2, G, L, K, HUM, HUM, DHM, DHM	High Definition Color Touchscreen Thermostat; C7089R1013 Wireless Outdoor Sensor

# RedLINK™ Wireless Products

## Wireless System Kits



Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes the Portable Comfort Control to sense and control temperature from any room and a Wireless Outdoor sensor to display outdoor temperature and humidity on all devices.

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.
- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **PERSONAL COMFORT STATION:** Allows homeowners to sense and control temperature from any room in the home to provide comfort where they spend their time. Manage comfort and energy savings from one convenient control. Touchscreen interface with backlit display. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning.
- **WIRELESS OUTDOOR SENSOR:** Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- **RedLink™ WIRELESS TECHNOLOGY:** Powered by RedLink™ reliability. No interference with other wireless devices in the home.



**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Electrical Ratings:**

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

**Changeover:** Auto/Manual Selectable

**Cooling:** 1.0 A running

**Heating:** 1.0 A running

**Fan:** 0.6 A running

**Power Method:** Thermostat--Battery

**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. X 6 7/8 in.)

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1017	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor; REM5000R1001 Portable Comfort Control; C7089R1013 Wireless Outdoor Sensor
YTH6320R1015	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor; REM5000R1001 Portable Comfort Control; C7089R1013 Wireless Outdoor Sensor



## Wireless Thermostat Kits with Outdoor Sensor



Everything you need to relocate thermostat or upgrade equipment without running new wires. Includes Wireless Outdoor Sensor to display outdoor temperature and humidity on all devices.

- WIRELESS FocusPRO® THERMOSTAT: Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled.
- EQUIPMENT INTERFACE MODULE (EIM): All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- RETURN AIR SENSOR: Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- WIRELESS OUTDOOR SENSOR: Reliable performance in all climates. Installs in minutes. Up to 5 year battery life. 2 month low battery warning.
- RedLink™ WIRELESS TECHNOLOGY: Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Electrical Ratings:**

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

**Changeover:** Auto/Manual Selectable

**Cooling:** 1.0 A running

**Heating:** 1.0 A running

**Fan:** 0.6 A running

**Power Method:** Thermostat--Battery

**Accessories:**

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1008	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor C7089R1013 Wireless Outdoor Sensor;
YTH6320R1009	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor C7089R1013 Wireless Outdoor Sensor;

# RedLINK™ Wireless Products

## Wireless Thermostat Kits



**Everything you need to relocate thermostat or upgrade equipment without running new wires**

- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Can display outdoor temperature and humidity. 1 year battery life. 2 month low battery warning. Dual Fuel enabled -requires C7089R1013 wireless outdoor sensor (sold separately).
- **EQUIPMENT INTERFACE MODULE (EIM):** All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- **RETURN AIR SENSOR:** Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Electrical Ratings:**

Equipment Interface Module--18 to 30 Vac, 50 Hz; 60 Hz

**Changeover:** Auto/Manual Selectable

**Cooling:** 1.0 A running

**Heating:** 1.0 A running

**Fan:** 0.6 A running

**Power Method:** Thermostat--Battery

**Accessories:**

**50007298-001** 12 pack of medium coverplates (5 in. X 6 7/8 in.)

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Terminal Designations	Stages	Includes
	System	Fan			
YTH5320R1000	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat / 2 Cool Heat Pump or Up to 2 Heat / 2 Cool Conventional	TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor
YTH6320R1001	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat / 2 Cool Heat Pump or Up to 2 Heat / 2 Cool Conventional	TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor

## Wireless Zoning Adapter Kits



**Wireless Zoning Adapter Kit allows you to easily add to a TrueZONE™ system without running new wires.**

- **WIRELESS ADAPTER:** Allows for wireless zoning when used with HZ432 or HZ322 TrueZONE™ panels (sold separately). Adapter receives communication from the wireless devices.
- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity (outdoor sensor sold separately). 1 year battery life. 2 month low battery warning.
- **RedLink™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



**Application:** Heat Pump Systems; Forced warm air  
**Changeover:** Auto/Manual Selectable  
**Power Method:** Thermostat--Battery

**Accessories:**

- 50002883-001** FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly
- 50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)
- C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.
- REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**Replacement Parts:**

- 50007072-001** Replacement Battery Holder for FocusPRO TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Includes
	System	Fan	
YTH5320R1025	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	THM4000R1000 Wireless Adapter; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat
YTH6320R1023	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	THM4000R1000 Wireless Adapter; TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat

# RedLINK™ Wireless Products

## Wireless FocusPRO® Thermostats



Easily add a zone to a TrueZONE™ system without running new wires. Choose from programmable or non-programmable.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled devices
- Same great features of the FocusPRO® thermostat now wireless
- Installs in minutes
- Can display outdoor temperature and humidity
- 1 year battery life
- 2 month low battery warning
- Dual Fuel enabled - requires THM5320R1000 Equipment Interface Module and C7089R1013 Wireless Outdoor Sensor (sold separately).



**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Dimensions, Approximate:** 91 mm High X 147 mm Wide X 38 mm Deep (3 9/16 in. High X 5 13/16 in. Wide X 1 1/2 in. Deep)

**Color:** Premier White®

**Changeover:** Auto/Manual Selectable

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Operating Temperature Range:** 0 C to 48.9 C (32 F to 120 F)

**Setting Temperature Range:**

Heat: 4.5 C to 32 C; Cool: 10 C to 37 C

(Heat: 40 F to 90 F; Cool: 50 F to 99 F)

**Differential Temperature:** ±0.5 C (±1 F)

**Power Method:** Battery

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Comments:** Thermostat is also available in kits for zoned and non-zoned systems

### Accessories:

**50002883-001** FocusPRO® 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**C7735A1000** Mount on return duct for backup control of non-zoned RedLINK™ enabled wireless systems. Works with the EIM to maintain safe indoor temperatures if power is lost at the wireless thermostat.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

### Replacement Parts:

**50007072-001** Replacement Battery Holder for FocusPRO® TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Stages	Parts Needed for Operation (not included) - Non-Zoned System	Parts Needed for Operation (not included) - TrueZONE™ System
	System	Fan			
TH5320R1002	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	THM5320R1000 Equipment Interface Module	HZ432 or HZ322 TrueZONE™ panel; THM4000R1000 Wireless Adapter
TH6320R1004	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	THM5320R1000 Equipment Interface Module	HZ432 or HZ322 TrueZONE™ panel; THM4000R1000 Wireless Adapter

## THM5320 Equipment Interface Module



Easily relocate thermostat or upgrade equipment without running new wires using this module and a wireless FocusPRO® thermostat.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with TH6320R1004 or TH5320R1002 Wireless FocusPRO® thermostats
- Input for Return Air Sensor
- Quick-connect terminal blocks
- LEDs for power and system status



Wireless Technology

**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Dimensions, Approximate:** 206 mm high x 203 mm wide x 47 mm deep (8 1/8 in. high x 8 in. wide x 1 7/8 in. deep)

**Electrical Ratings:** 18 to 30 Vac, 50/60 Hz

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Operating Temperature Range:** -40 C to 73.9 C (-40 F to +165 F)

**Cooling:** 1.0 A running

**Heating:** 1.0 A running

**Fan:** 0.6 A running

**Color:** Gray

### Accessories:

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**C7735A1000** Mount on return duct for backup control of non-zoned RedLINK™ enabled wireless systems. Works with the EIM to maintain safe indoor temperatures if power is lost at the wireless thermostat.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

Product Number	Terminal Designations	Stages	Parts Needed for Operation (not included)	Comments
THM5320R1000	C, R, Rc, Rh, W-O/B, W2-Aux/E, Y, Y2, G, L, RAS	Up to 3 Heat/2 Cool Heat Pump; Up to 2 Heat/2 Cool Conventional	TH6320R1004 or TH5320R1002 Wireless FocusPRO® Thermostat	Equipment Interface Module is also available in kits

## Wireless Adapter



Use a RedLINK™-enabled TrueSTEAM® Humidification System with a Wireless Adapter to communicate and control humidity from Prestige without running new wires to the living space. Prestige also controls whole-house dehumidifiers like the Honeywell TrueDRY®.

- Powered by RedLINK™ reliability.
- No interference with other wireless devices in the home.
- Communicates with Wireless Outdoor Sensor to automatically control humidity to proper levels.



Wireless Technology

Wireless Adapter allows you to easily add RedLINK™-enabled thermostats to a TrueZONE™ system without running new wires.

**Dimensions, Approximate:** 141 mm high x 112 mm wide x 32 mm deep (5 9/16 in. high x 4 3/8 in. wide x 1 1/4 in. deep)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Operating Temperature Range:** -40 C to 73.9 C (-40 F to +165 F)

**Color:** Gray

**Mounting:** Mount Wireless Adapter on wall near HVAC equipment or on the duct.

Product Number	Terminal Designations	Requirements	Description
THM4000R1000	A, B, C, D	One adapter per zone control panel, HZ322 or HZ432 TrueZONE panel	Wireless Adapter allows you to easily add RedLINK™ enabled thermostats to a TrueZONE™ system without running new wires.

# RedLINK™ Accessories

## REM5000 Portable Comfort Control



Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. Works in both zoned and non-zoned applications.

**Application:** Zoned and Non-Zoned Applications  
**Dimensions, Approximate:** 159 mm high x 79 mm wide x 41 mm deep (6 1/4 in. high x 3 1/8 in. wide x 1 5/8 in. deep)  
**Changeover:** Auto or Manual  
**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled thermostats and accessories
- Installs in minutes
- Touchscreen interface with backlit display
- Can display outdoor temperature and humidity
- Built-in pager with an audible noise helps locate the device in the home
- Screen-lock feature helps prevent accidental changes
- 1 year battery life
- 2 month low battery warning
- In Non-Zoned Applications:
  - Bring it with you anywhere in the home to sense and control temperature from the room that you are in.
- In Zoned Applications:
  - View and adjust all RedLINK™ enabled thermostats from a single control.
- Controls up to 16 thermostats



**Operating Temperature Range:** 0 C to 48.9 C (32 F to 120 F)  
**Differential Temperature:** ±0.5 C (±1 F)  
**Power Method:** Battery  
**Sensor Element:** Thermistor

Product Number	Comments	Used With
REM5000R1001	Portable Comfort Control is also available in kits.	RedLINK™ enabled thermostats and accessories

## C7089 Wireless Outdoor Sensor



**Application:** Outdoor Sensor  
**Dimensions, Approximate:** (with mounting bracket)  
 127 mm high x 89 mm wide x 43 mm deep  
 (5 in. high x 3 1/2 in. wide x 1 11/16 in. deep)  
**Color:** Gray  
**Operating Humidity Range (% RH):** 0 to 100% RH, condensing

**Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.**

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Reliable performance in all climates
- Installs in minutes
- Up to 5 year battery life
- 2 month low battery warning
- Battery warning displayed on RedLINK™ enabled thermostats
- Includes 2 AA Lithium batteries and mounting hardware



**Operating Temperature Range:** -40 C to 60 C (-40 F to 140 F)  
**Power Method:** Battery  
**Sensor Element:** Thermistor  
**Mounting:** Mounts on a vertical wall with supplied bracket and mounting hardware

Product Number	Comments	Used With	Includes
C7089R1013	Wireless Outdoor Sensor is also available in kits	RedLINK™ enabled thermostats and accessories	2 AA Lithium Batteries and mounting hardware

## C7735 Return Air Sensor



**Mount on return duct for backup control of non-zoned RedLINK™ enabled Wireless Systems and Thermostats.**

- Works with THM5320R1000 Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat
- Takes control of the equipment by turning on the blower fan and sensing the indoor temperature of the home
- Controls heating at 62 F and cooling at 82 F
- Provides homeowners with peace of mind
- Installs in minutes
- Includes mounting hardware

**Dimensions, Approximate:** 77 mm high x 102 mm wide x 25 mm deep. (3 7/8 in. high x 4 1/8 in. wide x 1 1/4 in. deep) Sensor probe is 3 3/4 in. long (77 mm)

**Color:** Gray

**Operating Temperature Range:** -17.8 C to 93.3 C (0 F to 200 F)

**Mounting:** Mounts on return duct

Product Number	Application	Comments	Used With
C7735A1000	Mount on return duct for backup control of non-zoned systems	Return Air Sensor is also available in kits for non-zoned systems	THM5320R1000 Equipment Interface Module; TH6320R1004 or TH5320R1002 Wireless FocusPRO® Thermostat

# Communicating Thermostats

## VisionPRO® IAQ Total Home Comfort System



The VisionPRO IAQ touchscreen universal programmable thermostat provides electronic control of 24 Vac heating and cooling systems in addition to humidification, dehumidification and ventilation all with just 3 wires to the thermostat.

- Advanced dual-fuel control.
- Three wires to the living space allows for easy equipment upgrade without having to run additional thermostat wire.
- Thermostat connects with Equipment Interface Module or EnviraZONE panel to control temperature, humidification, dehumidification and ventilation from a single point in the home.
- Automatically raises humidity levels throughout all rooms in the home, moisturizing air to prevent symptoms of dryness and to protect hardwood flooring and woodwork.
- Removes air pollutants by exchanging the stale air in a house with fresh, filtered air better than having an open window.

**Dimensions, Approximate:** 116 mm high x 152 mm wide x 32 mm deep (4 9/16 in. high x 6 in. wide x 1 1/4 in. deep)

**Color:** Premier White®

**Programmability:** 7 Day Multiple Day Programming or Non-Programmable

**Changeover:** Auto/Manual Selectable

**Electrical Ratings:** THM5421 is rated 20 to 30 Vac

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Differential Temperature:** ±0.5 C (±1 F)

**Stages:** Up to 3 Heat/2 Cool Conventional; Up to 4 Heat/2 Cool Heat Pump

**Thermostat Display Size:** 10 sq. in.

**Voltage:** 20 to 30 Vac

**Dehumidification Setting Range:** 40 to 80% RH.

**Humidification Setting Range:** 10 to 60% RH.

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Switch Type:** Yes, optional

**Power Method:** Communicating

**Outdoor Sensor:** Yes, optional

**Remote Sensor:** Yes, optional

**Comments:** Includes Humidification Control with or without Frost Protection, Dehumidification using Whole House Dehumidifier or Air Conditioning with High or Low speed fan, Advanced Patented Ventilation Control and Advanced Dual Fuel Heat Pump Control.

**Accessories:**

**32003796-001** Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

**C7089U1006** Remote Outdoor Sensor

**C7189U1005** Remote Indoor Sensor

Product Number	Application	Mounting	Switch Positions		Terminal Designations	Setting Temperature Range		Used With	Includes
			System	Fan		(C)	(F)		
TH9421C1004	Conventional and Heat Pump systems	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Heat: 40 F to 90 F; Cool: 60 F to 99 F	THM5421C Equipment Interface Module	—
THM5421C1008	Heat/Cool or Heat Pump with Auxiliary Heat	Vertical	—	—	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	—	—	TH9421 VisionPRO IAQ Thermostat	—
YTH9421C1002	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Heat: 40 F to 90 F; Cool: 60 F to 99 F	—	TH9421C1004 Thermostat and THM5421C1008 Equipment Interface Module
YTH9421C1010	Heat/Cool or Heat Pump with Auxiliary Heat	Horizontal	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON-CIRC	1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1, Vnt2	Heat: 4.5 C to 32 C; Cool: 15 C to 37 C	Heat: 40 F to 90 F; Cool: 60 F to 99 F	—	TH9421C1004 Thermostat, THM5421C1008 Equipment Interface Module and C7089U1006 Outdoor Temperature Sensor



## FocusPRO® Communicating Thermostats



The FocusPRO® non-programmable digital thermostat provides control when connected to an EnviraZone Zone Panel or an EnviraCOM equipment interface model or an EnviraCOM control board at the equipment.

- Non-programmable digital thermostat.
- Large, clear, backlit display - easy to read in various lighting conditions.
- Precise comfort control ( $\pm 1$  F) - maintains consistent comfort to the highest level of accuracy.
- Up to 3 Heat/2 Cool Heat Pump or Up to 2 Heat/2 Cool Conventional.

**Application:** Conventional and Heat Pump systems; Network Zoning 3H/2C system

**Dimensions, Approximate:** 86 mm high x 114 mm wide x 33 mm deep (3 7/16 in. high x 4 1/2 in. wide x 1 5/16 in. deep)

**Changeover:** Auto/Manual Selectable

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Accuracy:**  $\pm 0.5$  C ( $\pm 1$  F)

**Switch Type:** Relay

**Frequency:** 50 Hz; 60 Hz

**Power Method:** Communicating

**Sensor Element:** Thermistor

**Color:** Premier White®

**Mounting:** Horizontal

**Replacement Parts:**

**50001137-001** FocusPRO® TH5110 Cover Plate Assembly

Product Number	Switch Positions		Terminal Designations	Stages	Setting Temperature Range		Zones	Used With
	System	Fan			(C)	(F)		
TH5320C1002	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	1, 2, 3	Up to 3 Heat/2 Cool	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F	Up to 9	W8835A EnviraZONE panel; THM5421C1008 Equipment Interface Module

# Telephone Access Module

## W8735 Telephone Access Module



The W8735D Telephone Access Module (TAM) provides remote telephone access to the HVAC system when used with an EnviraCOM™ enabled thermostat such as the TH9421C1004 VisionPRO® IAQ Total Home Comfort System and the TH5320C1002 FocusPRO® thermostat. These thermostats are used with one or more of the following controls: A W8835A EnviraZone panel, a THM5421C1008 or W8703 Damper Interface Module. The W8735D also communicates with R7184P and R7184U oil primary

**Dimensions, Approximate:** 254 mm high x 127 mm wide x 51 mm deep (10 in. high x 5 in. wide x 2 in. deep)

**Programmability:** Up to 3 dialup numbers, alert prioritization, low/high temperature alert settings, low/high humidity alert settings, and zone naming.

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** 0 C to 49 C (32 F to 120 F)

**Electrical Ratings:** EnviraCOM™ Terminals: 1/D, 2/R, 3/B = 24 Vac; Auxiliary Terminals: Aux In = N.C.24 Vac/24 Vdc, polarity insensitive; Aux Out = N.O. dry contact, 24 Vac/24 Vdc

**LEDs:** Communication and Battery LEDs

**Network Zoning:** Yes

**Mounting:** Number 6 screw and wall anchors supplied in bag assembly

**Power Method:** Plug in transformer, 12 Vdc (±5%), 2.0 A, 9 Vdc battery backup

controls and L7224U Aquastat® remote temperature sensors as well as any other EnviraCOM enabled controls to communicate current status and alert information.

- Supports up to four independent EnviraCOM channels for a maximum of 36 zones per W8735D (9 zones per channel when using zone panels)
- Use with the TH9421C1004 VisionPRO IAQ Total Home Comfort System and W8835A EnviraZone for zoned systems
- Use with THM5421C1008 for single zone applications
- Use with TH5320C1002 FocusPRO® EnviraCOM thermostat for zoning applications
- Compatible with the T8635L Microelectronic Communicating Programmable Thermostat, W8835A EnviraZone panel, or W8635A and W8635B Equipment Interface Modules
- Use with any EnviraCOM generating products like R7184U Oil Primary and L7224U Aquastat™ controls
- Provides remote telephone access to check or change thermostat settings (i.e. heat, cool, auto, or off)
- Provides remote telephone access to check current indoor and outdoor temperatures and indoor humidity
- Reports alert messages on high or low indoor/outdoor temperature, high or low humidity, low battery, auxiliary input sensor tripped, pass code change, air filter change required, system alerts, and power outage
- Prioritize alerts to specify the time of day that the TAM will dial-out
- Emergency drop call feature
- Up to three telephone numbers can be programmed for alert messaging
- Auxiliary sensor input for use with an optional N.C. sensor contact
- Auxiliary output for local alert enunciation

### Approvals:

**Federal Communications Commission:** FCC rules: Part 68 and Part 15

### Accessories:

**C7089U1006** Remote Outdoor Sensor

**TH9421C1004** VisionPRO® IAQ Total Home Comfort System with Temperature, Humidification, Dehumidification and Ventilation Control

**THM5421C1008** Premier White VisionPRO IAQ Total Home Comfort Solution Equipment Interface Module with up to 4 Heat/2 Cool stages and 1, 2, 3, C, R, Rc, Rh, R, W1-O/B, W2-Aux, W3-Aux2, Y, Y2, G, L, Out1, Out2, In1, In2, Dats1, Dats2, Hum1, Hum2, Dh1, Dh2, Vnt1,



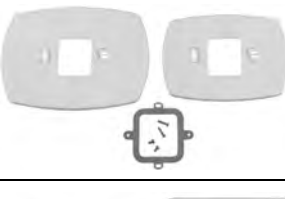
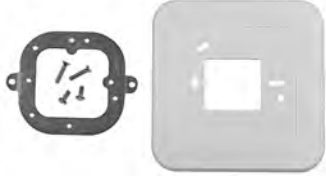

**W8703A1003** Damper Interface Module utilizes the EnviraCOM HVAC communication Network Use with T8635L and W8635A,B

**W8835A1004** EnviraZone Control Panel

**50022037-001** Outdoor Sensor Interface Module

Product Number	Application	Color	Terminal Designations	Number of Zones	Used With
W8735D1009	The W8735D Telephone Access Module (TAM) provides remote telephone access to the HVAC system when used with EnviraCOM™ enabled controls	Premier White®	1/D, 2/R, 3/B (terminal connections per channel), Aux In, Aux Out	9 zones per channel; 2 channels; 18 total zones	EnviraCOM enabled thermostats and combustion controls
W8735D1017	The W8735D Telephone Access Module (TAM) provides remote telephone access to the HVAC system when used with EnviraCOM™ enabled controls	Premier White®	1/D, 2/R, 3/B (terminal connections per channel), Aux In, Aux Out	9 zones per channel; 4 channels; 36 total zones	EnviraCOM enabled thermostats and combustion controls

## Parts and Accessories

Product Number	Color	Description	Used With	
32003796-001	Premier White®	Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)	TH8000 VisionPRO™ Series Thermostats	
50000066-001	—	Decorative Cover Plate for T87K, T87N and T8775	T87K, T87N, T8775	
50000951-001	Premier White®	Replacement Battery Holder for FocusPRO TH5110 Thermostat	FocusPRO™ TH5110 Thermostat	
50001137-001	Premier White®	Coverplate assembly for use with FocusPRO™ TH5110 thermostat. Includes one small and one medium coverplate, bracket for j-boxes and mounting hardware. Small coverplate is 4 5/16 in. X 5 3/4 in. Medium coverplate is 5 in. X 6 7/8 in.	FocusPRO™ TH5110 Thermostat	
50002883-001	Premier White®	Coverplate assembly for use with FocusPRO™ 6000/5000 and PRO 4000/3000 thermostats. Includes one medium and one large coverplate, bracket for j-boxes and mounting hardware. Medium coverplate is 5 in. X 6 7/8 in. Large coverplate is 6 in. X 8 5/16 in.	FocusPRO 6000, 5000; PRO 4000, 3000	
50005625-001	Premier White®	Premier White® Cover Plate Assembly includes 4 3/4 in. (120mm) x 4 3/4 in. (120mm) coverplate, bracket for junction box mounting, mounting screws.	T812 and TS812 Thermostats	
50007072-001	Premier White®	Replacement Battery Holder for FocusPRO TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat	FocusPRO TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat	
50010944-001	—	Range Stop Assembly for T87K, T87N, includes: range stops for degree F and C with screws	The Round® T87K and T87N Mercury Free Thermostats	
50022893-001	Premier White®	White Coverplate 5 3/4 in. (146 mm) x 7 3/8 in. (187mm)	PRO TH1000 and TH2000 Series Thermostats	
50028399-001	Arctic White	Cover plate for Prestige Thermostats 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm) Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)	THX9000 Series Thermostats	
THP9045A1007	Gray	Wiring module that connects to "K" terminal on thermostat and separates into Y and G signals to equipment. Can be used in conventional and heat pump systems requiring one wire more than is available.	THX9000 Series Thermostats	

# Thermostat Guards

## TG510 Versaguard Universal Thermostat Guards



**Inside Height:** 113 mm (4 7/16 in.)  
**Inside Width:** 113 mm (4 7/16 in.)  
**Outside Height:** 64 mm (2 1/2 in.)  
**Outside Width:** 149 mm (5 7/8 in.)  
**Outside Depth:** 64 mm (2 1/2 in.)

- Enclose and protect wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.**
- Unique double-wall construction provides extra measure of tamper-resistance.
  - Used in both new and existing applications.
  - Tamper-resistant lock; key cannot be removed unless in locked position.
  - All models mount vertically or horizontally on wall or exposed junction box.
  - Vents in guard base allow airflow for optimum thermostat performance.

**Size:** small  
**Wallplate Color:** Opaque Polystyrene

**Accessories:**  
**191990A** Replacement Keys (set of 2) for TG509, TG510, TG511 and TG512

	Product Number	Color	Ring Base Color	Description	Used With
*	TG510A1001	Clear Acrylic	clear acrylic	Small universal thermostat guard Clear cover, clear base opaque wallplate Fits T87 RS TX400	T87 and others of similar size
	TG510D1005	Painted metal	opaque polystyrene	Small Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate	T87 and others of similar size

\* TRADELINE models • SUPER TRADELINE models

## TG511 Versaguard Universal Thermostat Guards



**Inside Height:** 129 mm (5 1/16 in.)  
**Inside Width:** 154 mm (6 1/16 in.)  
**Outside Height:** 75 mm (2 15/16 in.)  
**Outside Width:** 191 mm (7 1/2 in.)  
**Outside Depth:** 75 mm (2 15/16 in.)

- Enclose and protect wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.**
- Unique double-wall construction provides extra measure of tamper-resistance.
  - Used in both new and existing applications.
  - Tamper-resistant lock; key cannot be removed unless in locked position.
  - All models mount vertically or horizontally on wall or exposed junction box.
  - Vents in guard base allow airflow for optimum thermostat performance.

**Size:** Medium  
**Wallplate Color:** Opaque Polystyrene

**Accessories:**  
**191990A** Replacement Keys (set of 2) for TG509, TG510, TG511 and TG512

	Product Number	Color	Ring Base Color	Description	Used With
*	TG511A1000	Clear Acrylic	clear acrylic	Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others	TH3000 Series, TH4000 Series, TH5000 Series, TH6000 Series, TH8000 Series, Other thermostats of similar size
	TG511D1004	Painted metal	opaque polystyrene	Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others	TH3000 Series, TH4000 Series, TH5000 Series, TH6000 Series, TH8000 Series, Other thermostats of similar size

\* TRADELINE models • SUPER TRADELINE models

## TG512 Versaguard Universal Thermostat Guards



**Enclose and protect wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.**

- Unique double-wall construction provides extra measure of tamper-resistance.
- Used in both new and existing applications.
- Tamper-resistant lock; key cannot be removed unless in locked position.
- All models mount vertically or horizontally on wall or exposed junction box.
- Vents in guard base allow airflow for optimum thermostat performance.

**Inside Height:** 149 mm (5 7/8 in.)  
**Inside Width:** 213 mm (8 3/8 in.)  
**Outside Height:** 86 mm (3 3/8 in.)  
**Outside Width:** 248 mm (9 3/4 in.)  
**Outside Depth:** 86 mm (3 3/8 in.)

**Size:** Large  
**Wallplate Color:** Opaque Polystyrene

**Accessories:**  
**191990A** Replacement Keys (set of 2) for TG509, TG510, TG511 and TG512

Product Number	Color	Ring Base Color	Description	Used With
* TG512A1009	Clear Acrylic	clear plastic	Large Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T8082, T8085, T8600, and most electronic thermostats	TH5000 Series, TH6000 Series, TH8000 Series, Other thermostats of similar size
TG512D1003	Painted metal	opaque polystyrene	Large Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T8082, T8085, T8600, and most electronic thermostats	TH5000 Series, TH6000 Series, TH8000 Series, Other thermostats of similar size

\* TRADELINE models • SUPER TRADELINE models

# TrueZONE™ Zoning Panels and Kits

## TrueZONE™ HZ432 Panel



TrueZONE™ HZ432 Panel for conventional, heat pump or dual fuel applications expandable up to 32 zones (3H/2C)

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- Advanced Dual-Fuel Operation
- RedLINK™ enabled for wireless operations when used with THM4000R1000 Wireless Adapter



Wireless Technology

Application: Zoning  
 Available for: 4 Zones  
 Auto Changeover: Yes  
 Discharge Air Temperature Compatible: Yes

Individual Zone Fan Control: Yes  
 Resettable Fuse: Yes  
 Voltage: 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch
HZ432	3 Heat/2 Cool	4 Zone, Expandable	No	Yes	Yes	Yes

## TrueZONE™ Kit with DATS, Transformer and HZ432 Panel



TrueZONE™ HZ432 Panel for conventional, heat pump or dual fuel applications expandable up to 32 zones (3H/2C)

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- Advanced Dual-Fuel Operation
- RedLINK™ enabled for wireless operations when used with THM4000R1000 Wireless Adapter



Wireless Technology

Application: Zoning  
 Available for: 4 Zones  
 Auto Changeover: Yes  
 Discharge Air Temperature Compatible: Yes

Individual Zone Fan Control: Yes  
 Resettable Fuse: Yes  
 Voltage: 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ432K	3 Heat/ 2 Cool	4 Zone, Expandable	No	Yes	Yes	Yes	HZ432 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor

## TrueZONE™ HZ322 Panel



**TrueZONE™ HZ322 Panel for conventional and heat pump applications up to 3 zones (2H/2C).**

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- RedLINK™ enabled for wireless operation when used with THM4000R1000 wireless adapter
- Includes HZ322 TrueZONE panel, AT140 40VA transformer, C7735A discharge air sensor



**Application:** Zoning  
**Available for:** 3 Zones  
**Auto Changeover:** Yes  
**Discharge Air Temperature Compatible:** Yes

**Individual Zone Fan Control:** Yes  
**Resettable Fuse:** Yes  
**Voltage:** 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch
HZ322	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes

## TrueZONE™ Kit with DATS, Transformer and HZ322 Panel



**TrueZONE™ HZ322 Panel for conventional and heat pump applications up to 3 zones (2H/2C).**

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- RedLINK™ enabled for wireless operation when used with THM4000R1000 wireless adapter
- Includes HZ322 TrueZONE panel, AT140 40VA transformer, C7735A discharge air sensor



**Application:** Zoning  
**Available for:** 3 Zones  
**Auto Changeover:** Yes  
**Discharge Air Temperature Compatible:** Yes

**Individual Zone Fan Control:** Yes  
**Resettable Fuse:** Yes  
**Voltage:** 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ322K	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	HZ322 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor

# TrueZONE™ Zoning Panels and Kits

## Wireless Zoning Adapter Kits



Wireless Zoning Adapter Kit allows you to easily add to a TrueZONE™ system without running new wires.

- **WIRELESS ADAPTER:** Allows for wireless zoning when used with HZ432 or HZ322 TrueZONE™ panels (sold separately). Adapter receives communication from the wireless devices.
- **WIRELESS FocusPRO® THERMOSTAT:** Same great features of the FocusPRO® thermostat - now wireless. Installs in minutes. Displays outdoor temperature and humidity (outdoor sensor sold separately). 1 year battery life. 2 month low battery warning.
- **RedLINK™ WIRELESS TECHNOLOGY:** Powered by RedLINK™ reliability. No interference with other wireless devices in the home.



Wireless Technology

**Application:** Heat Pump Systems; Forced warm air

**Changeover:** Auto/Manual Selectable

**Power Method:** Thermostat-Battery

**Accessories:**

**50002883-001** FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience. RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Includes
	System	Fan	
YTH5320R1025	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	THM4000R1000 Wireless Adapter; TH5320R1002 Wireless FocusPRO® Non-Programmable Thermostat
YTH6320R1023	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	THM4000R1000 Wireless Adapter; TH6320R1004 Wireless FocusPRO® 5-1-1 Programmable Thermostat

## Wireless Adapter



Use a RedLINK™-enabled TrueSTEAM® Humidification System with a Wireless Adapter to communicate and control humidity from Prestige without running new wires to the living space. Prestige also controls whole-house dehumidifiers like the Honeywell TrueDRY®.

- Powered by RedLINK™ reliability.
- No interference with other wireless devices in the home.
- Communicates with Wireless Outdoor Sensor to automatically control humidity to proper levels.



Wireless Technology

Wireless Adapter allows you to easily add RedLINK™-enabled thermostats to a TrueZONE® system without running new wires.

**Dimensions, Approximate:** 141 mm high x 112 mm wide x 32 mm deep (5 9/16 in. high x 4 3/8 in. wide x 1 1/4 in. deep)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Operating Temperature Range:** -40 C to 73.9 C (-40 F to +165 F)

**Color:** Gray

**Mounting:** Mount Wireless Adapter on wall near HVAC equipment or on the duct.

Product Number	Terminal Designations	Requirements	Description
THM4000R1000	A, B, C, D	One adapter per zone control panel, HZ322 or HZ432 TrueZONE panel	Wireless Adapter allows you to easily add RedLINK™ enabled thermostats to a TrueZONE™ system without running new wires.



## Wireless FocusPRO® Thermostats



**Easily add a zone to a TrueZONE® system without running new wires. Choose from programmable or non-programmable.**

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled devices
- Same great features of the FocusPRO® thermostat now wireless
- Installs in minutes
- Can display outdoor temperature and humidity
- 1 year battery life
- 2 month low battery warning



**Application:** Gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

**Dimensions, Approximate:** 91 mm High X 147 mm Wide X 38 mm Deep (3 9/16 in. High X 5 13/16 in. Wide X 1 1/2 in. Deep)

**Color:** Premier White®

**Changeover:** Auto/Manual Selectable

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Operating Temperature Range:** 0 C to 48.9 C (32 F to 120 F)

**Setting Temperature Range:**

Heat: 4.5 C to 32 C; Cool: 10 C to 37 C  
(Heat: 40 F to 90 F; Cool: 50 F to 99 F)

**Differential Temperature:** ±0.5 C (±1 F)

**Power Method:** Battery

**Sensor Element:** Thermistor

**Mounting:** Horizontal

**Comments:** Thermostat is also available in kits for zoned and non-zoned systems

**Accessories:**

**50002883-001** FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**50007298-001** 12 pack of medium coverplates (5 in. x 6 7/8 in.)

**C7089R1013** Senses outdoor temperature and humidity to display on RedLINK™ enabled thermostats and accessories.

**C7735A1000** Mount on return duct for backup control of non-zoned RedLINK™ enabled wireless systems. Works with the EIM to maintain safe indoor temperatures if power is lost at the wireless thermostat.

**REM5000R1001** Use the Portable Comfort Control anywhere in the home to experience a new level of comfort and convenience.

RedLINK™ Enabled. Works in both zoned and non-zoned applications.

**Replacement Parts:**

**50007072-001** Replacement Battery Holder for FocusPRO TH5220, TH5320, TH6110, TH6220, and TH6320 Thermostat

Product Number	Switch Positions		Stages	Parts Needed for Operation (not included) - Non-Zoned System	Parts Needed for Operation (not included) - TrueZONE™ System
	System	Fan			
TH5320R1002	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	THM5320R1000 Equipment Interface Module	HZ432 or HZ322 TrueZONE™ panel; THM4000R1000 Wireless Adapter
TH6320R1004	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Up to 3 Heat / 2 Cool Heat Pump; Up to 2 Heat / 2 Cool Conventional	THM5320R1000 Equipment Interface Module	HZ432 or HZ322 TrueZONE™ panel; THM4000R1000 Wireless Adapter

# TrueZONE™ Zoning Panels and Kits

## TrueZONE® HZ432 Panel



**TrueZONE® HZ432 Panel for conventional, heat pump or dual fuel applications expandable up to 32 zones (3H/2C)**

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- Advanced Dual-Fuel Operation
- Use with TAZ-4 Add-A-Zone to expand to 32 zones
- RedLINK™ enabled for up to 4 wireless zones when used with THM4000R1000 Wireless Adapter

**Application:** Zoning  
**Available for:** 4 Zones  
**Auto Changeover:** Yes  
**Discharge Air Temperature Compatible:** Yes  
**Individual Zone Fan Control:** Yes  
**Resettable Fuse:** Yes  
**Voltage:** 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ432	3 Heat/2 Cool	4 Zone, Expandable	No	Yes	Yes	Yes	—
HZ432K	3 Heat/2 Cool	4 Zone, Expandable	No	Yes	Yes	Yes	HZ432 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor
YHZ432R1108	3 Heat/2 Cool	4 Zone	No	Yes	Yes	Yes	Zone panel, two programmable wireless FocusPRO thermostats, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor
YHZ432R5108	3 Heat/2 Cool	4 Zone	No	Yes	Yes	Yes	Zone panel, one Prestige HD and one programmable wireless FocusPRO thermostat, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor

## TrueZONE® HZ322 Panel



**TrueZONE® HZ322 Panel for conventional and heat pump applications up to 3 zones (2H/2C).**

- Intuitive Installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standard Checkout Procedure
- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control
- Discharge Air Temperature Staging
- RedLINK™ enabled for wireless operation when used with THM4000R1000 wireless adapter



**Application:** Zoning  
**Available for:** 3 Zones  
**Auto Changeover:** Yes  
**Discharge Air Temperature Compatible:** Yes  
**Individual Zone Fan Control:** Yes  
**Resettable Fuse:** Yes  
**Voltage:** 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ322	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	—
HZ322K	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	HZ322 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor
YHZ322R1108	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	Zone panel, two programmable wireless FocusPRO® thermostats, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor
YHZ322R5108	2 Heat/2 Cool	3 Zone	No	Yes	Yes	Yes	Zone panel, one Prestige HD and one programmable wireless FocusPRO® thermostat, wireless adapter module, portable comfort control. Wireless outdoor air temperature sensor, transformer, and discharge air temperature sensor

# TrueZONE™ Zoning Panels and Kits

## TrueZONE® HZ311 Panel



TrueZONE® HZ311 Panel for conventional, single stage applications up to 3 zones (1H/1C).

- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control

**Application:** Zoning

**Available for:** 3 Zones

**Auto Changeover:** Yes

**Discharge Air Temperature Compatible:** Yes

**Individual Zone Fan Control:** Yes

**Resettable Fuse:** Yes

**Voltage:** 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Includes
HZ311	1 Heat/1 Cool	3 Zone	No	Yes	No	—
HZ311K	1 Heat/1 Cool	3 Zone	No	Yes	No	HZ311 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor

## TrueZONE® HZ221 Panel



TrueZONE® HZ221 Panel for single stage heat pumps with auxiliary heat applications up to two zones.

- Robust Push Terminals
- Common-Sense LEDs
- Clean, Professional Installation
- Smaller Footprint
- Variable-Speed Fan Control

**Application:** Zoning

**Available for:** 2 Zones

**Auto Changeover:** Yes

**Discharge Air Temperature Compatible:** Yes

**Individual Zone Fan Control:** Yes

**Resettable Fuse:** Yes

**Voltage:** 24V

Product Number	Stages	Number of Zones	Network Zoning	LEDs	Heat Pump Compatible	Emergency Heat Switch	Includes
HZ221	1 stage heat pump with auxiliary heat	2 Zone	No	Yes	Yes/Heat Pump Only	Yes	—
HZ221K	1 stage heat pump with auxiliary heat	2 Zone	No	Yes	Yes/Heat Pump Only	Yes	HZ221 Zone Control Panel, AT140 Transformer, C7735A Discharge Air Temperature Sensor

## EnviraZONE Control Panel



Advanced zoning control system using the EnviraCOM™ communications protocol. The easiest to install networked zoning system in the industry. Zone of Greatest Demand algorithm reduces and regulates HVAC cycles, decreases damper cycles, and increases efficiency.

- Use with VisionPRO IAQ Thermostats or FocusPRO® communicating thermostats.
- Expandable to nine zones with additional W8703 Damper Interface Modules and Thermostats.
- Compatible with conventional gas, oil, electric or heat pump systems up to 3H/2C.
- Unsurpassed ease-of-wiring with only three wires to connect between devices.
- True communicating system using standard thermostat wire.
- Networked zoning enables these features: Time synchronization, Selectable high and low equipment protection settings, Adjustable purge timing and damper positions.
- Telephone access when used with optional W8735D Telephone Access Modules.
- Uses Zone of Greatest Demand Intelligence to reduce system cycling.
- Optional use of two transformers for power when many dampers are needed.

Networked zoning kits are one-box solutions that contain a W8835 Panel, VisionPRO or FocusPRO® Communicating Thermostats, C7835 Discharge Air Temperature Sensor, AT140 Transformer, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module.

Application: Zoning  
 Auto Changeover: Yes  
 Network Zoning: Yes  
 Compatible with Supply Air Sensor: No  
 Discharge Air Temperature Compatible: Yes

Individual Zone Fan Control: Yes  
 LEDs: Yes  
 Resettable Fuse: Yes  
 Voltage: 24V

Product Number	Stages	Number of Zones	Heat Pump Compatible	Emergency Heat Switch	Includes
W8835A1004	3 Heat/2 Cool	3 Zone	Yes	No	—
Y8835A1028	3 Heat/2 Cool	3 zone kit with 3 VisionPRO IAQ thermostats	Yes	No	W8835A Zone Control Panel, 3-VisionPRO IAQ Thermostats, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module
Y8835A1036	3 Heat/2 Cool	2 zone kit with 1 VisionPRO thermostat and 1 FocusPRO thermostat	Yes	No	W8835A Zone Control Panel, 1-VisionPRO IAQ Thermostat, 1-FocusPRO Communicating Thermostat, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module
Y8835A1044	3 Heat/2 Cool	2 zone kit with 2 Vision PRO IAQ thermostats	Yes	No	W8835A Zone Control Panel, 2-VisionPRO IAQ Thermostats, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module
Y8835A1051	3 Heat/2 Cool	3 zone kit with 1 VisionPRO IAQ and 2 FocusPRO communicating thermostats	Yes	No	W8835A Zone Control Panel, 1-VisionPRO IAQ Thermostat, 2-FocusPRO Communicating Thermostats, AT140 Transformer, C7835 Discharge Air Temperature Sensor, C7089U Outdoor Temperature Sensor, and 50022037-001 Outdoor Temperature Interface Module

## Outdoor Sensor Interface Module

Product Number	Application	Network Zoning
50022037-001	50022037 is required when using the C7089U temperature sensor with the W8835 Envirazone Panel	Yes

# EnviraZONE Accessories

## C7835 Discharge Air Temperature Sensor



Duct-mounted temperature probe used to provide capacity control of heating and cooling equipment. Used with Honeywell Network Zoning System and single unit zone applications.

LEDs: Yes  
 Network Zoning: Yes  
 Compatible with Discharge Air Temperature Sensor: Yes  
 Heat Pump Compatible: Yes

Product Number	Application	Used With
C7835A1009	Sensor	Networked Zoning System

## W8703 Damper Interface Module



The W8703 Damper Interface Module expands the capacity of the W8835 EnviraZONE control panel by three zones.

- Use with up to three thermostats and a W8835 EnviraZONE Control Panel.
- Use one or two W8703 to expand W8835 to 6 or 9 zones.

Individual Zone Fan Control: Yes  
 LEDs: Yes  
 Network Zoning: Yes

Product Number	Application	Number of Zones	Used With
W8703A1003	Damper Interface Module	Up to 3 zones when used with communicating thermostats and EnviraCom Zone Control Panel	Networked Zoning System

## W8735A EnviraCOM Serial Adapter








The EnviraCOM Serial Adapter allows a user to control Honeywell EnviraCOM Communicating Thermostats, EnviraZONE Systems, and other HVAC products by using any manufacturer's RS-232 compatible home automation control system.

- Use with YTH9421C VisionPRO IAQ thermostat, or with W8835 EnviraZONE zone control panel.
- Can be used with W8735D Telephone Access Module.
- Allows easy integration to host controllers, gateways and computers.
- Uses standard DB-9 connector.
- Powered through EnviraCOM bus; no external power source required.
- Uses true RS-232 signals; universally compatible.

Product Number	Application	Used With
W8735A1005	The W8735A EnviraCOM Serial Adapter provides local access to an EnviraCOM HVAC system through a host computer, gateway, or controller. The host provides the application to control the W8735A and the HVAC equipment.	Networked Zoning System

## Zone Control Panel Accessories

Product Number	Description	
FPC	Freeze Protection Control - Breaks Y circuit to compressor below 2 C (36 F) and remakes at 8 C (46 F)	
MSTN	Power Open Power Close Damper Actuator	
PIRR	Plug-In replacement relay - Used with legacy zone control panels including MM-2, MM-3, MABS-3, and MARK-V	
SDCR	Slave Damper Control Relay	
SPC	Static Pressure Control - Used with MARD for bypass control	

# Zone Control Dampers

## Automatic Round Damper (ARD)



Round damper with 24-volt, spring return damper motor used to control volume of circulating air in heating, cooling, and ventilating systems.

- Galvanized steel.
- Single-blade damper.
- Shipped as power closed/spring return open damper, for use with Honeywell Zoning Systems.
- Can be field-converted to power open/spring return closed damper when used as an independent zone or for fresh air intake.
- Blade closes off tightly against gasket for minimal leakage.
- Rated to operate up to 1 in. wc.
- Available in 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, and 20 in. diameter sizes.

**Application:** Zone Damper

**Voltage:** 24V

**Wires to Motor:** 2

**Motor Timing:** 30 seconds power open/10 seconds spring return

**Other Motor Information:** Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Description
ARD5	5 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD6	6 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD7	7 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD8	8 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD9	9 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD10	10 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD12	12 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD14	14 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD16	16 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD18	18 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper
ARD20	20 in.	Round	Top; Side	Power closed, spring open, reversible	Spring Return Round Damper

## EARD Fresh Air Damper



The EARD is a round damper with a 24 Vac powered-open/spring-closed motor. It is used for fresh air intake for ventilation or for combustion makeup air.

- Adjustable damper position range stops.
- Single-blade damper.
- Shipped as power open/spring return closed damper.
- Galvanized steel.
- Quiet operation.
- Can be field-converted to power closed/spring return open damper.
- Blade closes off tightly against gasket for minimal leakage.
- Male (crimped) and female (uncrimped) ends to connect to any rigid or flexible round duct.

**Application:** Fresh Air Damper

**Voltage:** 24V

**Wires to Motor:** 2

**Motor Timing:** 30 seconds power closed/10 seconds spring return

**Other Motor Information:** Range stops

Product Number	Size (in.)	Shape	Motor Mount	Motor Type	Description
EARD5	5 in.	Round	Top; Side	Power open, spring closed, reversible	Spring Return Round Damper
EARD6	6 in.	Round	Top; Side	Power open, spring closed, reversible	Spring Return Round Damper
EARD7	7 in.	Round	Top; Side	Power open, spring closed, reversible	Spring Return Round Damper
EARD8	8 in.	Round	Top; Side	Power open, spring closed, reversible	Spring Return Round Damper



# Zone Control Dampers

## Modulating Automatic Round Dampers (MARD)



The Modulating Automatic Round Damper is a round damper with a 24-Vac, floating-control type modulating motor for bypass and zone damper control.

- Uses 90-second open to closed motor.
- Can be used as a zone damper.
- ML6161 is replacement motor.
- Available in 5, 6, 8, 9, 10, 12, 14, 16, and 18 in. diameter sizes.
- Used with Static Pressure Control (SPC) for bypass applications.

**Application:** Motorized Bypass or Zone Damper  
**Voltage:** 24V  
**Wires to Motor:** 3  
**Motor Timing:** 90 seconds

Product Number	Size (in.)	Shape	Motor Mount	Motor Type	Description
MARD5	5 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD6	6 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD8	8 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD9	9 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD10	10 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD12	12 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD14	14 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD16	16 in.	Round	Top; Side	Floating	Power Open, Power Close Damper
MARD18	18 in.	Round	Top; Side	Floating	Power Open, Power Close Damper

## Retrofit Round Damper (RRD)



The RRD is a round damper that is easily inserted into rigid round ducts for retrofit zoning in forced air heating and cooling systems. It is available in four sizes for use in 5 in., 6 in., 7 in., and 8 in. ducts. The damper is used with Honeywell HZ221, HZ311, HZ322, HZ432 and similar zone control systems. The power open, power closed actuator draws 2 VA allowing multiple dampers per zone, but delivers high torque for reliable operation.

- Easy slide-in installation
- 2 VA allows for many dampers on one zone
- Available in 4 sizes to fit most rigid round branch ducts
- Quiet, long life motor automatically shuts itself off in full open and closed positions
- Gaskets around blade and under motor housing for low internal leakage and very low external leakage
- Range stops with easy adjustment from top of motor
- Easy to see and reliable mechanical blade position indicator
- Easy to hook up with conventional thermostat wire
- Simple manual blade positioning with push button gear release

**Application:** Zone Damper  
**Voltage:** 24V  
**Wires to Motor:** 3  
**Motor Timing:** 90 seconds  
**Other Motor Information:** Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Description
RRD5	5 in.	Round	Direct connection to damper shaft	Power open/Power close	5 in. Retrofit Round Damper
RRD6	6 in.	Round	Direct connection to damper shaft	Power open/Power close	6 in. Retrofit Round Damper
RRD7	7 in.	Round	Direct connection to damper shaft	Power open/Power close	7 in. Retrofit Round Damper
RRD8	8 in.	Round	Direct connection to damper shaft	Power open/Power close	8 in. Retrofit Round Damper

# Zone Control Dampers

## Static Pressure Regulating Damper (SPRD)



Single-blade, steel barometric damper used to bypass excess air when majority of zone dampers are closed.

- Counter-balanced weighted arm to control bypass air for zoned systems.
- Available in rectangular/square and round sizes.
- Air pressure in duct system increases as zone dampers close, pushing the SPRD open automatically.
- Arm and weight both adjustable to control amount of air bypassed.
- Recommended for low pressure systems with less than 0.5 in. wc.
- For larger systems and tighter pressure control, use MARD damper and static pressure controller (SPC).
- Additional weights available
- Available in: Round sizes 7, 8, 9, 10, 12, 14 and 16 in. diameters. Rectangular sizes (width x height) 12 x 8, 12 x 10, 12 x 12, 20 x 8, 20 x 10, 20 x 12 in.

Product Number	Size (inch)	Shape	Motor Type	Used With
SPRD7	7 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD8	8 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD9	9 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD10	10 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD12	12 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD14	14 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD16	16 in.	Round	Weighted damper arm	Honeywell zoning systems
SPRD12X8	12 in. X 8 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD12X10	12 in. X. 10 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD12X12	12 in. X. 12 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD20X8	20 in. X. 8 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD20X10	20 in. X. 10 in.	Rectangular	Weighted damper arm	Honeywell zoning systems
SPRD20X12	20 in. X. 12 in.	Rectangular	Weighted damper arm	Honeywell zoning systems

## SPRD Damper Replacement Parts

Application: Replacement Part

Product Number	Description
32005981-003	SPRD Counterweight Assembly (includes, arm, coupling, and weight). Used with SPRD6, 8,9 and SPRD12x8, 20x8, 12x10, and 20x10.
32005981-004	SPRD Counterweight Assembly (includes arm, coupling, and weight). Used with SPRD10, 12,14,16, and SPRD12x12 and 20x12.

## ZD Series Dampers



The ZD is a power close and spring open damper. It has a 24-volt motor used to control circulating air in heating, cooling and ventilating systems. It is used when a normally-open damper is required. The ZD is typically used with the TrueZONE systems and other electronic zoning systems.

- Kevlar gearing reduces wear, more than doubling damper life.
- Adjustable range stops.
- Mechanical visual position indicator for damper status.
- Solid construction using extruded aluminum frame and blades.
- Parallel blade design for low leakage performance.
- Simple, easy-to-wire, two-wire installation.
- Reliable, strong, 24-volt spring-return motor.
- Fail-safe, normally open operation.
- Compatible with conventional and networked zoning.
- Ordering Instructions: Order ZD (dimension 1) x (dimension 2). (Motor is always mounted on dimension 2 side.) For example, ZD10x8 is a 10 in. x 8 in. damper with the motor on the 8 in. side; but a ZD8x10 is a 8 in. x 10 in. damper that has the motor on the 10 in. side.
- Damper can be installed in any orientation (mounting side can be on either the bottom or the side of the duct).

**Application:** Parallel Blade Damper

**Voltage:** 24V

**Wires to Motor:** 2

**Motor Timing:** 30 seconds power open/10 seconds spring return

**Other Motor Information:** Range stops

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Used With
ZD6X8	6 in. X 8 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X10	6 in. X 10 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X12	6 in. X 12 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X14	6 in. X 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X16	6 in. X 16 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X18	6 in. X 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD6X20	6 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X6	8 in. X 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD8X8	8 in. X 8 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD8X10	8 in. X 10 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X12	8 in. X 12 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X14	8 in. X 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X16	8 in. X 16 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X18	8 in. X 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X20	8 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X22	8 in. X 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD8X24	8 in. X 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X6	10 in. X 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD10X8	10 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD10X10	10 in. X 10 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD10X12	10 in. X 12 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X14	10 in. X 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X16	10 in. X 16 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X18	10 in. X 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X20	10 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X22	10 in. X 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD10X24	10 in. X 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD12X8	12 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD12X10	12 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD12X12	12 in. X 12 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD12X14	12 in. X 14 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD12X16	12 in. X 16 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems

# Zone Control Dampers

Product Number	Size (inch)	Shape	Motor Mount	Motor Type	Used With
ZD12X18	12 in. X 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD12X20	12 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD12X24	12 in. X 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X6	14 in. X 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD14X8	14 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD14X10	14 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD14X12	14 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD14X14	14 in. X 14 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD14X16	14 in. X 16 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X18	14 in. X 18 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X20	14 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X22	14 in. X 22 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X24	14 in. X 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X26	14 in. X 26 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD14X28	14 in. X 28 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD16X8	16 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD16X10	16 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD16X12	16 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD16X14	16 in. X 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD16X16	16 in. X 16 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD16X20	16 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD18X6	18 in. X 6 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD18X8	18 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD18X10	18 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD18X12	18 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD18X14	18 in. X 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD18X16	18 in. X 16 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD18X18	18 in. X 18 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD18X20	18 in. X 20 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD18X24	18 in. X 24 in.	Rectangular	Bottom	power closed, spring open	Honeywell zoning systems
ZD20X8	20 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X10	20 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X12	20 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X14	20 in. X 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X16	20 in. X 16 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X18	20 in. X 18 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD20X20	20 in. X 20 in.	Square	Side	power closed, spring open	Honeywell zoning systems
ZD22X8	22 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X10	22 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD22X12	22 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X8	24 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X10	24 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X12	24 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD24X14	24 in. X 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X8	26 in. X 8 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X10	26 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD26X12	26 in. X 12 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X10	28 in. X 10 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems
ZD28X14	28 in. X 14 in.	Rectangular	Side	power closed, spring open	Honeywell zoning systems

# Zone Damper Accessories

## AT140 Universal Mount Transformer



- The AT140 is a 24V, 40VA universal mount transformer.**
- Provides a low voltage power source for any Honeywell zone control panel or damper
  - Powers up to 5 ZD or ARD damper motors and 14 RRD damper motors from one 40VA transformer
  - Mounting options include plate or foot mounting
  - 120/240 VAC primary

Product Number	Application	Voltage
AT140A1042	Accessory	120/240V Primary, 24V Secondary 40 VA

## M847D Damper Actuator



- The M847D is a two position, 24 Vac spring return actuator designed to operate ARD, EARD and ZD zone dampers.**
- Low voltage, spring-return damper actuator.
  - Equipped with anti-rotation and drive shaft extensions for direct mounting to 7/16 inch diameter coupling style dampers.
  - Adjustable range stops.
  - Direct replacement for M847D1004

**Application:** Damper Actuator  
**Voltage:** 24V  
**Wires to Motor:** 2  
**Motor Timing:** 30 seconds powered/10 seconds spring return  
**Other Motor Information:** Range stops

Product Number	Size (inch)	Motor Mount	Motor Type	Description
M847D1012	4 1/2 in. high x 2 3/8 in. wide x 3 3/8 in. deep	Direct connection to damper shaft	Spring return	Spring Return Damper Actuator



## F100F Media Air Cleaner

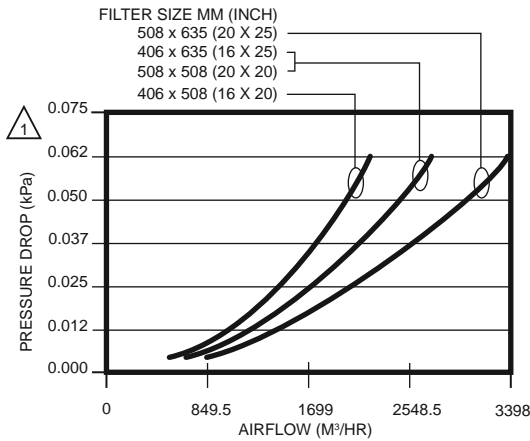


The F100F Media Air Cleaner captures a significant amount of the airborne particles from the air circulated through the unit. Recommended as the basic minimum air quality product. The F100F Media Air Cleaner includes cabinet, access door and FC100A pleated media filter, and W8600A Airwatch Indicator (optional on some models).

- High efficiency media filter captures particles as small as 0.3 microns.
- Applicable to all gas, oil and electric forced air furnaces and to compressor cooling up to 5 tons.
- Mounts in the return air duct.
- Rugged zinc-coated, roll-formed cabinet resists corrosion and can support weight of residential furnace and evaporator coil.
- Requires no electrical connections.
- Mounts in any position.
- Requires no maintenance except periodic media filter replacement.
- Quick and easy media filter replacement.
- Later upgrade to higher performing media or electronic air cleaner is easy.

Indoor Air Quality

### Pressure Drop of FC100 Filter



**Type of Air Cleaner:** Media Air Cleaner

**Application:** Duct mounted

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Fractional Efficiency:** E1=25%, E2=62%, E3=85%

**Static Pressure Drop (in. w.c.):** 0.23 at 500 FPM

**Minimum Efficiency Reporting Value (Media Filters Only):** MERV 10

**Approvals:**

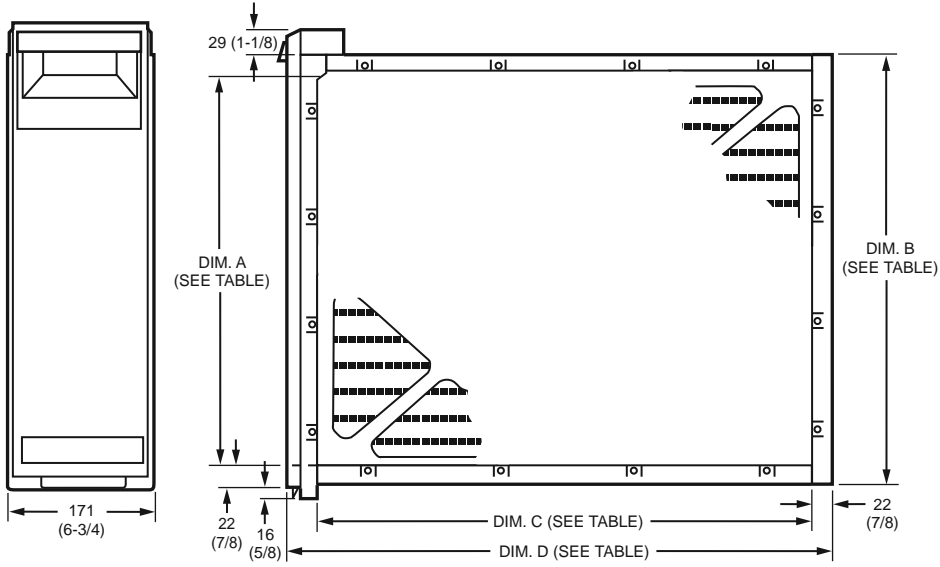
**Underwriters Laboratories, Inc.** Filter Element: UL Listed, UL900, Class 2

Product Number	Air Cleaner Size (Dimensions, Approximate)		Airflow Max.-Capacity		Replacement Filters
	(mm)	(inch)	(m <sup>3</sup> /hr)	(cfm)	
* F100F1004	406 mm x 508 mm	16 in. x 20 in.	2040 m <sup>3</sup> /hr	1200 cfm	FC100A1003, FC200E1003, POPUP1620
* F100F1012	406 mm x 635 mm	16 in. x 25 in.	2380 m <sup>3</sup> /hr	1400 cfm	FC100A1029, FC200E1029, POPUP1625
* F100F1020	508 mm x 508 mm	20 in. x 20 in.	2380 m <sup>3</sup> /hr	1400 cfm	FC100A1011, FC200E1011, POPUP2020
* F100F1038	508 mm x 635 mm	20 in. x 25 in.	3400 m <sup>3</sup> /hr	2000 cfm	FC100A1037, FC200E1037, POPUP2025
* F100F2002	406 mm x 635 mm	16 in. x 25 in.	2380 m <sup>3</sup> /hr	1400 cfm	FC100A1029, FC200E1029, POPUP1625
* F100F2010	508 mm x 635 mm	20 in. x 25 in.	3400 m <sup>3</sup> /hr	2000 cfm	FC100A1037, FC200E1037, POPUP2025
* F100F2028	406 mm x 508 mm	16 in. x 20 in.	2040 m <sup>3</sup> /hr	1200 cfm	FC100A1003, FC200E1003, POPUP1620
* F100F2036	508 mm x 508 mm	20 in. x 20 in.	2380 m <sup>3</sup> /hr	1400 cfm	FC100A1011, FC200E1011, POPUP2020
* F100F2044	635 mm x 508 mm	25 in. x 20 in.	3400 m <sup>3</sup> /hr	2000 cfm	FC100A1037, FC200E1037, FC100C1017
* F100F2051	635 mm x 559 mm	25 in. x 22 in.	3400 m <sup>3</sup> /hr	2000 cfm	FC100A1037, FC200E1037, FC100C1017

\* TRADELINE models • SUPER TRADELINE models

# Media Air Cleaners

Dimensions in millimeters (inches)



F100 SIZE		DIM. A		DIM. B		DIM. C		DIM. D	
MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
406 X 635	16 X 25	367	14-7/16	411	16-3/16	591	23-1/4	648	25-1/2
406 X 508	16 X 20	367	14-7/16	411	16-3/16	457	18-1/4	521	20-1/2
508 X 635	20 X 25	468	18-7/16	513	20-3/16	591	23-1/4	648	25-1/2
508 X 508	20 X 20	468	18-7/16	513	20-3/16	457	18-1/4	521	20-1/2
635 X 508	25 X 20	592	23-5/16	638	25-1/8	467	18-3/8	524	20-5/8
635 X 559	25 X 22	592	23-5/16	638	25-1/8	514	20-1/4	572	22-1/2

MC14710D



## F200 Media Air Cleaner

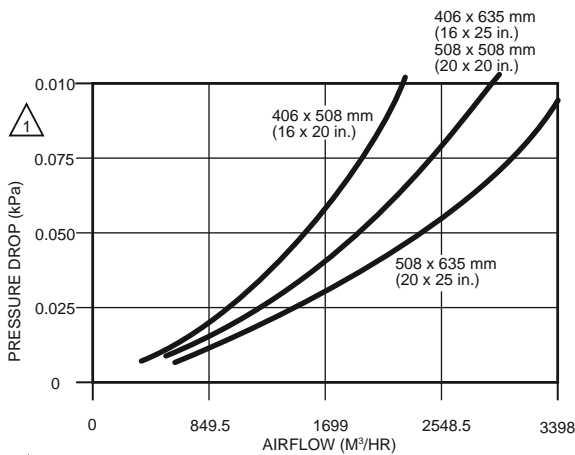


The F200E Media Air Cleaner captures a significant amount of the airborne particles from the air circulated through the unit. Recommended high efficiency media air quality product. The F200E Media Air Cleaner includes cabinet, access door and FC200E pleated media filter, and W8600B RF Airwatch Indicator.

- W8600B RF AIRWATCH filter change indicator included.
- Integral pressure sensors signal when filter change is required based on increased pressure drop threshold at filter.
- Filter change status is transmitted to wall-mounted RF AIRWATCH Indicator.
- High efficiency charged-media filter captures particles as small as 0.3 microns.
- Applicable to all gas, oil and electric forced air furnaces and to compressor cooling up to 5 tons.
- Mounts in the return air duct.
- Rugged zinc-coated, roll-formed cabinet resists corrosion and can support weight of residential furnace and evaporator coil.
- Requires no electrical connections.
- Mounts in any position.
- Requires no maintenance except periodic media filter replacement.
- Quick and easy media filter replacement.
- Later upgrade to higher performing media or electronic air cleaner is easy.

Indoor Air Quality

### Pressure Drop of FC200 Filter



1 WHEN FIRST INSTALLED. PRESSURE DROP INCREASES AS FILTER BECOMES LOADED. REPLACE FILTER WHEN PRESSURE DROP REACHES 0.1 kPa (0.5 IN. W.C.).

MC13662

**Type of Air Cleaner:** Media Air Cleaner

**Application:** Duct mounted

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Minimum Efficiency Reporting Value (Media Filters Only):** MERV 13

**Fractional Efficiency:** E1=63%, E2=91%, E3=99%

**Static Pressure Drop (in. w.c.):** 0.3 at 500 FPM

**Approvals:**

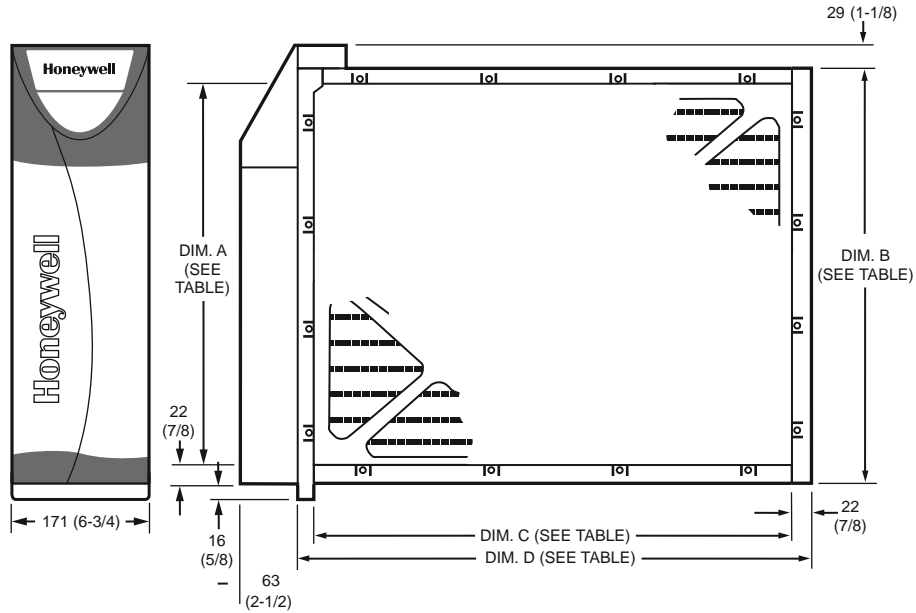
**Underwriters Laboratories, Inc.** Filter Element: UL Listed, UL900, Class 2

Product Number	Air Cleaner Size (Dimensions, Approximate)		Airflow Max.-Capacity		Replacement Filters
	(mm)	(inch)	(m³/hr)	(cfm)	
* F200E1011	508 mm x 508 mm	20 in. x 20 in.	2380 m³/hr	1400 cfm	FC100A1011, FC200E1011, POPUP2020
* F200E1029	406 mm x 635 mm	16 in. x 25 in.	2380 m³/hr	1400 cfm	FC100A1029, FC200E1029, POPUP1625
* F200E1037	508 mm x 635 mm	20 in. x 25 in.	3400 m³/hr	2000 cfm	FC100A1037, FC200E1037, POPUP2025

\* TRADELINE models • SUPER TRADELINE models

# Media Air Cleaners

Dimensions in millimeters (inches)



F200E SIZE		DIM. A		DIM. B		DIM. C		DIM. D	
MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
406 X 635	16 X 25	367	14-7/16	411	16-3/16	591	23-1/4	648	25
406 X 508	16 X 20	367	14-7/16	411	16-3/16	457	18-1/4	521	20
508 X 635	20 X 25	468	18-7/16	513	20-3/16	591	23-1/4	648	25
508 X 508	20 X 20	468	18-7/16	513	20-3/16	457	18-1/4	521	20

MC14784C

## F300 Electronic Air Cleaner



Capturing up to 98% of particles (3.0 - 10.0 micron) that pass through the filter, the F300 offers the highest level of filtration on the market. It is widely compatible, operating with all gas, oil and electric forced warm air furnaces and air-conditioning systems, and is also available in four convenient sizes to fit most ducts.

- Media post-filter provides enhanced filtration.
- Solid state power supply is self-regulating and maintains peak efficiency during a wide range of cell dirt loading conditions.
- New low-profile door with test button to check system operation.
- Helps filter efficiency-robbing "gunk" before it coats critical system parts.
- Very low pressure drop.
- Exclusive wireless W8600A AIRWATCH indicator reminds customers when to wash cells to keep the unit operating at peak efficiency, as well as when to change UV Lamps and Humidifier Pads (optional).
- Exclusive 10-year Clean Coil Guarantee.
- Rugged zinc-coated, roll-formed cabinet provides superior strength and corrosion protection.

**Type of Air Cleaner:** Electronic Air Cleaner

**Application:** Duct mounted

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Frequency:** 60 Hz

**Approvals:**

**Underwriters Laboratories, Inc.** Listed: Report E30954

### Accessories:

**W8600A1007** AIRWATCH indicator for use with F100F, F200 or F300A,E

**W8600F1014** White EAC Performance indicator for use with F50F or F300E

### Replacement Parts:

**203365A** Conversion Kit for changing 120V Power Supply to 240V  
**4074EHG** FC37A Terminal Board Repair Kit. Contains 2 connector clips, 1 Terminal Board and instruction sheet

**50000293-001** 16x10 Post Filter for 16x20 F300E and F50F

**50000293-002** 16x12.5 Post Filter for 16x25 F300E and F50F

**50000293-003** 20x10 Post Filter for 20x20 F300E and F50F

**50000293-004** 20x12.5 Post Filter for 20x25 and 20x12.5 F300E and F50F

**FC37A1049** Electronic Air Cleaner Cell, 9.8 x 20

**FC37A1064** Electronic Air Cleaner Cell, 12.4 x 20

**FC37A1114** Electronic Air Cleaner Cell, 9.8 x 16

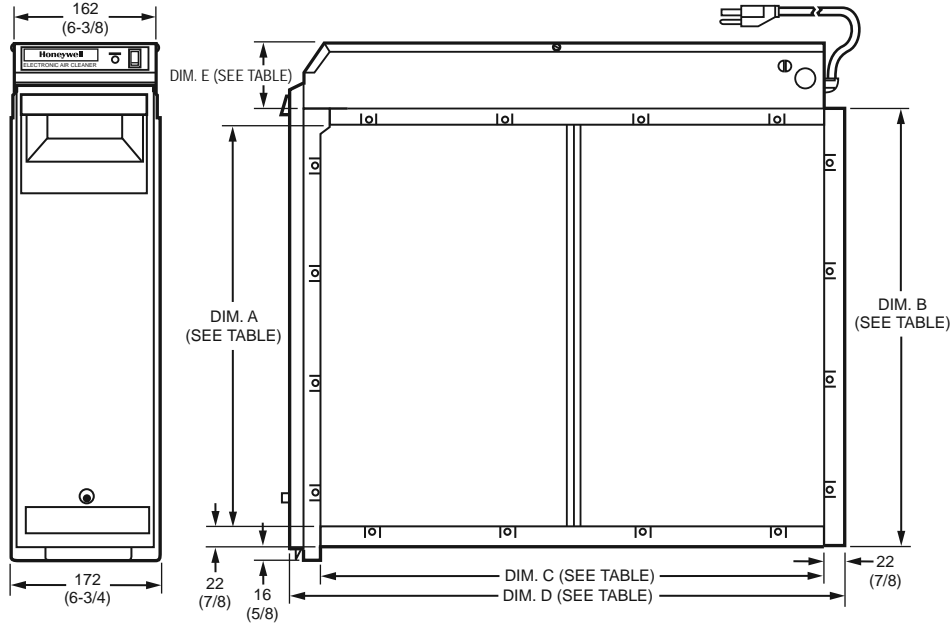
**FC37A1130** Electronic Air Cleaner Cell, 12.4 x 16

Product Number	Air Cleaner Size (Dimensions, Approximate)		Airflow Max.-Capacity		Fractional Efficiency	Static Pressure Drop (in. w.c.)	Replacement Filters	Comments
	(mm)	(inch)	(m <sup>3</sup> /hr)	(cfm)				
* F300A1620	406 mm x 508 mm	16 in. x 20 in.	2040 m <sup>3</sup> /hr	1200 cfm	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-001	—
* F300A1625	406 mm x 635 mm	16 in. x 25 in.	2380 m <sup>3</sup> /hr	1400 cfm	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-002	—
* F300A2012	508 mm x 318 mm	20 in. x 12 1/2 in.	1487 m <sup>3</sup> /hr	875 cfm	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-004	—
* F300A2020	508 mm x 508 mm	20 in. x 20 in.	2380 m <sup>3</sup> /hr	1400 cfm	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-003	—
* F300A2025	508 mm x 635 mm	20 in. x 25 in.	3400 m <sup>3</sup> /hr	2000 cfm	E1=73%, E2=88%, E3=95%	0.15 at 500 FPM	50000293-004	—
* F300E1001	406 mm x 508 mm	16 in. x 20 in.	2040 m <sup>3</sup> /hr	1200 cfm	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-001	Enhanced Filtration
* F300E1019	406 mm x 635 mm	16 in. x 25 in.	2380 m <sup>3</sup> /hr	1400 cfm	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-002	Enhanced Filtration
* F300E1027	508 mm x 508 mm	20 in. x 20 in.	2380 m <sup>3</sup> /hr	1400 cfm	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-003	Enhanced Filtration
* F300E1035	508 mm x 635 mm	20 in. x 25 in.	3400 m <sup>3</sup> /hr	2000 cfm	E1=81%, E2=93%, E3=99%	0.26 at 500 FPM	50000293-004	Enhanced Filtration

\* TRADELINE models • SUPER TRADELINE models

# Electronic Air Cleaners

Dimensions in millimeters (inches)

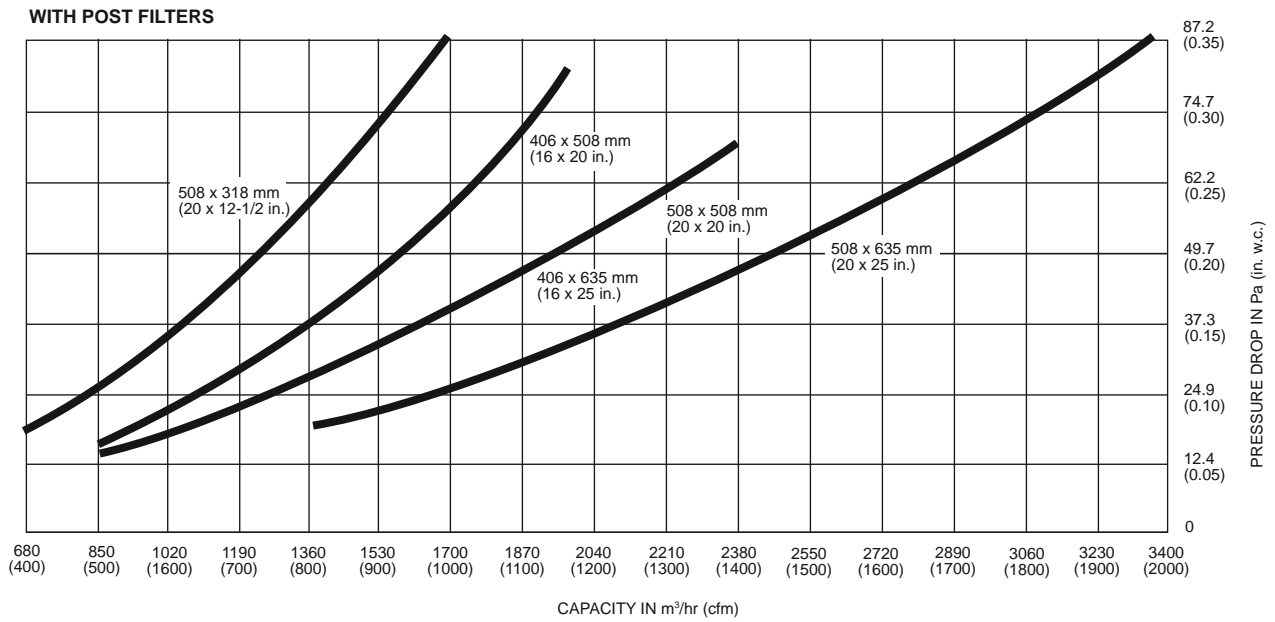
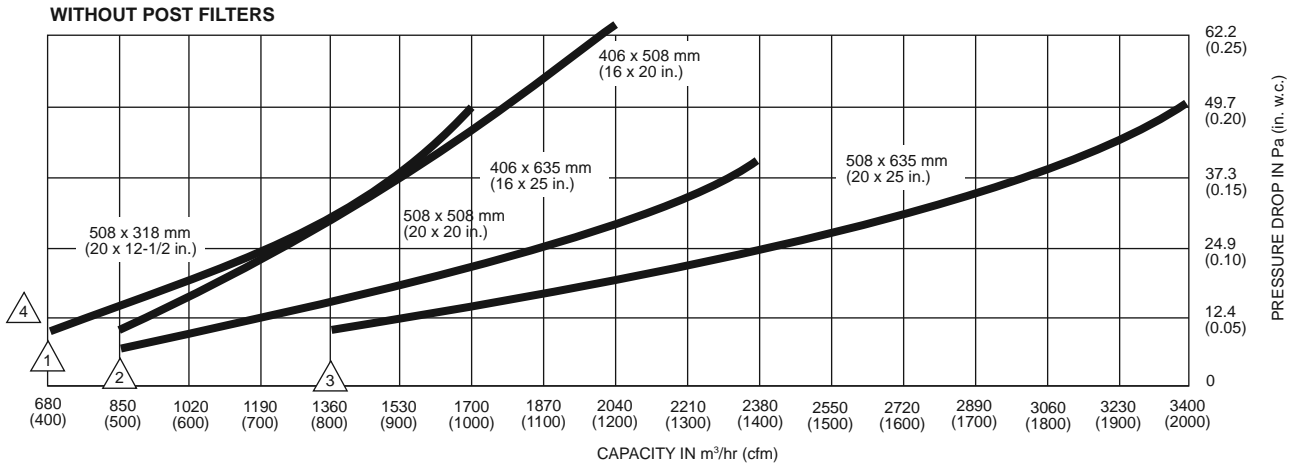


F50F SIZE		DIM. A		DIM. B		DIM. C		DIM. D		DIM. E	
MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
406 X 635	16 X 25	367	14-7/16	411	16-3/16	591	23-1/4	648	25-1/2	70	2-3/4
406 X 508	16 X 20	367	14-7/16	411	16-3/16	457	18-1/4	521	20-1/2	70	2-3/4
508 X 635	20 X 25	468	18-7/16	513	20-3/16	591	23-1/4	648	25-1/2	70	2-3/4
508 X 508	20 X 20	468	18-7/16	513	20-3/16	457	18-1/4	521	20-1/2	70	2-3/4
508 X 318	20 X 12-1/2	468	18-7/16	513	20-3/16	276	10-7/8	333	13-1/8	92	3-5/8

MC2872A

## Pressure Drop versus Airflow

AIR CLEANER EFFICIENCY AND PRESSURE DROP AT VARIOUS AIRFLOW RATES.



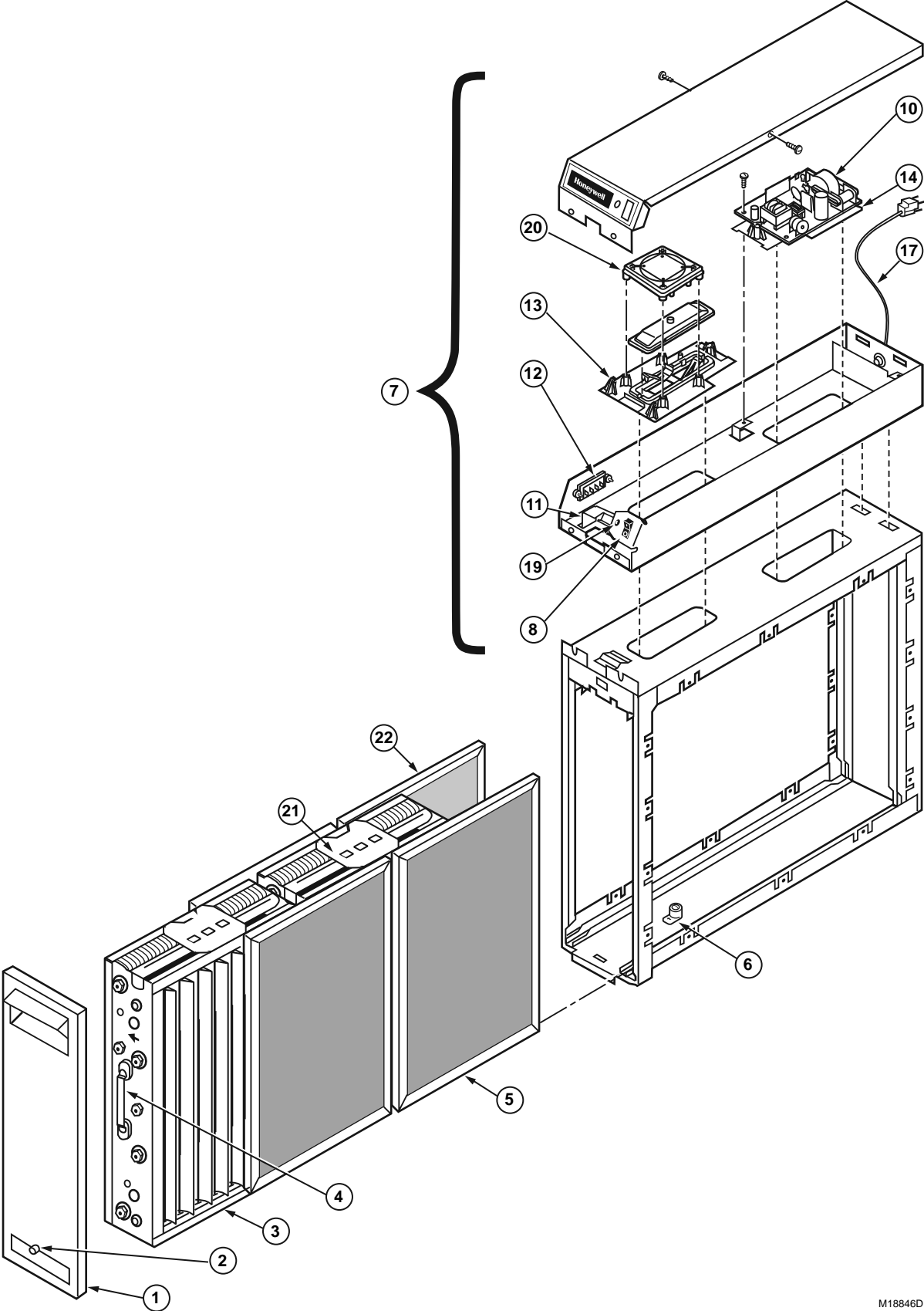
- △1 MINIMUM RECOMMENDED m³/hr FOR 508 x 318 mm (20 x 12-1/2 in.) MODEL.
- △2 MINIMUM RECOMMENDED m³/hr FOR 406 x 635 mm (16 x 25 in.), 508 x 508 mm (20 x 20 in.), 406 x 508 mm (16 x 20 in.) MODELS.
- △3 MINIMUM RECOMMENDED m³/hr FOR 508 x 635 mm (20 x 25 in.) MODEL.
- △4 SELECT SIZE THAT MOST CLOSELY FITS DIMENSIONS OF FURNACE/AIR HANDLER RETURN AIR OPENING

MC13654

Indoor Air Quality

# Electronic Air Cleaners

F300E Exploded View



M18846D

# Electronic Air Cleaners

No.	Description	Nominal Return Air Opening				
		16 x 20 in. (406 x 508 mm)	16 x 25 in. (406 x 635 mm)	20 x 12-1/2 in. (508 x 318 mm)	20 x 20 in. (508 x 508 mm)	20 x 25 in. (508 x 635 mm)
1	F50 Access Door includes No. 2	203306AB (1)	203306AB (1)	203305AB (1)	203305AB (1)	203305AB (1)
1	F300 Access Door includes No. 2	32007528-003	32007528-003	32007528-002	32007528-002	32007528-002
2	Test Button Assembly	137980A (1)	137980A (1)	137980A (1)	137980A (1)	137980A (1)
3	Electronic Cell	FC37A1114 (2)	FC37A1130 (2)	FC37A1064 (1)	FC37A1049 (2)	FC37A1064 (2)
4	Cell Handle	137266 (2)	137266 (2)	137266 (1)	137266 (2)	137266 (2)
5	Prefilter (without spring clips)	209989 (2)	203368 (2)	203369 (1)	203370 (2)	203369 (2)
6	Cell Key	136518 (1)	136518 (1)	136518 (1)	136518 (1)	136518 (1)
7	F50 Power Box Assembly Series One <sup>a</sup> . Includes No. 8-20, 120V, 60 Hz. Brown Cover.	208418G <sup>c</sup> (1)	208417Q <sup>c</sup> (1)	208419D <sup>d</sup> (1)	208418F <sup>c</sup> (1)	208417Q <sup>c</sup> (1)
7	F300 Power Box Assembly Series Two <sup>b</sup> . Includes No. 8-20, 120V, 60 Hz. White Cover.	208418J (1)	208417S (1)	208419D <sup>d</sup>	208418H (1)	208417R (1)
8	Switch	203321 (1)	203321 (1)	203321 (1)	203321 (1)	203321 (1)
10	F50 and F300 Power Supply, Series Two <sup>b</sup> . 120V, 60 Hz	208045J <sup>c</sup> (1)	208045G <sup>c</sup> (1)	208045G (1)	208045G <sup>c</sup> (1)	208045G <sup>c</sup> (1)
11	Interlock Bracket and Switch	4074ETG (1)	4074ETG (1)	4074ETG (1)	4074ETG (1)	4074ETG (1)
12	W8600 Terminal Strip	Supplied with W8600F				
13	Terminal Board Assembly Front	203329B (1)	203329B (1)	N/A	203329B (1)	203329B (1)
14	Terminal Board Assembly Rear	203329A (1)	203329A (1)	N/A	203329A (1)	203329A (1)
17	Line Cord	4074ETD (1)	4074ETD (1)	4074ETD (1)	4074ETD (1)	4074ETD (1)
19	Neon Assembly	4074EYS (1)	4074EYS (1)	4074EYS (1)	4074EYS(1)	4074EYS (1)
20	Airflow Switch, pin connection	4074ETH (1)	4074ETH (1)	4074ETH (1)	4074ETH (1)	4074ETH (1)
20	Airflow Switch, plug connection	4074EZB (1)	4074EZB (1)	N/A	4074EZB (1)	4074EZB (1)
21	FC37A Bag Assembly for cell repair. Contains 2 Connector Clips, 1 Terminal Board and Instructions.	4074EHG	4074EHG	4074EHG	4074EHG	4074EHG
22	Post Filter (not included with F300A)	50000293-001	50000293-002	50000293-004	50000293-003	50000293-004

<sup>a</sup> Series One compatible with W8600E and W8600F.

<sup>b</sup> Series Two compatible with W8600F only.

<sup>c</sup> Use 203365A Conversion Kit for changing 120V, 60Hz model to 240V, 60 Hz.

<sup>d</sup> Change from brown cover to white cover as a running change. Use original cover for color match.

## Parts and Accessories Not Illustrated

Description	Nominal Return Air Opening				
	16 x 20 in. (406 x 508 mm)	16 x 25 in. (406 x 635 mm)	20 x 12-1/2 in. (508 x 318 mm)	20 x 20 in. (508 x 508 mm)	20 x 25 in. (508 x 635 mm)
Ionizer Wires (multiples of 5)	136434BA	136434BA	136434AA	136434AA	136434AA
Premier White® AIRWATCH® Indicator	W8600A1007	W8600A1007	W8600A1007	W8600A1007	W8600A1007
Premier White® Air Cleaner Monitor	W8600F1014	W8600F1014	W8600F1014	W8600F1014	W8600F1014
240V Conversion Kit	203365A	203365A	N/A	203365A	203365A

(#) = Quantity required per unit

N/A = Not available as merchandised part.

## EAC Media Post Filter

Our high-efficiency, charged post-filters boost the efficiency of any Honeywell electronic air cleaner with negligible effect on pressure drop.

Product Number	Type of Air Cleaner	Description	Used With
50000293-001	Electronic Air Cleaner	High air flow media post-filter for EAC, 16x10	F300, F50F
50000293-002	Electronic Air Cleaner	High air flow media post-filter for EAC, 16x12.5	F300, F50F
50000293-003	Electronic Air Cleaner	High air flow media post-filter for EAC, 20x10	F300, F50F
50000293-004	Electronic Air Cleaner	High air flow media post-filter for EAC, 20x12.5	F300, F50F

# Electronic Air Cleaners

## F52 Return Grille Electronic Air Cleaner



The F52F Return Grille Electronic Air Cleaner is wall or ceiling mounted in the main return air duct of a central forced air heating, cooling, or ventilation system. It captures a significant number of the airborne particles (0.5 microns and larger) from the air circulated through the cell(s).

- Removes airborne particles from the air circulated through it.
- Electronic cells can be washed easily.
- Neon light shows that air cleaner is operating.
- Wiring consists of simply connecting air cleaner to power source.
- Solid state power supply is energized by an airflow switch; no interconnection to the fan system is required.
- Solid state power supply is self-regulating and maintains peak efficiency during a wide range of cell dirt loading conditions.
- Automatic interlock switch disconnects power when unit is opened.
- Use with optional W8600F Electronic Air Cleaner Monitor (ordered separately) to monitor air cleaner performance.

**Type of Air Cleaner:** Electronic Air Cleaner

**Application:** Return Grille

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Fractional Efficiency:** E1=73%, E2=88%, E3=95%

**Static Pressure Drop (in. w.c.):** 0.2 at max flow

**Approvals:**

**Underwriters Laboratories, Inc.** Listed: Report E30954

**Replacement Parts:**

**136434AA** 20 in. Replacement Ionizer wire

**190912A** Contact Board Assembly

**4074EHG** FC37A Terminal Board Repair Kit. Contains 2 connector clips, 1 Terminal Board and instruction sheet

**4074ETE** Neon Light Assembly, includes lens and wire tie

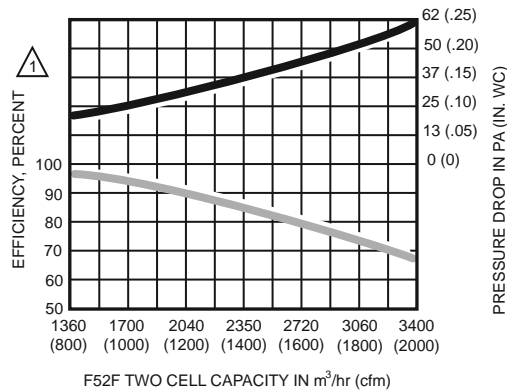
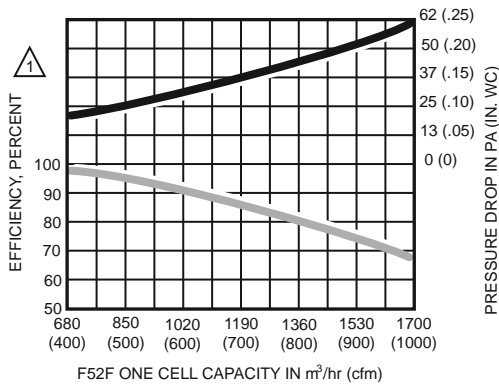
**4074ETH** Air Flow Switch Bag Assembly, with pin connections

**FC37A1171** Electronic Air Cleaner Cell, 12.4 x 20

Product Number	Air Cleaner Size (Dimensions, Approximate)		Airflow Max.-Capacity		Description
	(mm)	(inch)	(m <sup>3</sup> /hr)	(cfm)	
* F52F1048	508 mm x 318 mm	20 in. x 12 1/2 in.	1700 m <sup>3</sup> /hr	1000 cfm	High Efficiency Electronic Air Cleaner
* F52F1055	508 mm x 635 mm	20 in. x 25 in.	3400 m <sup>3</sup> /hr	2000 cfm	High Efficiency Electronic Air Cleaner

\* TRADELINE models • SUPER TRADELINE models

### Pressure Drop and Efficiency versus Airflow



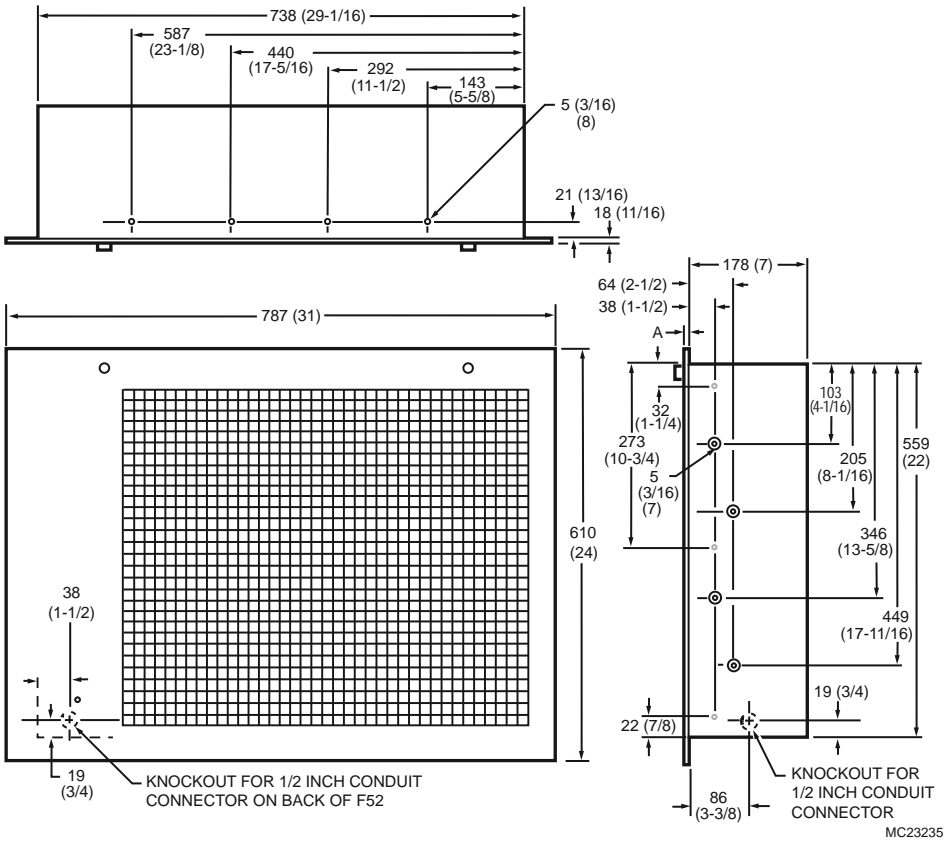
△ EFFICIENCY RATINGS BASED ON NATIONAL BUREAU OF STANDARDS DUST SPOT METHOD USING ATMOSPHERIC DUST AND AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS STANDARD 52.1-92.

MC7824



# Electronic Air Cleaners

Dimensions in millimeters (inches)



Indoor Air Quality

# Electronic Air Cleaners

## F52F Exploded View

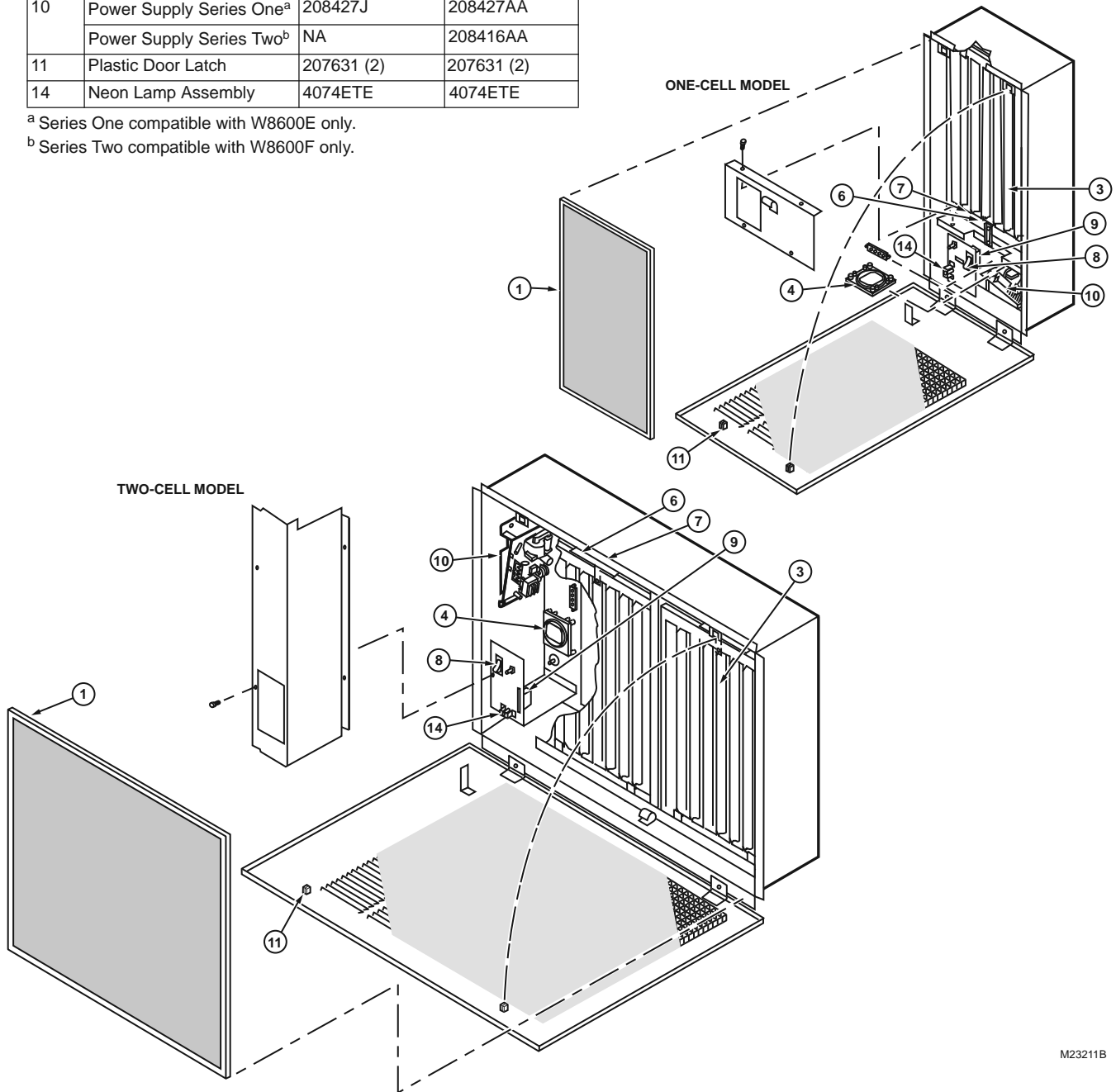
No.	Description	Part Number	
		120 Vac Model	
		F52F1048 1-Cell	52F1055 2-Cell
1	Prefilter	208536	208537
3	Electronic Cell	FC37A1171	FC37A1171 (2)
4	Air Flow Switch	4074ETH	4074ETH
6	Cell Contact Board	4074EHG	4074EHG (2)
7	Cabinet Contact Board	190912A	190912A (2)
8	On/Off Switch	203321	203321
9	Interlock Switch	208543	208543
10	Power Supply Series One <sup>a</sup>	208427J	208427AA
	Power Supply Series Two <sup>b</sup>	NA	208416AA
11	Plastic Door Latch	207631 (2)	207631 (2)
14	Neon Lamp Assembly	4074ETE	4074ETE

<sup>a</sup> Series One compatible with W8600E only.

<sup>b</sup> Series Two compatible with W8600F only.

## Parts and Accessories not Illustrated

No.	Description	Part Number
		120 Vac Model
16	Cell Handle	137266
17	Ionizer Wires (Must be ordered in multiples of 5.)	136434AA (9/cell)
21	Air Cleaner Monitor, Premier White®	W8600F1014



M23211B

## F500 Whole House HEPA Air Cleaner



HEPA filter captures 99.97% of the particles from the air that passes through the filter. The F500 Whole House Filtration System includes HEPA filter, 2 in. pleated prefilter, carbon-odor filter and motor/blower. Isolation mounting straps and HEPA AIRWATCH Indicator are also included. F500A: Standard cabinet for mounting in conditioned spaces. F500B: Insulated cabinet for mounting in unconditioned spaces.

- HEPA media captures at least 99.97% of 0.3 micron particles that pass through it.
- Application for forced air systems or stand-alone.
- Power cord plugs into grounded 120 Vac electrical outlet.
- Requires no maintenance except periodic media filter replacement.
- Quiet operation.
- Quick and easy media filter replacement.
- Wall-mounted AIRWATCH Indicator (included) provides filter change reminders for each of the three filters.
- Easy installation.
- Three-filter system:
  - Activated carbon filter for odors.
  - High-efficiency pleated pre-filter extends HEPA filter life.
  - HEPA filter traps at least 99.97% of 0.3 micron particles that pass through it.
- Rugged steel cabinet.

The F500 Whole House HEPA Air Cleaner connects to the return air duct of a forced air system or can be independently ducted. The

**Type of Air Cleaner:** HEPA Air Cleaner

**Application:** Bypass Stand Alone

**Efficiency Standard:** HEPA rating is based on IEST-RP-CC001.4 standard for testing HEPA filters.

**Fractional Efficiency:** 99.97% (at 0.3 microns)

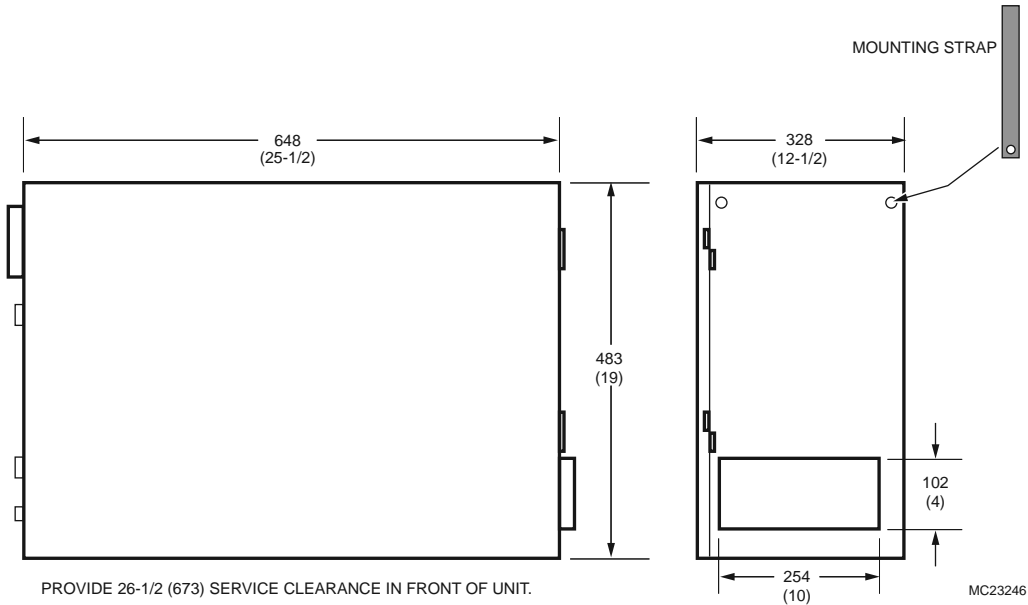
**Approvals:**

**Canadian Standards Association:** Certified

Product Number	Airflow Max.-Capacity		Replacement Filters	Description
	(m <sup>3</sup> /hr)	(cfm)		
* F500A1000	680 m <sup>3</sup> /hr nominal	400 cfm nominal	32006026-001 Carbon Odor Filter (4 Pack), 32006027-001 2 inch Prefilter, 32006028-001 HEPA Filter	Whole house HEPA Air Cleaner. F500A has standard cabinet for Mounting in conditioned spaces. Whole House HEPA Air Cleaner
* F500B1009	680 m <sup>3</sup> /hr nominal	400 cfm nominal	32006026-001 Carbon Odor Filter (4 Pack), 32006027-001 2 inch Prefilter, 32006028-001 HEPA Filter	Whole house HEPA Air Cleaner. F500B has insulated cabinet for Mounting in unconditioned spaces. Whole House HEPA Air Cleaner

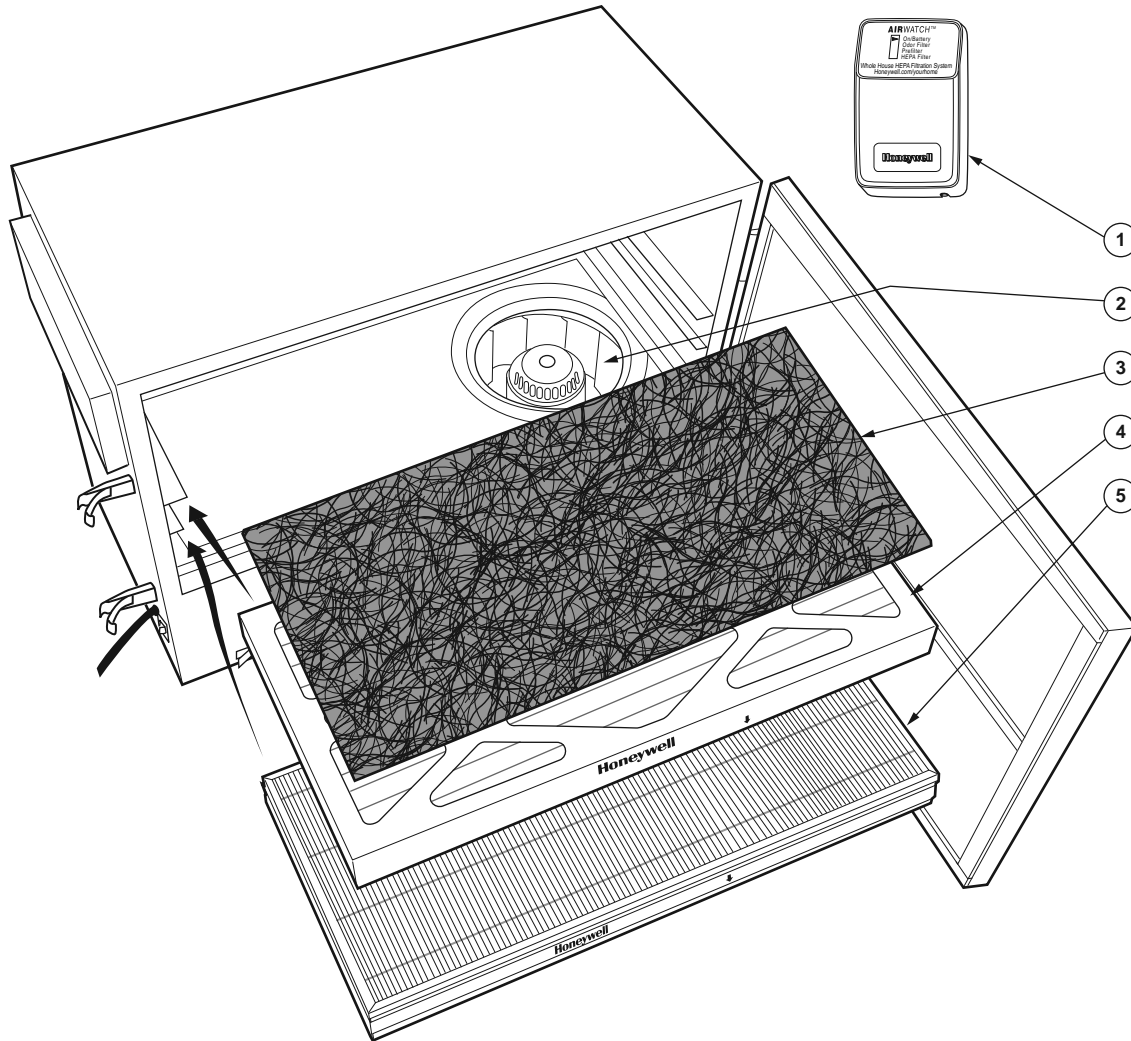
\* TRADELINE models • SUPER TRADELINE models

**Dimensions in millimeters (inches)**



# HEPA Air Cleaners

## F500 Exploded View



No.	Description	Part Number
1	HEPA AIRWACH™ Indicator	32005012-001
2	Blower Motor Assembly	32006670-001
3	Carbon-Odor Filter	32006026-001
4	Pleated Prefilter	32006027-001
5	HEPA Filter	32006028-001

M23212

## HEPA Replacement Media

HEPA stands for high-efficiency particulate arresting. Honeywell HEPA air cleaners offer powerful filtration: They capture 99.97% of particles that are 0.3 microns in size from the air that passes through the filter.

Type of Air Cleaner: HEPA Air Cleaner  
Application: Replacement Filter

Product Number	Description	Used With
32006026-001	Carbon Filter for Whole House HEPA Air Cleaner	F500
32006027-001	2 inch Prefilter for Whole House HEPA Air Cleaner	F500
32006028-001	HEPA Filter for Whole House HEPA Air Cleaner	F500

\* TRADELINE models • SUPER TRADELINE models

# Replacement Filters and Media

## Residential Air Cleaner POPUP Replacement Media Filter



- Save space on the truck.
- Less damage during storage.
- Save time on assembly.
- So easy you can sell over-the-counter to homeowners without worry of mistakes.
- Compact shape makes PopUP easy to ship.
- No combs, pleat spacers or end caps.

**Type of Air Cleaner:** Media Air Cleaner

**Application:** Replacement Filter

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Minimum Efficiency Reporting Value (Media Filters Only):** MERV 11

Indoor Air Quality

Product Number	Air Cleaner Size		Description	Used With
	(mm)	(inch)		
POPUP1620	406 mm x 508 mm	16 in. x 20 in.	16X20 Media Air Filter	Honeywell 16X20 F100 and F200 Media Air Cleaners
POPUP1625	406 mm x 635 mm	16 in. x 25 in.	16X25 Media Air Filter	Honeywell 16X25 F100 and F200 Media Air Cleaners
POPUP2020	508 mm x 508 mm	20 in. x 20 in.	20X20 Media Air Filter	Honeywell 20X20 F100 and F200 Media Air Cleaners
POPUP2025	508 mm x 635 mm	20 in. x 25 in.	20X25 Media Air Filter	Honeywell 20X25 F100 and F200 Media Air Cleaners. Does not work with 25X20 or 25X22 Media Air Cleaners.
* POPUP2200	514 mm x 616 mm x 149 mm	20 1/4 in. x 24 1/4 in. x 5 7/8 in.	Replacement Filter for Space-Gard model 201	SpaceGard 2200, 2120, 2250, Lennox PMAC20, GeneralAire AC-1
* POPUP2400	406 mm x 689 mm x 149 mm	16 in. x 27 1/8 in. x 5 7/8 in.	Replacement Filter for Space-Gard model 401	SpaceGard 2400, 2140, Lennox PMAC12

\* TRADELINE models • SUPER TRADELINE models

# Replacement Filters and Media

## Residential Air Cleaner Replacement Media Filter



Honeywell cartridge filters provide high efficiency, low pressure drop and long life. The filters capture a significant amount of the airborne particles in the air that circulate through the filter.

- High filtration efficiency.
- Low pressure drop.
- Easy to install.
- Long life.
- UL listed.
- Replacement filter for Space-Gard or Aprilaire Models 2200 or 2400.

**Type of Air Cleaner:** Media Air Cleaner

**Application:** Replacement Filter

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

**Static Pressure Drop (in. w.c.):** 0.25 at 500 FPM

Product Number	Air Cleaner Size		Fractional Efficiency	Static Pressure Drop (in. w.c.)	Minimum Efficiency Reporting Value (Media Filters Only)	Description	Used With
	(mm)	(inch)					
FC100A1003	406 mm x 508 mm	16 in. x 20 in.	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	16X20 Media Air Filter	F100F1004, F100B1008, F150E1000, F100F2028
FC100A1011	508 mm x 508 mm	20 in. x 20 in.	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	20X20 Media Air Filter	F100B1024, F100F1020, F100F2036, F150E1018
FC100A1029	406 mm x 635 mm	16 in. x 25 in.	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	16X25 Media Air Filter	F100B1016, F100F1012, F100F2002, F150E1026
FC100A1037	508 mm x 635 mm	20 in. x 25 in.	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	20X25 Media Air Filter	F100F2010, F150E1034, F100B1032, F100F1038, SpaceGard 2200
FC100A1045	546 mm x 699 mm	21 1/2 in. x 27 1/2 in.	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	21.5X27.5 Media Air Filter	F27F1057
FC100A1052	508 mm x 318 mm	20 in. x 12 1/2 in.	E1=25%, E2=62%, E3=85%	0.23 at 500 FPM	MERV 10	20X12.5 Media Air Filter	F27F1032
FC200E1003	406 mm x 508 mm	16 in. x 20 in.	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	16x20 Charged-Media Filter	F100F1004, F100B1008, F150E1000, F100F2028, F200E1003
FC200E1011	508 mm x 508 mm	20 in. x 20 in.	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	20x20 Charged-Media Filter	F100B1024, F100F1020, F100F2036, F150E1018, F200E1011
FC200E1029	406 mm x 635 mm	16 in. x 25 in.	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	16x25 Charged-Media Filter	F100B1016, F100F1012, F100F2002, F150E1026, F200E1029
FC200E1037	508 mm x 635 mm	20 in. x 25 in.	E1=63%, E2=90%, E3=97%	0.28 at 500 FPM	MERV 13	20x25 Charged-Media Filter	F100F2010, F150E1034, F100B1032, F100F1038, F200E1037, SpaceGard 2200
* FC2200A1009	514 mm x 616 mm x 149 mm	20 1/4 in. x 24 1/4 in. x 5 7/8 in.	E1=19%, E2=54%, E3=86%	0.21 at 500 FPM	MERV 10	Replacement Filter for Space-Guard model 201	SpaceGard 2200
* FC2400A1005	406 mm x 689 mm x 149 mm	16 in. x 27 1/8 in. x 5 7/8 in.	E1=19%, E2=54%, E3=86%	0.21 at 500 FPM	MERV 10	Replacement Filter for Space-Guard model 401	SpaceGard 2400

\* TRADELINE models • SUPER TRADELINE models

## Return Grille Media Air Filter



The Return Grille Filter provides high efficiency, long life alternative to a 1 in. filter. It captures a significant amount of the airborne particles in the air that circulates through the filter.

- Mounts in most return filter grilles.
- Pleated for greater media capacity.
- Low pressure drop provides a comfortable air flow.
- Maintains equipment efficiency longer than standard filters.
- FC40 is MERV 10.
- FC20 is MERV 8.

**Type of Air Cleaner:** Media Air Cleaner

**Application:** Return Grill

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Fractional Efficiency:** E1=18%, E2=57%, E3=75%

**Static Pressure Drop (in. w.c.):** 0.18 at 300FPM

Product Number	Air Cleaner Size		Airflow Max.-Capacity		Fractional Efficiency	Static Pressure Drop (in. w.c.)	Minimum Efficiency Reporting Value (Media Filters Only)	Description
	(mm)	(inch)	(m <sup>3</sup> /hr)	(cfm)				
FC20R1625	406 mm x 635 mm	16 in. x 25 in.	1950 m <sup>3</sup> /hr	1150 cfm	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8	16X25 Return Grill Media Air Filter
FC20R2020	508 mm x 508 mm	20 in. x 20 in.	1950 m <sup>3</sup> /hr	1150 cfm	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8	20X20 Return Grill Media Air Filter
FC20R2025	508 mm x 635 mm	20 in. x 25 in.	2460 m <sup>3</sup> /hr	1450 cfm	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8	20X25 Return Grill Media Air Filter
FC20R2030	508 mm x 762 mm	20 in. x 30 in.	3060 m <sup>3</sup> /hr	1800 cfm	E1=18%, E2=57%, E3=75%	0.18 at 300FPM	MERV 8	20X30 Return Grill Media Air Filter
FC40R1003	508 mm x 508 mm	20 in. x 20 in.	1950 m <sup>3</sup> /hr	1150 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	20X20 Return Grill Media Air Filter
FC40R1011	508 mm x 635 mm	20 in. x 25 in.	2460 m <sup>3</sup> /hr	1450 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	20X25 Return Grill Media Air Filter
FC40R1029	508 mm x 762 mm	20 in. x 30 in.	3060 m <sup>3</sup> /hr	1800 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	20X30 Return Grill Media Air Filter
FC40R1037	305 mm x 610 mm	12 in. x 24 in.	1360 m <sup>3</sup> /hr	800 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	12X24 Return Grill Media Air Filter
FC40R1045	356 mm x 635 mm	14 in. x 25 in.	1700 m <sup>3</sup> /hr	1000 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	14X25 Return Grill Media Air Filter
FC40R1052	406 mm x 508 mm	16 in. x 20 in.	1530 m <sup>3</sup> /hr	900 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	16X20 Return Grill Media Air Filter
FC40R1060	406 mm x 635 mm	16 in. x 25 in.	1950 m <sup>3</sup> /hr	1150 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	16X25 Return Grill Media Air Filter
FC40R1078	610 mm x 610 mm	24 in. x 24 in.	2890 m <sup>3</sup> /hr	1700 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	24X24 Return Grill Media Air Filter
FC40R1094	305 mm x 305 mm	12 in. x 12 in.	590 m <sup>3</sup> /hr	350 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	12X12 Return Grill Media Air Filter
FC40R1102	356 mm x 356 mm	14 in. x 14 in.	850 m <sup>3</sup> /hr	500 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	14X14 Return Grill Media Air Filter
FC40R1110	356 mm x 508 mm	14 in. x 20 in.	1270 m <sup>3</sup> /hr	750 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	14X20 Return Grill Media Air Filter
FC40R1128	356 mm x 610 mm	14 in. x 24 in.	1610 m <sup>3</sup> /hr	950 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	14X24 Return Grill Media Air Filter
FC40R1136	457 mm x 610 mm	18 in. x 24 in.	2120 m <sup>3</sup> /hr	1250 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	18X24 Return Grill Media Air Filter
FC40R1144	508 mm x 610 mm	20 in. x 24 in.	2380 m <sup>3</sup> /hr	1400 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	20X24 Return Grill Media Air Filter
FC40R1169	356 mm x 762 mm	14 in. x 30 in.	2040 m <sup>3</sup> /hr	1200 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	14X30 Return Grill Media Air Filter

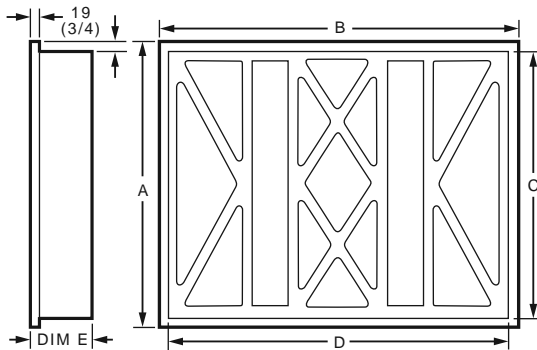
\* TRADELINE models • SUPER TRADELINE models

# Replacement Filters and Media

Product Number	Air Cleaner Size		Airflow Max.-Capacity		Fractional Efficiency	Static Pressure Drop (in. w.c.)	Minimum Efficiency Reporting Value (Media Filters Only)	Description
	(mm)	(inch)	(m <sup>3</sup> /hr)	(cfm)				
FC40R1177	610 mm x 762 mm	24 in. x 30 in.	3480 m <sup>3</sup> /hr	2050 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	24X30 Return Grill Media Air Filter
FC40R1185	457 mm x 457 mm	18 in. x 18 in.	850 m <sup>3</sup> /hr	950 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	18X18 Return Grill Media Air Filter
FC40R1830	457 mm x 762 mm	18 in. x 30 in.	2610 m <sup>3</sup> /hr	1550 cfm	E1=31%, E2=61%, E3=86%	0.12 at 300FPM	MERV 10	18X30 Return Grill Media Air Filter

\* TRADELINE models • SUPER TRADELINE models

## Dimensions in millimeters (inches)



DIMENSIONS MM (IN.)

Size	A	B	C	D	E
508 x 508 (20 X 20)	502 (19-3/4)	502 (19-3/4)	470 (18-1/2)	470 (18-1/2)	111 (4-3/8)
508 x 635 (20 X 25)	502 (19-3/4)	629 (24-3/4)	470 (18-1/2)	596 (23-1/2)	111 (4-3/8)
508 x 762 (20 X 30)	502 (19-3/4)	756 (29-3/4)	470 (18-1/2)	724 (28-1/2)	111 (4-3/8)
305 X 610 (12 X 24)	298 (11-3/4)	603 (23-3/4)	266 (10-1/2)	571 (22-1/2)	111 (4-3/8)
356 X 635 (14 X 25)	349 (13-3/4)	629 (24-3/4)	317 (12-1/2)	596 (23-1/2)	111 (4-3/8)
406 X 508 (16 X 20)	400 (15-3/4)	502 (19-3/4)	368 (14-1/2)	470 (18-1/2)	111 (4-3/8)
406 X 635 (16 X 25)	400 (15-3/4)	629 (24-3/4)	368 (14-1/2)	596 (23-1/2)	111 (4-3/8)
610 X 610 (24 X 24)	603 (23-3/4)	603 (23-3/4)	571 (22-1/2)	571 (22-1/2)	111 (4-3/8)
305 X 305 (12 X 12)	298 (11-3/4)	298 (11-3/4)	266 (10-1/2)	266 (10-1/2)	111 (4-3/8)
356 X 356 (14 X 14)	349 (13-3/4)	349 (13-3/4)	317 (12-1/2)	317 (12-1/2)	111 (4-3/8)
356 X 508 (14 X 20)	349 (13-3/4)	502 (19-3/4)	266 (10-1/2)	470 (18-1/2)	111 (4-3/8)
356 X 610 (14 X 24)	349 (13-3/4)	603 (23-3/4)	317 (12-1/2)	571 (22-1/2)	111 (4-3/8)
457 x 610 (18 X 24)	451 (17-3/4)	603 (23-3/4)	419 (16-1/2)	571 (22-1/2)	111 (4-3/8)
508 x 610 (20 X 24)	502 (19-3/4)	603 (23-3/4)	470 (18-1/2)	571 (22-1/2)	111 (4-3/8)
356 X 762 (14 X 30)	349 (13-3/4)	756 (29-3/4)	317 (12-1/2)	724 (28-1/2)	111 (4-3/8)
610 X 762 (24 X 30)	603 (23-3/4)	756 (29-3/4)	571 (22-1/2)	724 (28-1/2)	111 (4-3/8)
457 X 457 (18 X 18)	451 (17-3/4)	451 (17-3/4)	419 (16-1/2)	419 (16-1/2)	111 (4-3/8)
457 X 762 (18 X 30)	451 (17-3/4)	756 (29-3/4)	419 (16-1/2)	724 (28-1/2)	111 (4-3/8)
406 X 635 (16 X 25)	400 (15-3/4)	629 (24-3/4)	368 (14-1/2)	596 (23-1/2)	51 (2)
508 x 508 (20 X 20)	502 (19-3/4)	502 (19-3/4)	470 (18-1/2)	470 (18-1/2)	51 (2)
508 x 635 (20 X 25)	502 (19-3/4)	629 (24-3/4)	470 (18-1/2)	596 (23-1/2)	51 (2)
508 x 762 (20 X 30)	502 (19-3/4)	756 (29-3/4)	470 (18-1/2)	724 (28-1/2)	51 (2)

MC18953C



# Replacement Filters and Media

## Replacement Filter for Perfect Fit



The replacement filter is a high-efficiency, long-life filter for Perfect Fit media air cleaners. It captures a significant amount of airborne particles in the air that circulates through the filter.

- Higher efficiency and lower pressure drop than OEM filter.
- Captures particles as small as 0.3 microns.
- Pleated filter for greater media capacity.
- Low pressure drop reduces strain on equipment, provides a comfortable air flow, and helps maintain equipment efficiency.
- Easy installation. Angled edge fits neatly into offset side of air cleaner frame.

**Type of Air Cleaner:** Media Air Cleaner

**Application:** Replacement Filter

**Efficiency Standard:** Efficiency ratings are based on American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 52.2-1999.

Efficiency ranges are defined for small particles, E1=0.3 to 1.0 microns; medium particles, E2=1.0 to 3.0 microns; and large particles, E3=3.0 to 10.0 microns.

**Minimum Efficiency Reporting Value (Media Filters Only):** MERV 10

**Fractional Efficiency:** E1=22%, E2=61%, E3=87%

**Static Pressure Drop (in. w.c.):** 0.17 at 500 FPM

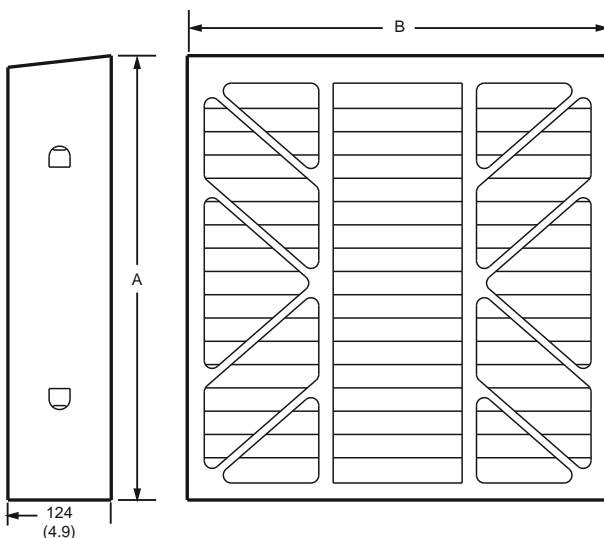
**Approvals:**

**Underwriters Laboratories, Inc.** Filter Element: UL Listed, UL900, Class 2

Indoor Air Quality

Product Number	Air Cleaner Size (Dimensions, Approximate)		Description	Used With
	(mm)	(inch)		
TRN1427T1	360 mm x 670 mm x 120 mm	14 1/2 in. X 27 in. X 5 in.	14 1/2 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR14M.	Trane Perfect Fit Media Air Cleaners
TRN1727T1	440 mm x 670 mm x 120 mm	17 1/2 in. X 27 in. X 5 in.	17 1/2 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR17M.	Trane Perfect Fit Media Air Cleaners
TRN2121T1	540 mm x 510 mm x 120 mm	21 1/2 in. x 21 in. x 5 in.	21 1/2 X 21 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTAH21M.	Trane Perfect Fit Media Air Cleaners
TRN2127T1	530 mm x 670 mm x 120 mm	21 in. x 27 in. x 5 in.	21 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR21M.	Trane Perfect Fit Media Air Cleaners
TRN2321T1	590 mm x 51 mm x 120 mm	23 1/2 in. x 21 in. x 5 in.	23 1/2 X 21 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTAH23M.	Trane Perfect Fit Media Air Cleaners
TRN2427T1	620 mm x 670 mm x 120 mm	24 in. x 27 in. x 5 in.	24 X 27 X 5 Replacement Filter for Perfect Fit. Replaces BAYFTFR24M.	Trane Perfect Fit Media Air Cleaners
TRN2621T1	660 mm x 510 mm 120 mm	26 in. X 21 in. X 5 in.	26 X 21 X 5 Replacement Filter for Perfect Fit. REplaces BAYFTAH26M.	Trane Perfect Fit Media Air Cleaners

Dimensions in millimeters (inches)



SIZE MM (INCHES)	DIM A MM (INCHES)	DIM B MM (INCHES)
546 X 533 X 127 (21-1/2 X 21 X 5)	538 (21.2)	511 (20.1)
597 X 533 X 127 (23-1/2 X 21 X 5)	592 (23.3)	511 (20.1)
660 X 533 X 127 (26 X 21 X 5)	655 (25.8)	511 (20.1)
368 X 686 X 127 (14-1/2 X 27 X 5)	363 (14.3)	665 (26.2)
445 X 686 X 127 (17-1/2 X 27 X 5)	439 (17.3)	665 (26.2)
533 X 686 X 127 (21 X 27 X 5)	528 (20.8)	665 (26.2)
610 X 686 X 127 (24 X 27 X 5)	617 (24.3)	665 (26.2)

MC28670A

# Air Cleaner Parts and Accessories

## Residential Air Cleaner Parts and Accessories

Product Number	Description	Used With
136414A	Terminal Board Assembly, F50E	F50
136434AA	20 in. Replacement Ionizer wire for F50A, F50E, F50F, F57A, B, F58F and F70C	—
136434BA	16 in. Replacement Ionizer wire for F50A, F50E, F50F, F59A	—
136518	F50F, F58C, F Cell Key	—
137266	F50F and F58F Cell Handle	—
137980A	Test Button Assembly for F50A, F50E, F50F, or F58C, F	F50
138621A	Contact Board Assembly, F50A	F50
138889A	Contact Board Assembly for F58C, F59A, F70C, F90, or F50E	F50, F59
190912A	F52C, D, E, F or F57A, B Contact Board Assembly	F52
203305AB	F58F, F50F Door Assembly for 20 inch door, includes Test Button	F50
203306AB	F50F Door Assembly, includes Test Button, 16 in.	F50
203321	ON/OFF Switch for F50F, F52F, or F58F	F52
203329A	F50F, F58F Rear Terminal Board Assembly	F50
203329B	F50F, F58F Front Terminal Board Assembly	F50
203368	Prefilter for 16X25 - F50F, F300, no spring clips	F300, F50
203369	Prefilter for 20X25 inch and 20X12-1/2 inch F50F, F300, no spring clip	F300, F50
203370	Prefilter for 20X20 - F50F, F300, no spring clip	F300, F50
203371	Prefilter for 16X25 - F50, F300	F300, F50
203372	Washable Prefilter for 20X25 inch and 20X12-1/2 inch F50, F300, or F58C, F	F300, F50
203373	Prefilter for 20X20 - F50, F300	F300, F50
203638	Carbon Filter, Series 1,2,3	F59
208536	Prefilter for F52F 1-Cell	F52
208537	Prefilter for F52F 2-Cell	F52
209989	Prefilter for 16X20 F50, F300	F300, F50
32004876-001	20 inch F200E Door, RF transmitter	F200
32004876-002	16 inch F200E Door, RF transmitter	F200
32004930-001	25 inch Power Pack Cover, White - F300E	F300
32007528-003	F300E Door Assembly, includes Test Button, 16 in.	F300
4074EHG	FC37A Terminal Board Repair Kit. Contains 2 connector clips, 1 Terminal Board and instruction sheet	—
4074ETE	F50F, F52F, F58F Neon Light Assembly, includes lens and wire tie	F50, F52
4074ETG	F50F and F58F Interlock bracket and switch	F50
4074ETH	Air Flow Switch Bag Assembly, with pin connections, for F50 air cleaners	F50
4074EZB	Air Flow Switch Bag Assembly with molds plug connection. F300E, F50F, AFS	F300, F50F
50000293-001	High air flow media post-filter for EAC, 16x10	F300A, E, F50F
50000293-002	High air flow media post-filter for EAC, 16x12.5	F300A, E, F50F
50000293-003	High air flow media post-filter for EAC, 20x10	F300A, E, F50F
50000293-004	High air flow media post-filter for EAC, 20x12.5	F300A, E, F50F
FC37A1049	Electronic Air Cleaner Cell, 9.8 x 20	—
FC37A1064	Electronic Air Cleaner Cell, 12.4 x 20	—
FC37A1130	Electronic Air Cleaner Cell, 12.4 x 16	—
FC37A1171	Electronic Air Cleaner Cell, 12.4 x 20	F52
FC37B1030	Electronic Air Cleaner Cell, 12.4 x 20	—

# Air Cleaner Parts and Accessories

## W8600A,B AIRWATCH Indicator



Reminds you when to change your air filter, ultraviolet lamp and humidifier pad.

- Mounts in any convenient location.
- Easily mounted with two screws through holes in base.
- No wiring needed.
- Free with Honeywell Media Air Cleaner or sold separately for other products.
- Indicator light flashes when batteries need changing. (CR-123 Lithium Battery available separately.)
- Indicator light flashes when media filter needs replacing or electronic filter needs washing.
- Indicator light flashes when UV Air Treatment system lamp needs replacing.
- Indicator light flashes when humidifier pad needs replacing.

Indoor Air Quality

Product Number	Description	Used With
* W8600A1007	AIRWATCH indicator for use with F100F, F200 or F300A,E	F100F, F200, F300A,E
* TRADELINE models • SUPER TRADELINE models		

## Residential Air Cleaners Replacement Power Supply

Product Number	Description	Used With
203365A	Conversion Kit for changing 120V Power Supply to 240V	—
208045G	F50F, F300 SSPS WITH W8600F CAPABILITY AND SSAFS. 120V 20X25, 16X25, 20X20, 20X12.5	F300, F50
208045J	F50F, F300 SSPS WITH W8600F CAPABILITY AND SSAFS. 120V 16X20	F300, F50
208414A	F50F SSPS WITH W8600E,F CAPABILITY AND SSAFS, 120V, 20X25. REPLACES 203101A. REPLACED BY 208414H	F50
208414B	F50F Power Supply Assembly	F50F
208414C	F50F SSPS WITH W8600E,F CAPABILITY AND SSAFS, 120V, 20X12.5. REPLACES 203101C	F50
208416L	F52E SSPS, 120V, 20X12.5	F52
208417Q	F58F, F50F 120V 60 Hz Solid State Power Supply Assembly with W8600E,F capability and SSAFS (Replaces 203314A)	F50
208417R	F300E POWER BOX ASSEMBLY, SSPS WITH W8600F CAPABILITY AND SSAFS. 120V, 20X25	F300
208417S	F300E POWER BOX ASSEMBLY, SSPS WITH W8600F CAPABILITY AND SSAFS. 120V, 16X25	F300
208418F	F50F POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS. 120V, 20X20. REPLACES 203315A	F50
208418G	F50F POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS. 120V, 16X20. REPLACES 203315F	F50
208418H	F300E POWER BOX ASSEMBLY, SSPS WITH W8600F CAPABILITY AND SSAFS. 120V, 20X20	F300
208418J	F300E POWER BOX ASSEMBLY, SSPS WITH W8600F CAPABILITY AND SSAFS. 120V, 16X20	F300
208419D	F50F POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS. 120V, 20X12.5	F50
208420A	F50E POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS, 120V, 16X25, 20X20, 20X25. REPLACES 202228A AND 202228B	F50
208420B	F50E POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS, 2400V, 16X25, 20X20, 20X25. REPLACES 202228C AND 202228D	F50
208421C	F50F Power Box Assembly	F50F
208422A	F50A,E POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS. 120V, 20X12.5. REPLACES 203247A	F50
208422B	F50A,E POWER BOX ASSEMBLY, SSPS WITH W8600E,F CAPABILITY AND SSAFS. 240V, 20X12.5. REPLACES 203247B	F50
208425A	EAC Power Supply for F50A, E	F50
208425G	F50A,E, F52C,D, F58A,E SSPS. 120V, 20X12.5. REPLACES 220429QXB, 220429AXB, 220429BXB	F50
208427AA	F52F SSPS WITH W8600E,F CAPABILITY AND SSAFS. 120V, 20X25. REPLACES 203327H	—
208427AB	F50E SSPS WITH W8600E,F CAPABILITY. 120V, 20X25, 16X25	F50
208427B	F50E SSPS. 120V, 20X25 (Replaces 203327A)	F50
208427C	120V Power Supply with Led and SSPI (Replaces 203361A)	—
208427D	Power Supply with Led and SSPI (Replaces 203361E)	—
208427F	F50E SSPS. 120V, 16X25, 20X20. REPLACES 203327F	F50
208427H	F52E SSPS. 120V, 20X12.5. REPLACES 203350A	—
208427J	F52F SSPS with W8600E capability. 120V, 20X12.5 (Replaces 203327R)	—

# TrueDRY Dehumidification System

## TrueDRY Dehumidification Systems



The Honeywell TrueDRY DR90 ensures the home is maintained at proper humidity levels through its high performance and efficiency.

- Removes up to 90 pints of water per day from the indoor air.
- Built-in fresh air supply

**Application:** Dehumidifier

**Dimensions, Approximate:** (37.5"L x 20.625"W x 22"H)

**Color:** White

**Voltage:** 120 V

**Electrical Ratings:** 6.9 A

Product Number	Capacity			Plenum Opening (Diameter)		Description	Includes	Weight (lb)
	(pints per day)	(liter per day)	(gal. per day)	(mm)	(inch)			
DH150A100	150 pints per day	70 L per day	18 3/4 gal per day	254 mm collars; 152 mm vent collar	10 in. collars; 6 in. ventilation collar	TrueDRY 150-pint dehumidifier. No control included.	Hardware and dehumidifier	134 lb
DH150A105	150 pints per day	70 L per day	19 3/4 gal per day	254 mm collars; 152 mm vent collar	10 in. collars; 6 in. ventilation collar	TrueDRY 150-pint dehumidifier with VisionPRO IAQ control	Hardware, control, and dehumidifier	134 lb
DR65A1000	65 pints per day	30 L per day	8 3/25 gal per day	203 mm collar	8 in. collars	TrueDRY R-420A 65-pint dehumidifier with no control	Hardware and dehumidifier	—
DR65VPIAQ	65 pints per day	30 L per day	8 3/25 gal per day	203 mm collar	8 in. collars	TrueDRY R-410A 65-pint dehumidifier with VisionPRO IAQ control.	Hardware, control, and dehumidifier	—
DR90A1000	90 pints per day	45 L per day	11 1/4 gal per day	254 mm collars; 152 mm vent collar	10 in. collars; 6 in. ventilation collar	TrueDRY 90-pint dehumidifier with no control.		92 .lb
DR90VPIAQ	90 pints per day	45 L per day	11 1/4 gal per day	254 mm collars; 152 mm vent collar	10 in. collars; 6 in. ventilation collar	TrueDRY 90-pint dehumidifier with VisionPRO IAQ control.		92 lb

## TrueDRY Parts and Accessories

Product Number	Description	Used With
50049536-001	DR90 compressor run capacitor	DR90
50049536-003	DR90 Filter	DR92
50049536-004	DR90 6" duct collar	DR93
50049536-005	DR90 10" duct collar	DR94
50049536-006	DR90 magnetic door	DR95
50049537-001	Compressor overload	DR65
50049537-002	Compressor relay, DPDT 24 VAC, 30A	DR65
50049537-003	Run capacitor, 35 MFD	DR65
50049537-004	8" Duct Collar	DR65
50049537-005	Filter	DR65

# TrueSTEAM™ Humidification System

## TrueSTEAM™ Humidification System



Steam provides the highest and most consistent levels of humidity.

- Application flexibility—Mount directly to the duct or remotely up to 20 feet away into tight-fitting or unconditioned air spaces.
- Installs in minutes—Limited duct cutting and bracket-mount design takes less than 5 minutes to complete.
- Easy maintenance—Self-regulates cleaning cycles throughout the year. Annual maintenance requires no tools to access and clean, saving time and money on annual contractor service calls. In-line water filter for scale and sediment also provided.
- 5-year warranty

**Application:** Humidification

**Type:** Steam

**Dimensions, Approximate:** 482.6 mm H x 285.75 mm L x 228.6 mm D (19 in. high x 11 1/4 in. wide x 9 in. deep)

**Mounting:** Duct or Remote Mount (up to 20 feet/6 meters)

**Temperature Range:** 1.1C-40C (34 F to 104 F)

**Voltage:** 120 Vac

**Color:** Dark Empire Gray

Indoor Air Quality

Product Number	Capacity (per day)		Plenum Opening		Description	Includes
	(liter)	(gal.)	(mm)	(inch)		
HM506DG115	23 L per day	6 gal per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with TruelAQ control.	Humidifier, TruelAQ digital control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM506H8908	23 L per day	6 gal per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with H8908 control.	Humidifier, H8908 manual humidistat, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM506VPIAQ	23 L per day	6 gal per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with VisionPRO IAQ control.	Humidifier, VisionPRO IAQ control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM506W1005	23 L per day	6 gal per day	44.45 mm diameter	1 3/4 in. diameter	Wireless TrueSTEAM 6-gallon model.	Humidifier, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve. Does not include humidistat.
HM509DG115	34 L per day	9 gal per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with TruelAQ control.	Humidifier, TruelAQ digital control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM509H8908	34 L per day	9 gal per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with H8908 control.	Humidifier, H8908 manual humidistat, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM509VPIAQ	34 L per day	9 gal per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with VisionPRO IAQ control.	Humidifier, VisionPRO IAQ control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM509W1005	34 L per day	9 gal per day	44.45 mm diameter	1 3/4 in. diameter	Wireless TrueSTEAM 9-gallon model.	Humidifier, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve. Does not include humidistat.
HM512DG115	46 L per day	12 gal. per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM with TruelAQ control.	Humidifier, TruelAQ digital control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM512VPIAQ	46 L per day	12 gal. per day	44.45 mm diameter	1 3/4 in. diameter	TrueSTEAM 12gpd with VisionPRO IAQ control.	Humidifier, VisionPRO IAQ control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.
HM512W1005	46 L per day	12 gal. per day	44.45 mm diameter	1 3/4 in. diameter	Wireless TrueSTEAM 12-gallon model.	Humidifier, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve. Does not include humidistat.
HM512WTHX9	46 L per day	12 gal. per day	44.45 mm diameter	1 3/4 in. diameter	Wireless TrueSTEAM 12-gallon model with Prestige control.	Humidifier, Prestige control, duct template hardware, saddle valve, drain supply water tubing, duct nozzle, mounting bracket, water filter, backflow valve.

## TrueSTEAM Installation Accessories

Product Number	Description
50024917-001	TrueSTEAM 10-Foot Remote Mount Kit. Compatible with all TrueSTEAM models.
50024917-002	TrueSTEAM 20-Foot Remote Mount Kit. Compatible with HM512 and HM509 TrueSTEAM models.
50027910-001	Duct or Remote Mount Differential Pressure Switch.

# TrueIAQ Controller

## TrueIAQ<sup>®</sup> Automatic Digital IAQ Control



Integrate control of your home's humidification, dehumidification, ventilation and even bathroom fans into a single device with Honeywell's TrueIAQ<sup>®</sup> Control. TrueIAQ<sup>®</sup> allows you to program your air quality and fan settings individually, or as a system for increased comfort and energy savings. Plus, TrueIAQ<sup>®</sup> will automatically adjust settings for changes in outside temperature and humidity, and provides maintenance reminders to help keep your equipment operating at peak efficiency. For true indoor air quality control, choose TrueIAQ<sup>®</sup>.

- Setting changes can be made easily with the touch of a button.
- Manages humidification, dehumidification, ventilation and bathroom fans from a central point in your home.
- Simultaneously displays both indoor and outdoor temperature and humidity levels on-screen. Automatically adjusts inside settings based on outdoor conditions.
- Include individual air quality enhancements to your system with TrueIAQ<sup>®</sup>, or integrate them all as part of a total air quality system.
- Intuitive digital backlit display.

**Type:** Steam

**Dimensions, Approximate:** 19 in. high x 11 1/4 in. wide x 9 in. deep

**Mounting:** Duct or Remote Mount (up to 6 meters)

**Temperature Range:** 1.1C-40C

**Voltage:** 120 Vac

**Color:** White

Product Number	Application	Electrical Ratings (120 Vac, Full Load)	Operating Humidity Range (% RH)	Description	Includes	Used With
DG115EZIAQ	Provides humidity control for ducts, greenhouses, computer rooms, printing and photographic laboratories, and other applications where electronic accuracy, as well as remote sensing, is desired.	2.0A at 24 Vac, humidifier, dehumidifier, vent contacts	95% RH at 95 F, non-condensing	Digital control for IAQ equipment	TrueIAQ control and outdoor sensor for temperature and humidity	Outdoor temp/humidity sensor (included)

# Whole House Humidifiers

## HE225; HE265 Bypass Flow-through Humidifier

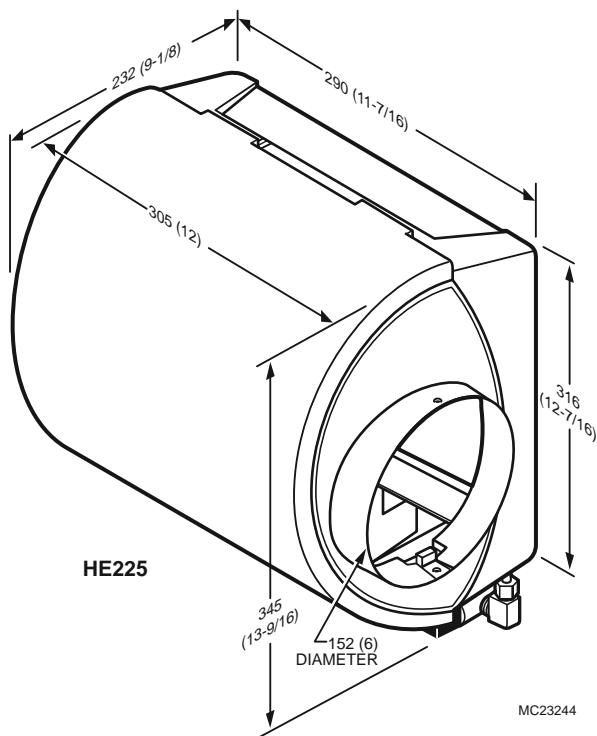


**Bypass Flow-through Humidifiers use the warm air furnace blower to provide whole house humidification.**

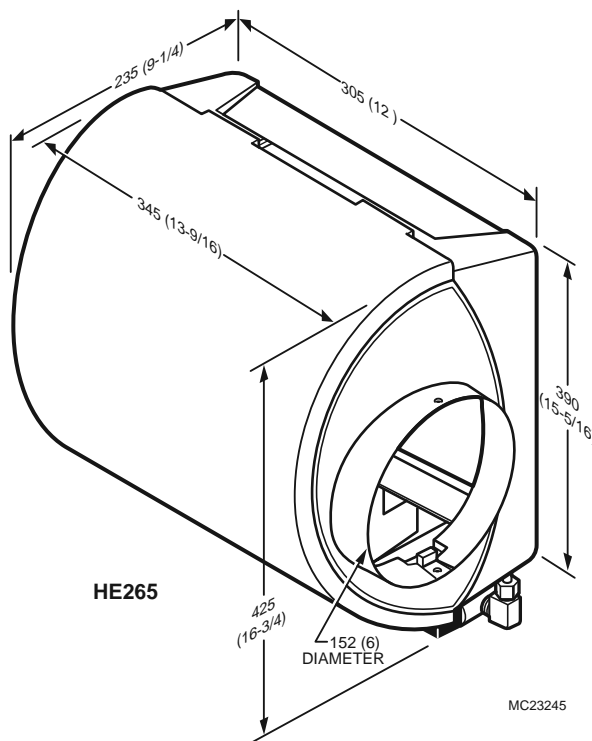
- Humidifier pad is coated with AGION antimicrobial agent.
- Pre-assembled for quicker installation.
- Small footprint, light weight and reversible components allow for easy mounting on either warm air supply or cold air return of any forced air furnace.
- Interior components designed for quick maintenance and service.
- Option of automatic humidity control or standard humidistat.
- Standard tested per ARI Standard 610.

Indoor Air Quality

Dimensions in millimeters (inches)



Dimensions in millimeters (inches)



**Application:** Humidification  
**Type:** Bypass Flow-Through  
**Mounting:** Duct mount  
**Voltage:** 24 Vac  
**Frequency:** 60 Hz

**Electrical Ratings:** 0.5A  
**Color:** White and Blue

**Approvals:**  
**Underwriters Laboratories, Inc.** UL/cUL Listed Report E185662

Product Number	Capacity (per day)		Plenum Opening		Description	Includes
	(liter)	(gal)	(mm)	(inch)		
HE225A1014	46 L per day	12 gal. per day	241 mm high x 238 mm wide	9 7/16 in. high x 9 5/18 in. wide	Bypass flow-through humidifier with H8908 control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, standard humidistat and bypass installation materials.
HE225B1234	46 L per day	12 gal. per day	241 mm high x 238 mm wide	9 7/16 in. high x 9 5/18 in. wide	Bypass Flow Through Humidifier with TrueIAQ Control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat, and bypass installation materials.

\* TRADELINE models • SUPER TRADELINE models

# Whole House Humidifiers

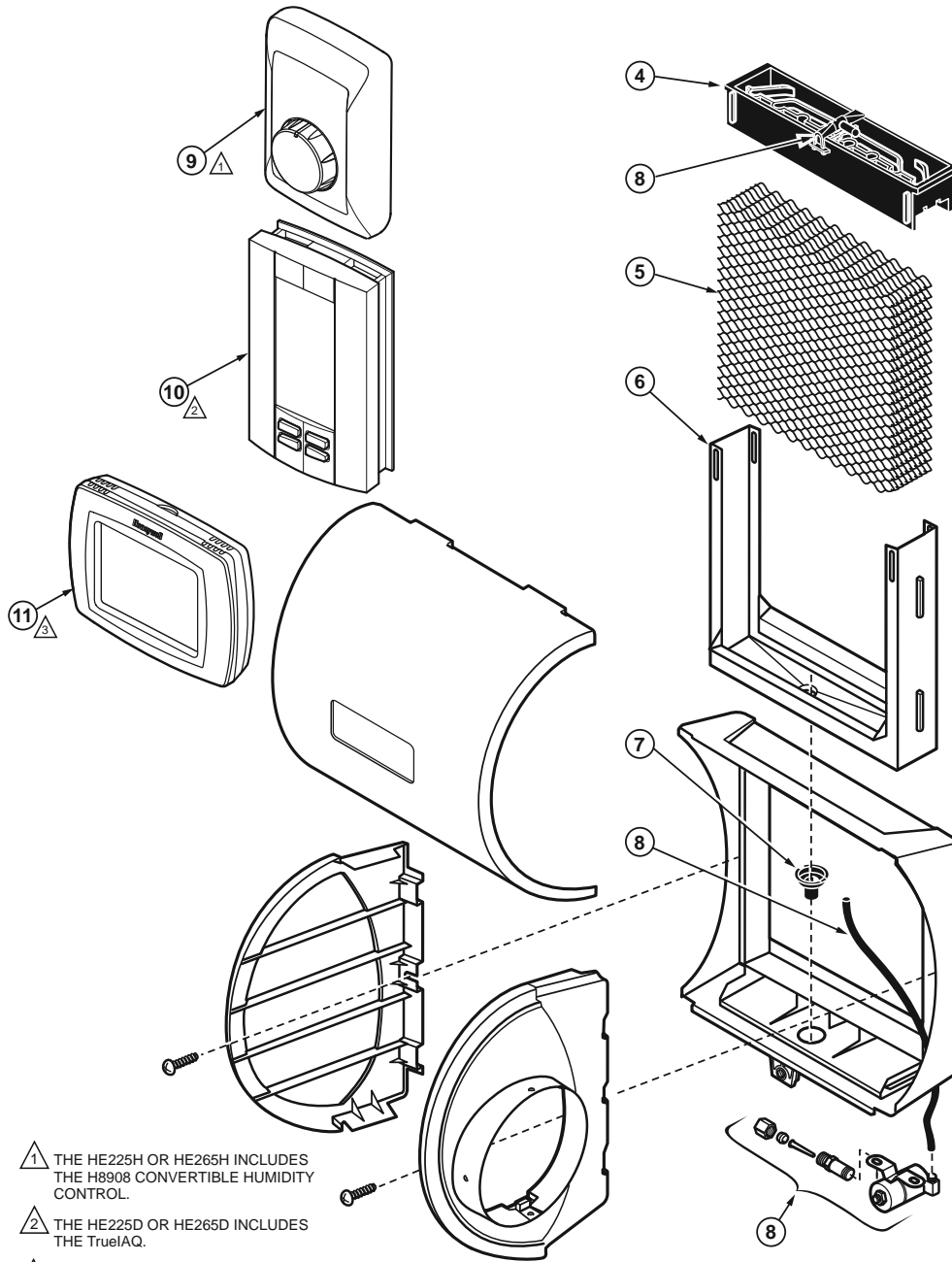
Product Number	Capacity (per day)		Plenum Opening		Description	Includes
	(liter)	(gal)	(mm)	(inch)		
* HE225DG115	46 L per day	12 gal. per day	241 mm high x 238 mm wide	9 7/16 in. high x 9 5/18 in. wide	Bypass flow-through humidifier with TrueIAQ digital control.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat
* HE225VPIAQ	46 L per day	12 gal. per day	241 mm high x 238 mm wide	9 7/16 in. high x 9 5/18 in. wide	Bypass flow-through humidifier with VisionPRO IAQ.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat
HE265A1234	64 L per day	17 gal. per day	321 mm high x 248 mm wide	12 5/8 in. high x 9 3/4 in. wide	Bypass Flow Through Humidifier with H8908 Humidistat.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, standard humidistat, and bypass installation materials
HE265B1234	64 L per day	17 gal. per day	321 mm high x 248 mm wide	12 5/8 in. high x 9 3/4 in. wide	Bypass Flow Through Humidifier with TrueIAQ Control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat, and bypass installation materials
* HE265DG115	64 L per day	17 gal. per day	321 mm high x 248 mm wide	12 5/8 in. high x 9 3/4 in. wide	Bypass flow-through humidifier with TrueIAQ digital control. Includes installation hardware.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat
* HE265H8908	64 L per day	17 gal. per day	321 mm high x 248 mm wide	12 5/8 in. high x 9 3/4 in. wide	Bypass flow-through humidifier with H8908A humidistat.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, standard humidistat
* HE265VPIAQ	64 L per day	17 gal. per day	321 mm high x 248 mm wide	12 5/8 in. high x 9 3/4 in. wide	Bypass flow-through humidifier with VisionPRO IAQ.	Humidifier, summer shut-off damper humidifier pad, mounting template, self-piercing saddle valve 24 Vac transformer and wire, automatic humidistat

\* TRADELINE models • SUPER TRADELINE models



# Whole House Humidifiers

## HE225 and HE265 Exploded View



- 1 THE HE225H OR HE265H INCLUDES THE H8908 CONVERTIBLE HUMIDITY CONTROL.
- 2 THE HE225D OR HE265D INCLUDES THE TrueIAQ.
- 3 THE HE225V AND HE265V INCLUDES THE VisionPRO IAQ.

No.	Description	HE225 Part Number	HE265 Part Number
4	PerfectFlo™ water distribution tray	32001619-001	32001630-001
5	Humidifier Pad (pad has antimicrobial coating)	HC22E1003	HC26E1004
6	Humidifier Pad Frame	32001621-001	32001632-001
7	Drain fitting	32001615-001	32001615-001
8	Solenoid valve assembly (includes nozzle)	32001639-002	32001639-002
9	H8908 Humidity Control	H8908ASPST	H8908ASPST
10	TrueIAQ Digital Automatic Control with Outdoor Enthalpy Sensor	DG115EZIAQ	DG115EZIAQ
11	VisionPRO IAQ with outdoor temp sensor	YTH9421C1010	YTH9421C1010
—	Hardware Kit for Solenoid Assembly (same as Solenoid valve assembly without the solenoid valve)	32001752-001	32001752-001
—	Current Sensing Relay	32001754-001	32001754-001

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Indoor Air Quality

# Whole House Humidifiers

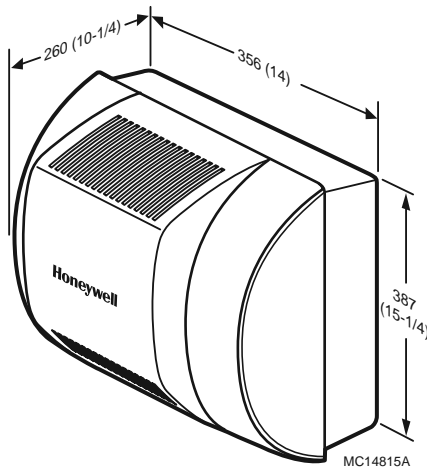
## HE365 Fan Flow-through Humidifier



Fan-powered flow-through humidifier uses the warm air furnace blower to provide whole house humidification.

- Humidifier pad is coated with AGION antimicrobial agent.
- Capable of humidifying large areas, up to 3,000 sq. ft.
- Interior components designed for quick maintenance and service.
- Option of automatic humidity control or standard humidistat.
- Standard tested per ARI Standard 610.

Dimensions in millimeters (inches)



**Application:** Humidification

**Type:** Fan Powered Flow-Through

**Dimensions (Approximate):** 387 mm high x 356 mm wide x 260 mm deep (15 in. high x 14 in. wide x 10 1/4 in. deep)

**Mounting:** Duct mount

**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Electrical Ratings:** 0.7 A

**Color:** White and Blue

**Approvals:**

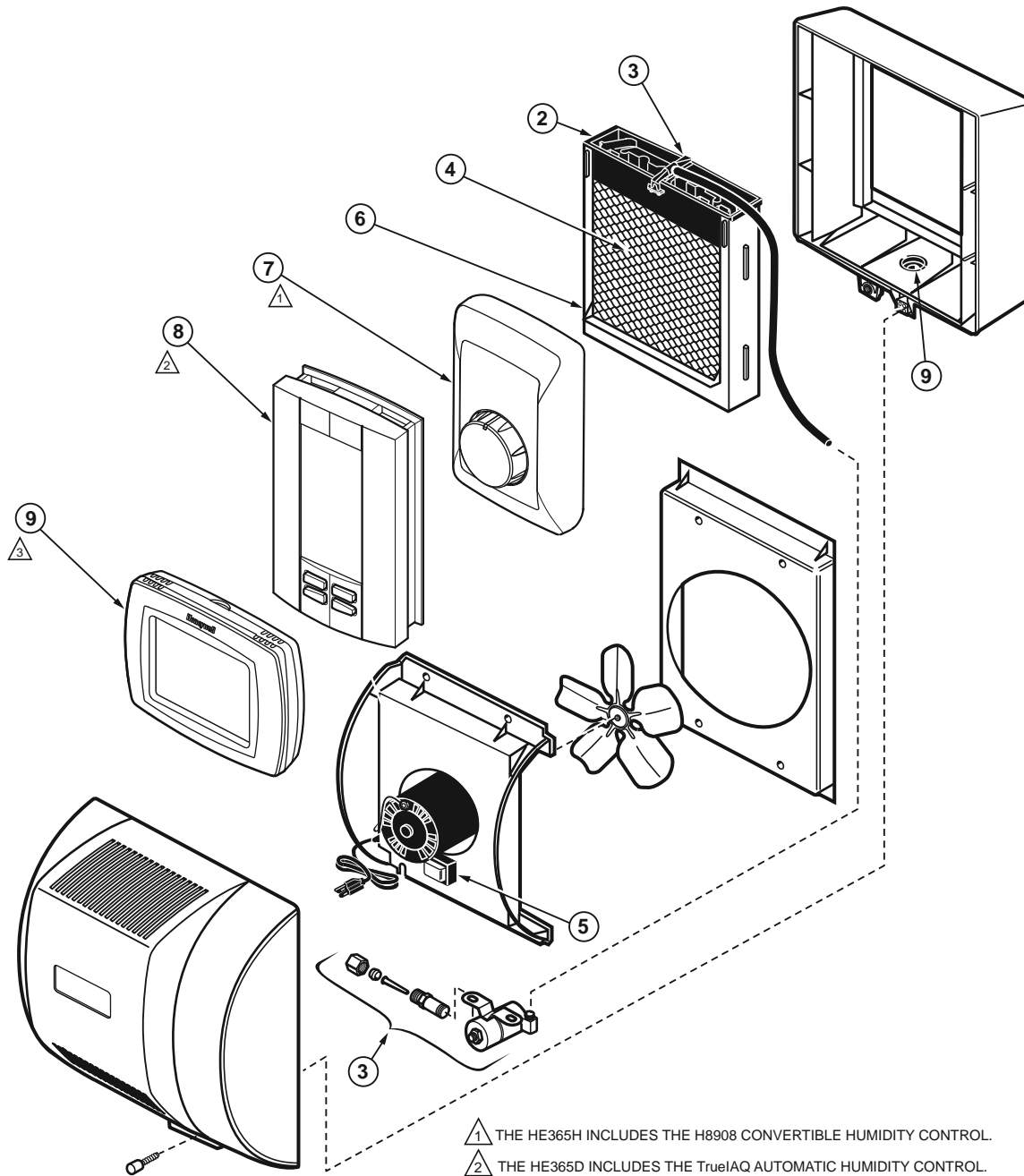
**Underwriters Laboratories, Inc. UL/cUL Listed Report E185662**

Product Number	Capacity (per day)		Plenum Opening		Description	Includes
	(liter)	(gal.)	(mm)	(inch)		
HE365A1234	68 L per day	18 gal. per day	357 mm high x 343 mm wide	14 1/16 in. high x 13 1/2 in. wide	Fan-powered flow-through humidifier with H8908 Humidistat. Includes installation hardware.	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, standard humidistat, and installation materials
HE365B1234	68 L per day	18 gal. per day	357 mm high x 343 mm wide	14 1/16 in. high x 13 1/2 in. wide	Fan-powered flow-through humidifier with TrueIAQ digital control. Includes installation hardware.	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, automatic humidistat, and installation materials
* HE365DG115	68 L per day	18 gal. per day	357 mm high x 343 mm wide	14 1/16 in. high x 13 1/2 in. wide	Fan-powered flow-through humidifier with TrueIAQ digital control	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, automatic humidistat.
* HE365H8908	68 L per day	18 gal. per day	357 mm high x 343 mm wide	14 1/16 in. high x 13 1/2 in. wide	Fan-powered flow-through humidifier with H8908 Humidistat	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, standard Humidistat.
HE365VPIAQ	68 L per day	18 gal. per day	357 mm high x 343 mm wide	14 1/16 in. high x 13 1/2 in. wide	Fan-powered flow-through humidifier with VisionPRO IAQ control	Humidifier, mounting template, humidifier pad, self-piercing saddle valve, standard Humidistat.

\* TRADELINE models • SUPER TRADELINE models

# Whole House Humidifiers

## HE365 Exploded View



- ① THE HE365H INCLUDES THE H8908 CONVERTIBLE HUMIDITY CONTROL.
- ② THE HE365D INCLUDES THE TrueIAQ AUTOMATIC HUMIDITY CONTROL.
- ③ THE HE365V INCLUDES THE VisionPRO IAQ.

No.	Description	HE365 Part Number
2	Water Distribution Tray	32001630-001
3	Solenoid Valve Assembly (includes nozzle)	32001876-001
4	Humidifier Pad (pad has antimicrobial coating)	HC26E1004
5	PWB Assembly (includes transformer)	32001676-001
6	Humidifier Pad Frame	32001632-001
7	H8908 Humidity Control	H8908ASPST
8	TrueIAQ Automatic Humidity Control	DG115EZIAQ
9	VisionPRO IAQ with Outdoor Temp Sensor	YTH9421C1010
10	Drain Fitting	32001615-001
Not shown	Hardware Kit for Solenoid Assembly (same as Solenoid Valve Assembly without the solenoid valve)	32001752-001
—	Current Sensing Relay	32001754-001

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Indoor Air Quality

# Humidifier Replacement Parts and Accessories

## Humidifier Replacement Pads and Filters



Product Number	Application	Description	Includes	Used With
50028044-001	Replacement Pads and Filters	Plumb in-line scale and sediment filter with quick-connect fittings.	1 filter	All Honeywell steam and evaporative humidifiers. Also fits AprilAire evaporative models.
* HC22A1007	Replacement Pads and Filters	HE220 Humidifier Pad	Standard Humidifier Pad	Honeywell HE220, HE225, Aprilaire Models 110, 220, 550, 558
* HC22E1003	Replacement Pads and Filters	HE225 Humidifier Pad with AglION™ Coating	AglION Antimicrobial Humidifier Pad	Honeywell HE220, HE225, Aprilaire Models 110, 220, 550, 558
* HC26A1008	Replacement Pads and Filters	HE260 Humidifier Pad	Standard Humidifier Pad	Honeywell HE260, HE265, HE360, HE365, Aprilaire 350, 360, 560, 568, 600, 700, 760, 768
* HC26E1004	Replacement Pads and Filters	HE265 Humidifier Pad with AglION™ Coating	AglION Antimicrobial Humidifier Pad	Honeywell HE260, HE265, HE360, HE365, Aprilaire 350, 360, 560, 568, 600, 700, 760, 769

\* TRADELINE models • SUPER TRADELINE models

## Humidifier Parts

Product Number	Description	Used With
32000149-001	HE420, HE460 Safety Float Switch	HE420, HE460
32000159-001	HE420, HE460 Thermal Fan Switch	HE420, HE460
32000164-001	HE420 Heating Element	HE420
32000166-001	HE420, HE460 Float for Water Fill Valve	HE420, HE460
32000167-001	HE420, HE460 Water Fill Valve	HE420, HE460
32000408-001	HE360, HE365 Feed Tube Nozzle	HE360, HE365
32001615-001	HE220, HE225, HE260, HE265, HE360, HE365 Drain Fitting	HE220, HE225, HE260, HE265, HE360, HE365
32001616-001	HE120, HE220, HE225, HE260, HE265, HE360, HE365 Saddle Valve Assembly	HE120, HE220, HE225, HE260, HE265, HE360, HE365
32001619-001	HE220, HE225, HE360A1001 PerfectFlo™ Water Distribution Tray	HE220, HE225, HE360
32001621-001	HE220, HE225 Humidifier Pad Frame	HE220, HE225
32001630-001	HE260, HE265, HE360, HE365 PerfectFlo™ Water Distribution Tray	HE260, HE265, HE360, HE365
32001632-001	HE260, HE265, HE360, HE365 Humidifier Pad Frame	HE260, HE265, HE360, HE365
32001639-002	HE220, HE225, HE260, HE265 Solenoid Valve Assembly (includes water feed tube and nozzle)	HE220, HE225, HE260, HE265
32001676-001	HE360, HE365 Printed Wiring Board Assembly	HE360, HE365
32001752-001	HE220, HE225, HE260, HE265, HE360, HE365 Hardware Kit for Solenoid Assembly (does not include solenoid valve)	HE220, HE225, HE260, HE265, HE360, HE365
32001754-001	Current Sensing Relay	HE220, HE225, HE260, HE265, HE360, HE365
32001876-001	HE360, HE365 Solenoid Valve Assembly (includes water feed tube)	HE360, HE365

## H46 Humidity Controller



Provide automatic control of a humidifier or dehumidifier for dehumidification in air conditioning systems.

- Positive ON-OFF settings permit manual operation of controlled equipment.
- Impact-resistant, molded plastic cover mounts on wall.
- Fully enclosed, dust free, SPST, snap-acting switch.
- Sensing element of thin, moisture sensitive nylon ribbon provides reliable operation even when ambient temperature conditions change.

**Type:** Humidity Control  
**Dimensions, Approximate:** 119 mm high x 75 mm wide x 54 mm deep (4 11/16 in. high x 2 15/16 in. wide x 2 1/8 in. deep)  
**Mounting:** Wall mount  
**Temperature Range:** 50 F to 125 F (10 C to 52 C)  
**Differential:** 4% to 6% RH  
**Voltage:** 24 Vac; 120 Vac; 240 Vac

Product Number	Application	Operating Humidity Range (% RH)	Electrical Ratings						Color	Description
			120 Vac			240 Vac				
			Full Load	Locked Rotor	Resistive	Full Load	Locked Rotor	Resistive		
* H46C1166	Dehumidification	20 to 80% RH	7.5A	30.0A	6.0A	3.8A	15.0A	6.0A	Premier White®	Wall mounted Dehumidistat
* H46D1214	Humidification	10 to 60% RH	4.4A	26.4A	6.0A	2.2A	13.2A	6.0A	Premier White®	Wall mounted Humidistat
* H46E1013	Dehumidification	20 to 80% RH	7.5A	30.0A	6.0A	3.8A	15.0A	6.0A	Beige	Dehumidistat with plug for window Air Conditioner or portable dehumidifier

\* TRADELINE models • SUPER TRADELINE models

## H600 Humidity Controllers



Operates humidification equipment on RH fall or dehumidification equipment on RH rise.

- Sensing element of thin, moisture sensitive nylon ribbon provides reliable operation even when ambient temperature conditions change.
- Fully enclosed, dust free, SPDT, snap-acting switch.
- Removable setting knob prevents tampering.
- Mount vertically on 2 x 4 in. junction box (not to be duct mounted).
- Includes alternate scale and faceplate for horizontal mounting.

**Application:** Humidification or Dehumidification  
**Type:** Humidity Control  
**Dimensions, Approximate:** 157 mm high x 86 mm wide x 57 mm deep (6 3/16 in. high x 3 3/8 in. wide x 2 1/4 in. deep)  
**Mounting:** Wall mount  
**Temperature Range:** 50 F to 125 F (10 C to 52 C)  
**Differential:** 5% RH  
**Voltage:** 24 Vac; 120 Vac; 240 Vac  
**Color:** Gray

Product Number	Operating Humidity Range (% RH)	Electrical Ratings											
		Dehumidifier Contacts						Humidifier Contacts					
		120 Vac			240 Vac			120 Vac			240 Vac		
		Full Load	Locked Rotor	Resistive	Full Load	Locked Rotor	Resistive	Full Load	Locked Rotor	Resistive	Full Load	Locked Rotor	Resistive
* H600A1014	20 to 80% RH	7.5A	30A	6A	3.8A	15A	6 A	4.4A	26.4A	6A	2.2A	13.2A	6A

\* TRADELINE models • SUPER TRADELINE models

# Humidity Controllers

## H8908 Humidistat/Dehumidistat



The H8908A Humidistat and H8908D Dehumidistat (humidity controllers) provide automatic low voltage control of humidifiers and dehumidifiers or ventilators, respectively, in central heating and air conditioning systems. They have a SPST, snap-acting, dust-proof switch and are designed for wall or surface duct mounting.

- SPST, snap-acting, dust-proof switch and are designed for wall or surface duct mounting.
- Positive ON and OFF settings.
- Twelve-inch ribbon of thin, moisture-sensitive nylon ribbon wound around three bobbins effectively gives optimum control for reliable operation under changing ambient conditions.
- Mounts in duct or on wall surface.

**Type:** Steam

**Dimensions, Approximate:** (482.6 mm H x 285.75 mm L x 228.6 mm D)  
19 in. high x 11 1/4 in. wide x 9 in. deep

**Mounting:** Duct or Remote Mount (up to 20 feet/6 meters)

**Temperature Range:** (1.1C-40C)

**Voltage:** 24 Vac

Product Number	Color	Application
H8908ASPST	White	Provides humidity control for ducts, greenhouses, computer rooms, printing and photographic laboratories, and other applications where electronic accuracy, as well as remote sensing, is desired.
H8908DSPST	White	Provides humidity control for ducts, greenhouses, computer rooms, printing and photographic laboratories, and other applications where electronic accuracy, as well as remote sensing, is desired.

\* TRADELINE models • SUPER TRADELINE models

# Ultraviolet Air Treatment Systems

## UV100 Ultraviolet Air Treatment Systems



Airborne pathogens can be circulated and spread in the airflow of residential ductwork. The high intensity energy from Honeywell UV air treatment system has been proven to kill up to 87% of certain airborne bacteria passing by the lamp in a single pass.

- SnapLamp™ features replacement lamp handle with detachable replacement bulb, UC18W or UC36W, to make replacement more economical.
- UV-C light kills airborne bacteria or surface mold.
- Continuously emits ultraviolet energy.
- UV lamp does not produce ozone.
- Sealed unit design prevents accidental installer and homeowner contact with the voltage and with the ultraviolet rays.
- Safe design prevents lamps from lighting unless the base is correctly mounted on the HVAC duct.
- Lamp light indicator to safely view the lamp operation.
- Power cord that plugs into electrical outlet.
- Quick and easy bulb replacement.
- Easy lamp maintenance.
- Optional AIRWATCH™ Indicator can be installed to remind customers when to change bulb.
- To capture and minimize micro-organism pass-through in residential heating, ventilation and air conditioning (HVAC) systems, combine the Ultraviolet System with a high-efficiency air filtration system that includes an electronic air cleaner.

**Operating Temperature (inside Duct):** 30 F to 140 F (-2 C to +60 C)  
**Operating Temperature (outside Duct):** 30 F to 104 F (-2 C to +40 C)

### Replacement Parts:

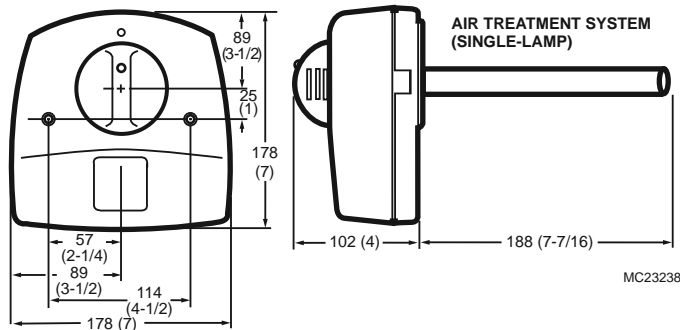
**UC10W1** Replacement Bulb for TrueUV Coil Treatment Systems

**UC18W1004** Replacement Bulb for 18W Single Lamp Return Air Models

**UC36W1006** Replacement Bulb for 36W Dual Lamp Return Air Models and Coil Irradiation Models

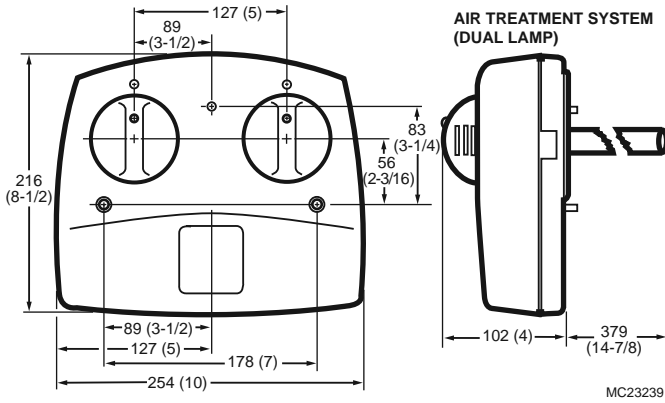
Product Number	Application Type	Contaminants Reduced	Electrical Ratings		Description
			(Watts)	(Vac)	
UV100A1059	Return Air or Coil Irradiation Application	Airborne Bacteria, Surface Mold	36W	120 Vac	Ultraviolet Surface Treatment or Air Treatment System, Coil Plus Model
UV100E1043	Return Air Application	Airborne Bacteria	18W	120 Vac	SmartLamp Ultraviolet Air Treatment System, Single Lamp Return Air Model
UV100E2009	Return Air Application	Airborne Bacteria	36W each	120 Vac	SmartLamp Ultraviolet Air Treatment System, Dual Lamp Return Air Model
UV100E3007	Coil Irradiation Application	Surface Mold	36W	120 Vac	SmartLamp Ultraviolet Surface Treatment System, Coil Irradiation Model
UV100RM1	Coil Irradiation Application	Surface Mold	10W	24 Vac, Vdc, 15 VA	Low voltage ultraviolet treatment system with remote mount capability

Dimensions in millimeters (inches) for single bulb models

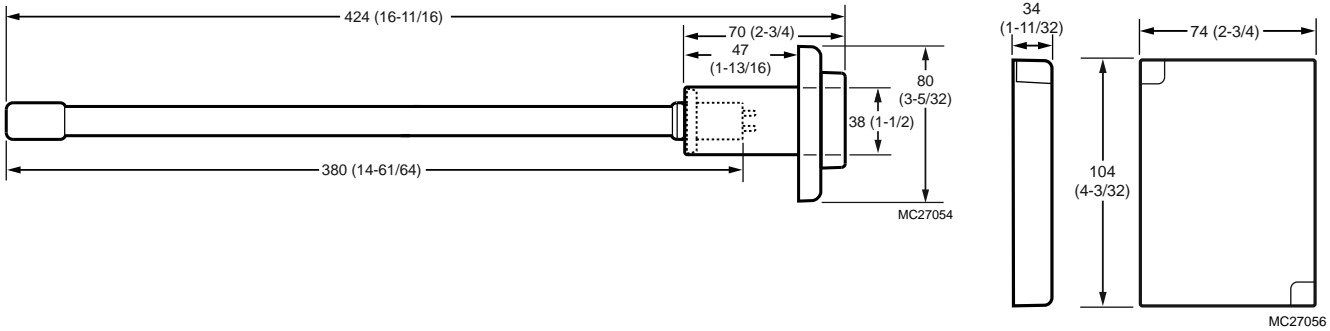


# Ultraviolet Air Treatment Systems

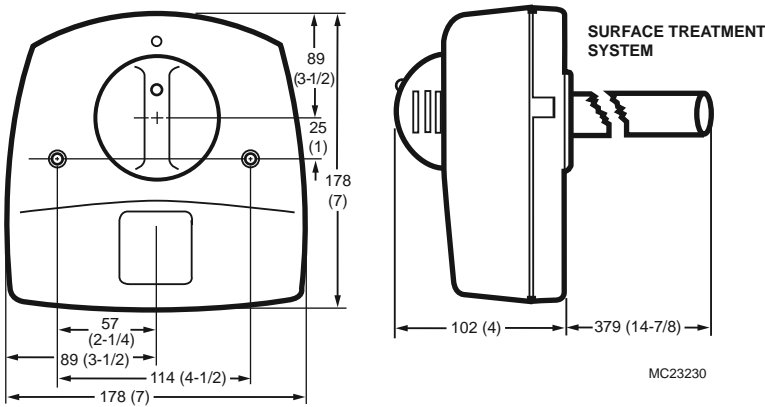
## Dimensions in millimeters (inches) for dual bulb models



## Dimensions in millimeters (inches) for low voltage models



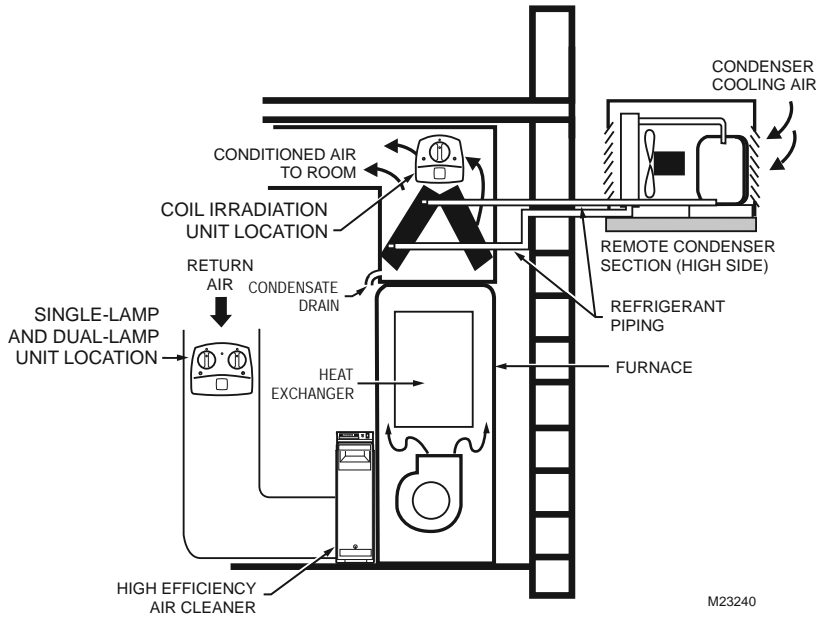
## Dimensions in millimeters (inches) for long bulb models





# Ultraviolet Air Treatment Systems

## Possible mounting locations for Ultraviolet Air Treatment Systems



M23240

Indoor Air Quality

## Replacement Lamp Ultraviolet Air Treatment System

The UC100 Ultraviolet Air Treatment System Replacement Lamp is for use with the UV100 Ultraviolet Air Treatment System.



Product Number	Application Type	Electrical Ratings (Watts)	Description	Used With
UC100A1005	Replacement Lamp	18W	Replacement SnapLamp for UV100A1000, brown handle	UV100A1000
UC100A1054	Replacement Lamp	36W	Replacement SnapLamp for UV100A1059 and UV100A2008, brown handle.	UV100A1018, UV100A1059
UC100E1006	Replacement Lamp	18W	Replacement SnapLamp for UV100E1001 and UV100E1043, blue handle.	UV100E1001, UV100E1043
UC100E1030	Replacement Lamp	36W	Replacement SnapLamp for UV100E3007, UV100E1035, UV100A1059 and UV100A2008, blue handle.	UV100A1018, UV100E3007, UV100E1035, UV100A2009, UV100A1059, UV100A2008
UC10W1	Replacement Bulb	10W	Replacement bulb for TrueUV	UV100RM1
UC18W1004	Replacement Bulb	18W	Replacement Bulb for 18W SnapLamp Models	UC100A1005, UC100E1006, UV100A1000, UV100E1043
UC36W1006	Replacement Bulb	36W	Replacement Bulb for 36W SnapLamp Models	UC100A1013, UC100A1054, UC100E1014, UC100E1030, UV100A1018, UV100A1059, UV100A2008, UV100E2009, UV100E3007

# Fresh Air Ventilation Systems

## ER150; ER200 Energy Recovery Fresh Air Ventilation Systems



Perfect Window® Fresh Air Energy Recovery Ventilation Systems Energy Recovery Ventilators provide proper levels of ventilation with energy savings by transferring heat and moisture between the exhaust and fresh air streams.

- Includes heat/energy transfer core, pre-filters, and fan and blower assembly.
- Provides ventilation that helps contractors meet ASHRAE 62-89.
- Electronic ventilation fan timer option.
- Low voltage, high-speed override.
- Variable fan speed control.
- Easy-to-clean with a vacuum, cross-flow enthalpic core assures years of trouble-free operation.
- Insulated cabinet.
- Rugged steel cabinet.
- Quiet operation.
- Permanent (washable) pre-filters.
- Integral balancing dampers.
- Includes vibration isolation hardware and duct collars.

Application: Energy Recovery Ventilator  
 Type of Core: Enthalpy cross flow core  
 Electrical Ratings: 120 Vac

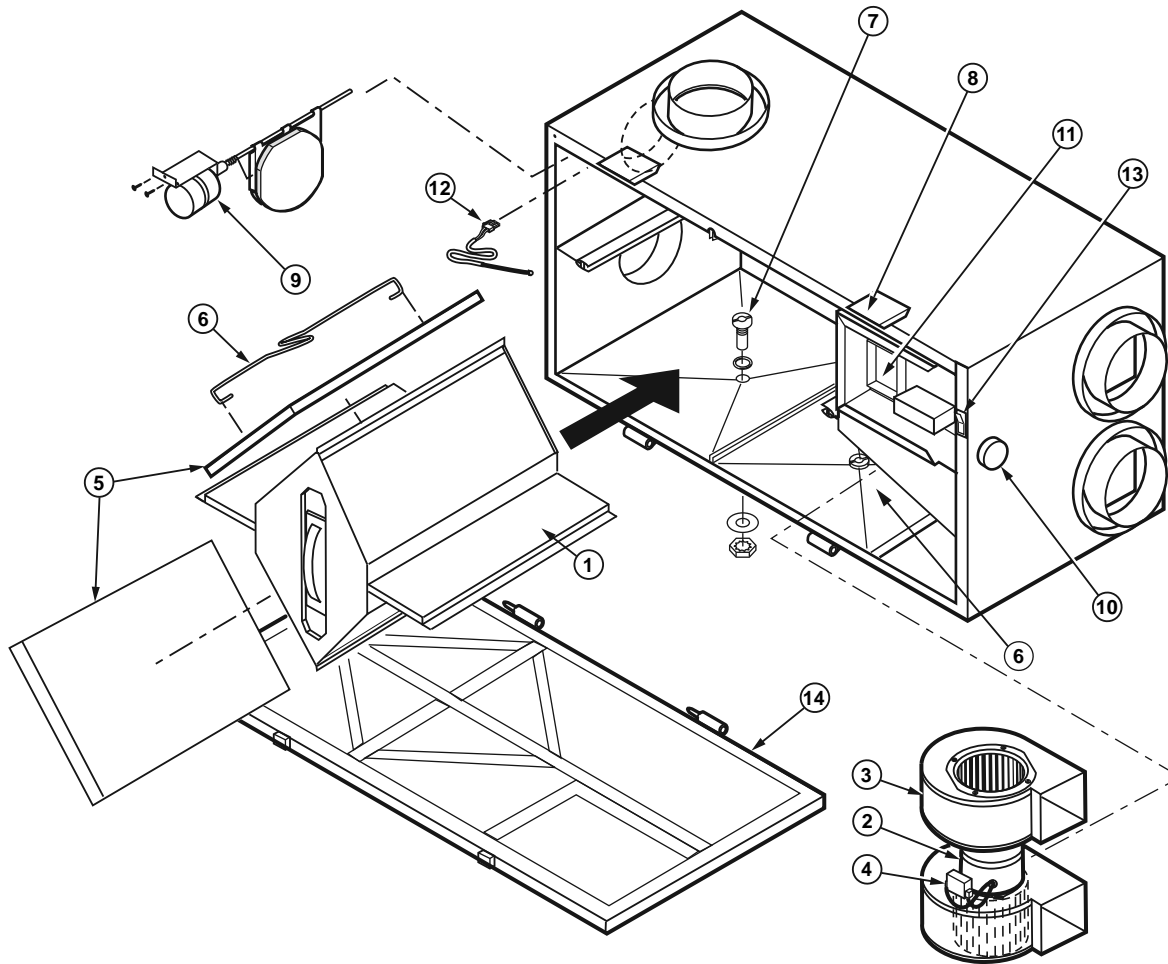
Frequency: 60 Hz  
 Moisture Transfer Ratio: 0.26  
 Temperature Recovery: 0.79

Product Number	Airflow Capacity (external static pressure)	Characteristics	Current Draw, Nominal		Defrost Control
			(maximum speed)	(minimum speed)	
* ER150B2006	150 cfm (0.1 in. wc)	Energy Recovery Ventilator 150 CFM	1.7 A	0.7 A	Built-in Defrost
* ER150C2004	150 cfm (0.1 in. wc)	Energy Recovery Ventilator 150 CFM, no defrost	1.7 A	0.7 A	No Defrost
* ER200B2006	208 cfm (0.2 in. wc)	Energy Recovery Ventilator 200 CFM	1.7 A	0.8 A	Built-in Defrost
* ER200C2004	208 cfm (0.2 in. wc)	Energy Recovery Ventilator 200 CFM, no defrost	1.7 A	0.8 A	No Defrost

\* TRADELINE models • SUPER TRADELINE models

# Fresh Air Ventilation Systems

## ER150 and ER200 Exploded View and Replacement parts



No.	Description	Part Number for ER150 or ER200
1	Cross-Flow Enthalpy Core, with Guide Channels	32002074-001
2	Blower Motor	208359
3	Blower Housing Kit	50002341-001
4	Motor Capacitor	209711
5	Foam Prefilter, Set of two	32002114-001
6	Clip for Foam Prefilter	209722
7	Drain Spout	208514
8	Door Latch, Complete	208520
9	Defrost Damper Motor, Bi-directional	209715
10	Manual Speed Control, 5-Position	208383
11	Electronic Control Kit (Control Board, Transformer)	50002342-001
12	Thermistor Assembly	208365
13	Door Interlock Switch	208368
14	Door	50002340-001

### Parts and Accessories Not Illustrated

Part Number	Description
208374	Diffuser—5 in. diameter
208375	Diffuser—6 in. diameter
208379	Installation Parts Kit
208372	Airflow Balancing Kit*
W8150A1001	Fresh Air Ventilation Control
32003487-001	Digital Fan Timer, 20-minute

Obsolete (available while supplies last)

M23217A

# Fresh Air Ventilation Systems

## HR150; HR200 Perfect Window® Fresh Air Ventilation Systems



Perfect Window® Fresh Air Heat Recovery Ventilation Systems is a heat recovery ventilator that provide proper levels of ventilation with energy savings by transferring heat between the exhaust and fresh air streams.

- Includes heat transfer core, pre-filters, fan and blower assembly, and defrost.
- Provides ventilation that helps contractors meet ASHRAE 62-89.
- Automatic, economical, built-in defrost for operation to design temperatures of -40F.
- Electronic ventilation fan timer option.
- Low voltage, high-speed override.
- Variable fan speed control.
- Easy-to-clean cross-flow aluminum core assures years of trouble-free operation.
- Insulated cabinet.
- Rugged steel cabinet.
- Quiet operation.
- Permanent (washable) pre-filters.
- Integral balancing dampers.
- Includes vibration isolation hardware and duct collars.

**Application:** Heat Recovery Ventilator  
**Type of Core:** Aluminum cross flow core  
**Electrical Ratings:** 120 Vac  
**Frequency:** 60 Hz  
**Temperature Recovery:** 0.8

	Product Number	Airflow Capacity (external static pressure)	Characteristics	Current Draw, Nominal		Defrost Control
				(maximum speed)	(minimum speed)	
*	HR150B1005	188 cfm (0.2 in. wc)	Heat Recovery Ventilator 150 CFM	1.7 A	0.7 A	Built-in Defrost
*	HR200B1005	206 cfm (0.2 in. wc)	Heat Recovery Ventilator 200 CFM	1.7 A	0.8 A	Built-in Defrost

\* TRADELINE models • SUPER TRADELINE models

## Residential Ventilation Accessories

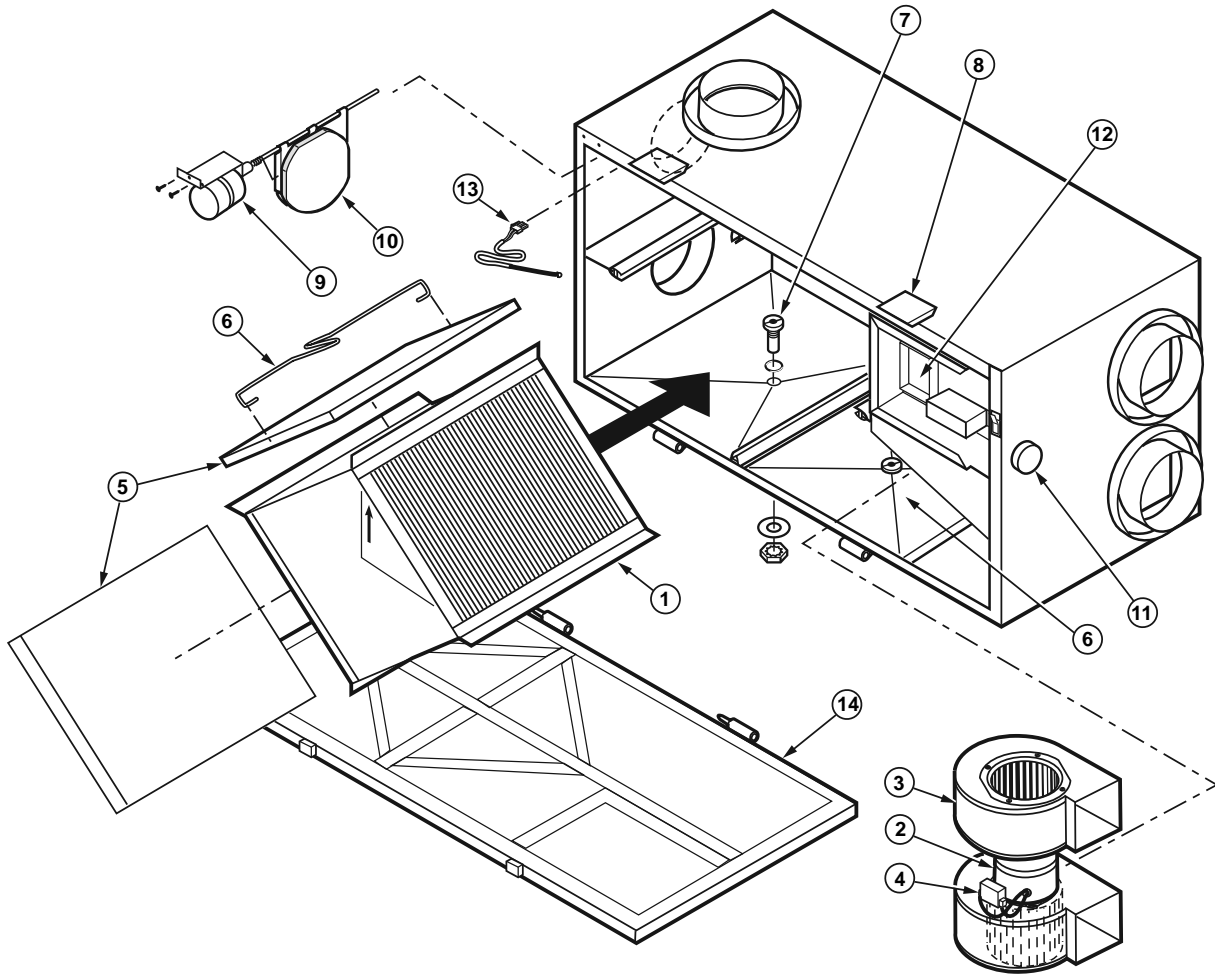
Product Number	Description	Used With
32003487-001	20 Minute Digital Fan Timer	HR150B, HR200B, ER150B, ER150C, ER200C, ER200B
50002342-001	Electronic Control Kit (includes Control Board and Transformer) for ER150, ER200, HR150, HR200	HR150B, HR200B, ER150B, ER150C, ER200C, ER200B

## Residential Ventilation Replacement Parts

Product Number	Description	Used With
208359	Blower Motor for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B, HR200B, ER150B, ER150C, ER200C, ER200B
208515	Drain "T" Fitting HR150B, HR200B, ER150B, ER200B	HR150B, HR200B, ER150B, ER150C, ER200C, ER200B
208520	Door Latch, for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B, HR200B, ER150B, ER150C, ER200C, ER200B
208521	Defrost Damper Motor, Spring Return	HR150C, HR200C
209711	Motor Capacitor for HR150B, HR200B, ER150B, ER200B, ER150C	HR150B, HR200B, ER150B, ER150C, ER200C, ER200B
209715	Defrost Damper Motor, Power Return	HR150B, HR200B, ER150B, ER200B
209719	Manual Control Circuit Board	HR150B, HR200B, ER150B, ER150C, ER200C
209723	Foam Filter	HR150B, HR200B

# Fresh Air Ventilation Systems

## Perfect Window Fresh Air Ventilation System Exploded View



Indoor Air Quality

No.	Description	Part Number for HR150B or HR200B
1	Heat Transfer Core, Aluminum with Plastic Frame	209746
2	Blower Motor	208359
3	Blower Housing Kit	50002341-001
4	Motor Capacitor	209711
5	Foam Prefilter, Set of 2	209723
6	Clip for Foam Prefilter	209722
7	Drain Spout	208514
8	Door Latch, Complete	208520
9	Defrost Damper Motor, Bi-directional	209715
10	Manual Speed Control, 5-Position	208383
12	Electronic Control Kit (Control Board, Transformer)	50002342-001
13	Thermistor Assembly	208365
14	Door	50002340-001

### Parts and Accessories Not Illustrated

Part Number	Description
208374	Diffuser—5 in. diameter
208375	Diffuser—6 in. diameter
208379	Installation Parts Kit
208372	Airflow Balancing Kit*
W8150A1001	Fresh Air Ventilation Control
32003487-001	Digital Fan Timer, 20-minute

\*Includes magnehelic pressure gauge and two 6 in. flow measuring stations.

Obsolete (available while supplies last)

M23216A

# Fresh Air Ventilation Systems

## Digital Bath Fan Control



Every home can benefit from proper ventilation. Honeywell's new Digital Bath Fan Control can operate a bath fan to meet ASHRAE 62.2 ventilation standards, allowing you to offer increased ventilation control that is smart, affordable and efficient.

- Installs in place of a normal switch.
- Manually turn fan on / off or program to run at certain times of day for increased energy efficiency and convenience.
- Can run in timer mode up to 60 minutes.
- Meets ASHRAE 62.2 Ventilation Standard, required or recommended in most states and provinces for new construction or whenever a permit is required.
- Easy-to-see backlit display shows current time to keep you on schedule when getting ready.

Product Number	Application	Characteristics
* HVC0001	Fresh Air Ventilation Control	Color: White
* HVC0002	Fresh Air Ventilation Control	Color: Biscuit

\* TRADELINE models • SUPER TRADELINE models

## Y8150, W8150 Fresh Air Ventilation



The Y8150 Fresh Air Ventilation System provides fresh air to a home. The control operates a fresh air intake damper and, when necessary, activates the main HVAC blower to efficiently meet ASHRAE ventilation rates.

- Designed to help meet local ventilation codes and standards, including ASHRAE 62.2-2003 standard, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
- Microcontroller optimizes the air delivery schedule to make efficient use of normal HVAC run times.
- Easy-to-use input dials allow customized ventilation for each installation.
- Test mode that includes immediate feedback to installer to confirm that air delivery requirements of selected ventilation standard are being met.
- Economical supply-only ventilation; works with forced air system.
- Can be used with other equipment, such as an HRV/ ERV, for balanced ventilation.

**Application:** Fresh Air Ventilation System

**Electrical Ratings:** 24 Vac

Product Number	Airflow Capacity (external static pressure)	Characteristics	Current Draw, Nominal	Used With
			(minimum speed)	
* W8150A1001	50 to 160 cfm	Includes W8150A Fresh Air Ventilation Control, mounting hardware, homeowner information label	0.6 A	EARD6; ER200B; ER200C; ER150C; ER150B; HR200B; HR150B
* Y8150A1009	50 to 160 cfm	Includes W8150A Fresh Air Ventilation Control, EARD6 normally closed 6 inch damper, AT120B 120Vac/24Vac 20VA transformer, mounting hardware for control, homeowner information label	0.6 A	—

\* TRADELINE models • SUPER TRADELINE models

## S688 Sail Switch



The Sail Switch activates an electronic air cleaner, a humidifier, or other equipment in response to airflow from the system fan. The S688A is mounted in the return air duct where the sail will be in the direct path of an unrestricted air stream.

- Simplified installations with multi-speed fans, in-accessible air handlers, fan motors with voltage or phase different from controlled equipment; eliminated wiring to system fan.
- Polyester film sail mounted on a micro switch snap switch.
- Removable spring counterbalances sail to allow mounting in either vertical (up or down) or horizontal air flow.
- Top and bottom conduit knockouts for wiring convenience.
- Low air velocity switch operation makes at 250 fpm and breaks at 75 fpm.

Indoor Air Quality

**Dimensions; Approximate:** 59 mm high x 95 mm wide x 51 mm deep  
(2 15/16 in. high x 3 3/4 in. wide x 2 in. deep)

**Sail Dimensions:** 127 mm wide (max), 16,903 sq. mm  
(5 in. wide (max), 26.2 sq. in. of area)

**Maximum Ambient Temperature:**

At switches: 52 C (125 F)

At sail: 77 C (170 F)

**Operating Velocity:** 75 fpm - 250 fpm (0.4 m/s - 22.9 m/s)

**Insertion Length:** 254 mm (10 in.)

**Approvals:**

**Canadian Standards Association:** Certified

**Underwriters Laboratories Inc.** UL Listed: File No. E4436, Guide No. XAPX. For use in ambient temperatures normally prevailing in occupiable spaces, which usually are not higher than 77 F (25 C) but occasionally may be as high as 104 F (40 C) for brief periods.

Product Number	Contact Ratings						Switching
	(AFL)		(ALR)		(Resistive)		
	N.C. Contacts	N.O. Contacts	N.C. Contacts	N.O. Contacts	N.C. Contacts	N.O. Contacts	
* S688A1007	1.0 A @ 24 Vac, 120 Vac; 0.5 A @ 240 Vac	2.0 A @ 24 Vac, 120 Vac; 1.0 A @ 240 Vac	6.0 A @ 24 Vac, 120 Vac; 3.0 A @ 240 Vac	12.0 A @ 24 Vac, 120 Vac; 6.0 A @ 240 Vac	2.5 A @ 24 Vac, 120 Vac, 240 Vac;	5.0 A @ 24 Vac, 120 Vac; 2.5 A @ 240 Vac	SPDT
* TRADELINE models • SUPER TRADELINE models							

## Sail Switch Accessories

Product Number	Description	Used With
123773A	Sail assembly for S688A	S688A

# Carbon Monoxide Alarm

## C8600 Carbon Monoxide Alarm



**Mounting:** Wall; Ceiling Mounted  
**Color:** Premier White®

**Residential Carbon Monoxide Alarm with the most reliable detection technology available.**

- The only biotechnology-based infrared-gas sensor that mimics the human response to carbon monoxide.
- Detects low levels of carbon monoxide (70 parts per million).
- Detects toxic CO gas resulting from incomplete combustion such as emitted from appliances, furnaces, fireplaces and auto exhaust.
- Quick recovery-Rapidly returns to its original state when carbon monoxide is eliminated from the environment.
- Every unit is 100% gas-tested to ensure accurate, timely response.
- Microprocessor intelligence-Self-tests every 10 minutes.
- Supervises sensor and alarm circuit status to ensure protection.
- Easy to install-no wiring, battery operation lets you locate the unit almost anywhere.
- Energy easing design extends battery life to more than one year under normal use.
- Low battery warning, chirps, and LED double flashes.
- Test/Retest button.

**Approvals:**  
**Underwriters Laboratories, Inc.** 2034 Standard, c-UL Standard

	Product Number	Dimensions, Approximate		LEDs	Includes
		(mm)	(inch)		
*	C8600A1000	121 mm diameter x 38 mm high	4 3/4 in. diameter x 1 1/2 in. high	Status and Diagnostic	9 volt alkaline battery
* TRADELINE models • SUPER TRADELINE models					



# Combination Gas Controls

## V400 Line Voltage; V800 Low Voltage Combination Gas Controls



Used on gas fired standing pilot appliances with 30 mV thermocouple. These gas controls include a manual gas valve, safety shutoff, single millivoltage automatic operator, and pressure regulator, pilot gas filter and flow adjustment, pressure tapping, and thermocouple connector. V800 is used on 24V systems.

- Include pilot flow adjustment screw.
- Easy to install, adjust and service; all adjustments and connections are accessible from top of control.
- Add separate energy cutoff (ECO) where codes call for dual safety shutoff.
- Complete safety shutoff on pilot flame failure.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.
- ECO connector for V800 models. Part No. 392451-1.

**Type:** Single Stage  
**Body Pattern:** Straight-through, multi-tapped with 1/2 in. right and left outlets plugged  
**Capacity @ 1 in. p.d.** 335,000 BTU/hr; 295,000 BTU/hr minimum  
**Ignition Type:** Standing Pilot  
**Pressure Ratings:** 3.5 kPa (1/2 psi)  
**Pressure Tapping:** 1/8 in. NPT with plug  
**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**  
**American Gas Association:** AGA Design Certified; File No. L2025003, CGA Design Certified; File No. L2025003, UL Component Recognized.

**Underwriters Laboratories, Inc.** UL Component Recognized.

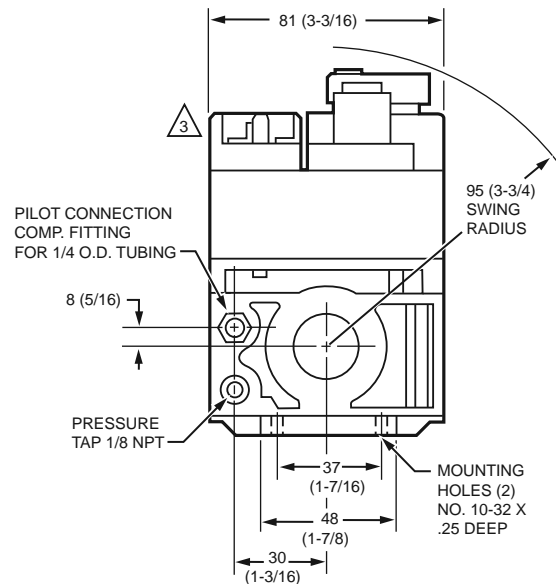
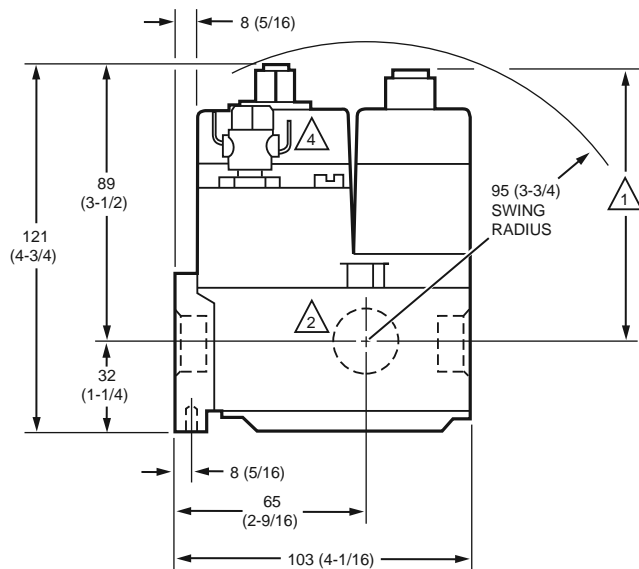
Residential  
Combustion Controls

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Electrical Ratings	Frequency	Pressure Regulator Setting (in. wc)	Ambient Temperature Range		Includes
							(C)	(F)	
• V400A1095	Natural	Standard	3/4 in. x 3/4 in.	120 Vac	60 Hz	3.5 in. wc	0 C to 79 C	32 F to 175 F	Two 3/4 x 1/2 in.; One 1/2 x 3/8 in. Reducer Bushing/Adapters; Two 3/4 X 1/2 in.; one 1/2 X 3/8 in. Reducer Bushings/Adapters
V400C1036	Natural	Step Opening	3/4 in. x 3/4 in.	120 Vac	60 Hz	Full Rate: 3.5 in. wc; Step Setting: 0.7 in. wc	0 C to 79 C	32 F to 175 F	—
* V800A1070	Natural or LP	Standard	1/2 in. x 3/4 in.	24 Vac	60 Hz	3.5 in. wc	0 C to 79 C	32 F to 175 F	One 1/2 x 3/8 in. reducer bushing; One 3/4 x 1/2 in. reducer bushing; Q340 Thermocouple; Natural to LP Conversion Kit
• V800A1088	Natural or LP	Standard	3/4 in. x 3/4 in.	24 Vac	60 Hz	3.5 in. wc	0 C to 79 C	32 F to 175 F	One 1/2 x 3/8 in. reducer bushing; One 3/4 x 1/2 in. reducer bushing; Q340 Thermocouple; Natural to LP Conversion Kit
* V800A1161	Natural	Standard	1/2 in. x 1/2 in.	24 Vac	60 Hz	3.5 in. wc	0 C to 79 C	32 F to 175 F	—
* V800A1179	Natural	Standard	3/4 in. x 3/4 in.	24 Vac	60 Hz	3.5 in. wc	0 C to 79 C	32 F to 175 F	—
* V800C1052	Natural	Step Opening	3/4 in. x 3/4 in.	24 Vac	60 Hz	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	0 C to 79 C	32 F to 175 F	Two 3/4 x 1/2 in.; One 1/2 x 3/8 in. Reducer Bushing/Adapters; 1/2 in. Left Hand and Right Hand Outlet

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls

Dimensions in millimeters (inches)



① WITH V5306 (ILLUSTRATED), V5307 OR 5390 PRESSURE REGULATOR: 24V MODELS-89 (3-1/2), 120V MODEL-92 (3-5/8) MANUAL MODELS-71 (2-13/16), FOR V5308 ADD 16 (5/8) TO DIMENSIONS GIVEN.

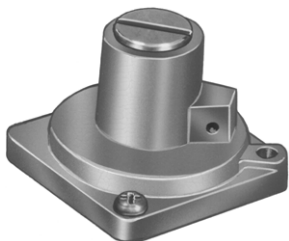
② SIDE OUTLETS-LEFT AND RIGHT HAND. STANDARD ONLY ON TRADELINE MODELS.

③ CONTROL WITH 24V VALVE OPERATOR SHOWN. LINE VOLT MODEL HAS COVER FOR CONDUIT CONNECTION (TOP SURFACE).

④ ECO CONNECTOR ON STANDARD CAPACITY V800 ONLY.

MC16547A

## Pressure Regulators - Standard and Step Opening



Servo gas pressure regulator for add-on or replacement use on Honeywell V400, V800, VR400, VR800 and VR8440 Combination gas controls. Utilizing the servo principle of operation, it controls burner manifold pressure by repositioning the main valve diaphragm.

- Interchangeable and adapt to all pipe sizes and capacities.
- Mount on top surface of control. Installation and adjustment readily accomplished with a screwdriver.

**Mounting:** Top surface of combination gas control (two mounting screws and a gasket).

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Temperature Range:** -40 C to +79 C (-40 F to +175 F)

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Pressure Regulator Setting
*	V5306B1009	Natural	Standard Opening	3.5 in. wc; adj. range 3-5 in. wc
	V5306B1033	LP	Standard Opening	11.0 in. wc; adj. range 8-12 in. wc

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Continuous Pilot

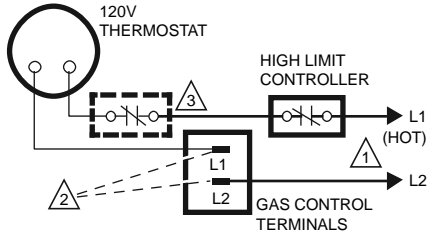
## VR4300 Continuous Pilot Dual Automatic Valve Combination Gas Control



**Combination gas control for use in 120 Vac, gas-fired, standing pilot appliances with capacities from 30 to 300 cfh.**

- Control includes safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Compact size.
- Provides two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat, closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meets codes requiring dual safety shut-off.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.

### Wiring connections for 120 volt control



△ 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

△ 2 DO NOT JUMPER THESE TERMINALS. THIS SHORTS VALVE COIL AND MAY BURN OUT ANTICIPATOR IN THERMOSTAT.

△ 3 OPTIONAL HIGH LIMIT.

M3092B

**Type:** Single Stage

**Body Pattern:** Straight-through with flange

**Capacity @ 1 in. p.d.** 300,000 BTU/hr; 30,000 BTU/hr minimum

**Anticipator Setting:** 0.13 A

**Ignition Type:** Standing Pilot

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 120 Vac

**Frequency:** 60 Hz

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Electrical Connections:** 1/4 in. male quick connects; 24 in. (610 mm) leadwire.

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File No. L2025006;

CGA Design Certified: File No. L2025006

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting (in. wc)	Ambient Temperature Range		Includes
					(C)	(F)	
* VR4300A4502	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	One 1/2 in. x 3/8 in. reducer bushing; Two 3/4 in. x 1/2 in. reducer bushings; 393691 Natural to LP gas conversion kit.

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Continuous Pilot

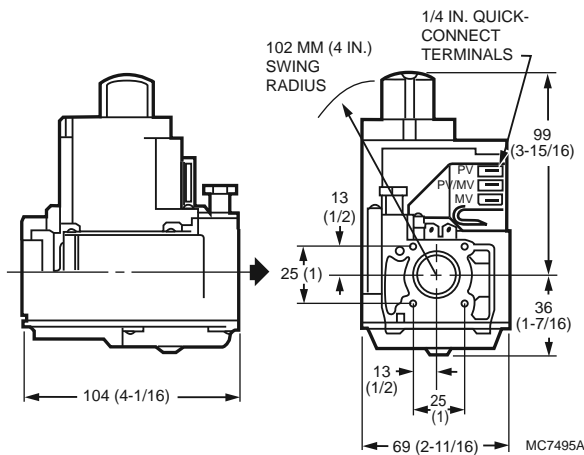
## VR8200 Continuous Pilot Dual Automatic Valve Combination Gas Controls



Combination gas controls for use in 24 Vac, gas-fired, standing pilot appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, servo pressure regulator and pilot adjustment.
- Compact size.
- Provide two automatic valves.
- Solenoid-operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.

### Dimensions in millimeters (inches)



**Type:** Single Stage

**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 130,000 BTU/hr; 20,000 BTU/hr minimum

**Anticipator Setting:** 0.5 A

**Ignition Type:** Standing Pilot

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Electrical Connections:** Combination screw and 1/4 in. male quick connects.

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

### Approvals:

**American Gas Association:** AGA Design Certificate: L2025006

**Australian Gas Association:** Australian Gas Assoc. Design

Certificate: 4214; Approved for Delta C Applications

**Canadian Gas Association:** CGA Design Certificate: L2025006

**Underwriters Laboratories, Inc.** UL Component Recognized: MH5323

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
* VR8200A2132	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	One 3/4 in. straight flange; One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit
* VR8200A2322	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	1/2 in. x 3/8 in. reducer bushing; 39369014 bag assembly-3/4 in. straight flange with O ring, screws and wrench; and 393691 Natural to LP gas conversion kit.
* VR8200H1236	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	1/2 in. x 3/8 in. reducer bushing; 39369014 bag assembly-3/4 in. straight flange with O ring, screws and wrench; and 393691 Natural to LP gas conversion kit.

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Continuous Pilot

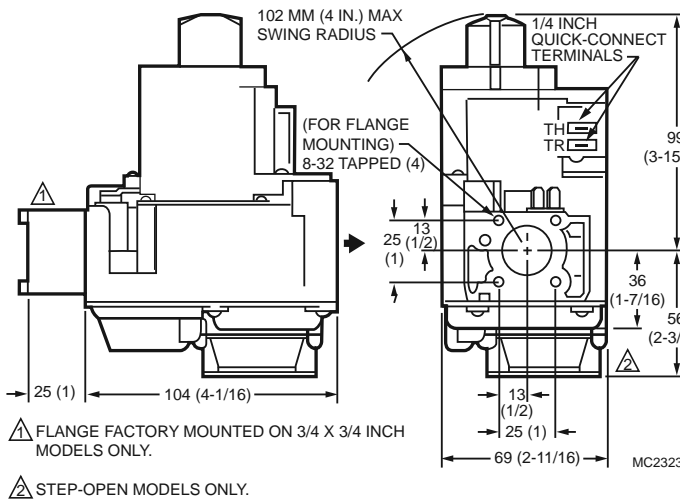
## VR8300 Continuous Pilot Dual Automatic Valve Combination Gas Control



Combination gas control for use in 24 Vac, gas-fired, standing pilot appliances with capacities from 30 to 300 cfh.

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Compact size.
- Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meets codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.

### Dimensions in millimeters (inches)



**Type:** Single Stage

**Body Pattern:** Straight through with integral tapping; with flange

**Capacity @ 1 in. p.d.** 190,000 BTU/hr; 30,000 BTU/hr minimum

**Anticipator Setting:** 0.7 A

**Ignition Type:** Standing Pilot

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File No. L2025006.

**Canadian Gas Association:** CGA Design Certified: File No. L2025006.

**Underwriters Laboratories, Inc.** UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
* VR8300A3500	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	One 3/4 in. x 1/2 in. reducer bushing; 393691 Natural to LP gas conversion kit.
* VR8300A4508	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	Two 3/4 in. x 1/2 in. reducer bushing; 393691 Natural to LP gas conversion kit.
• VR8300A4516	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	Two 3/4 in. x 1/2 in. reducer bushing; 393200 ECO adapter; Q340 (36 in.) thermocouple with adapters; 393691 Natural to LP gas conversion kit.
* VR8300C4506	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	-18 C to +79 C	0 F to 175 F	Two 3/4 in. x 1/2 in. reducer bushings
VR8300H4501	Natural	Slow Opening	3/4 in. x 3/4 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	—

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Intermittent Pilot

## VR4304 Intermittent Pilot Dual Automatic Valve Combination Gas Controls



**Type:** Single Stage  
**Dimensions, Approximate:** 135 mm high x 104 mm wide x 69 mm deep (5 3/8 in. high x 4 1/16 in. wide x 2 11/16 in. deep)  
**Body Pattern:** Straight-through  
**Capacity @ 1 in. p.d.** 300,000 BTU/hr; 30,000 BTU/hr minimum  
**Anticipator Setting:** 0.1 A  
**Ignition Type:** Intermittent Pilot  
**Pressure Ratings:** 3.5 kPa (1/2 psi)  
**Pressure Tapping:** 1/8 in. NPT with plug  
**Electrical Ratings:** 120 Vac

**Combination gas control for use in 120 Vac, gas-fired, intermittent pilot appliances with capacities from 30 to 415 cfh.**

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Use with S86F,H; S860D; S8600F,H; S8610 and S90A,B Control Modules.
- Compact size. Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Standard and slow opening natural gas models include natural to LP gas conversion kit; LP to natural gas conversion kit also available.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- ON-OFF lighting sequence.

**Frequency:** 60 Hz

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File No. L2025007;  
 CGA Design Certified: File No. L2025007

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
* VR4304M4519	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings

\* TRADELINE models • SUPER TRADELINE models

## VR8245 Intermittent Pilot Combination Gas Control



**These universal electronic ignition gas controls are used in gas-fired appliances with capacities up to 150 cu ft/hour at 1 inch wc pressure drop for natural gas. The VR8245M will operate with a direct spark (DSI), hot surface (HSI) or intermittent pilot ignition. The control includes a manual valve, two automatic operators, a pressure regulator, pilot adjustment, pilot plug and ignition adapter.**

**Type:** Single Stage

**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 150,000 BTU/hr

**Ignition Type:** Intermittent Pilot

**Pressure Ratings:** 1/2 psi

**Electrical Ratings:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
VR8245M2530	Natural or LP	Standard	1/2 in. x 1/2 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit

# Combination Gas Controls—Intermittent Pilot

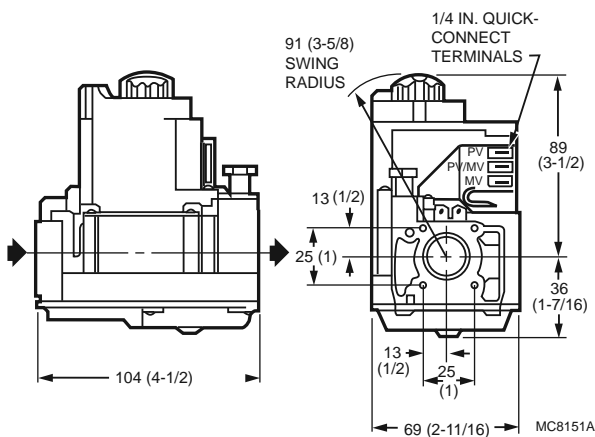
## VR8204 Intermittent Pilot Dual Automatic Valve Combination Gas Controls



Combination gas controls for use in 24 Vac, gas-fired, intermittent pilot appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, servo pressure regulator and pilot adjustment.
- Use with S86F,H; S8600F,H and S8610 Control Modules.
- Compact size.
- Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments and wiring connections are accessible from top of control.
- ON-OFF lighting sequence.

Dimensions in millimeters (inches)



**Type:** Single Stage

**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 150,000 BTU/hr; 20,000 BTU/hr minimum

**Anticipator Setting:** 0.5 A

**Ignition Type:** Intermittent Pilot

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File No. L2025006;

CSA Design Certified: File No. L2025006

**Australian Gas Association:** Australian Gas Assoc. Design Certificate: 4214; Approved for Delta C Applications

**Canadian Gas Association:** CGA Design Certificate: L2025006

**Underwriters Laboratories, Inc.:** UL Component Recognized : MH5323

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting (in. wc)	Ambient Temperature Range		Includes
					(C)	(F)	
VR8204C1019	Natural	Step Opening	1/2 in. x 1/2 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	-18 C to +79 C	0 F to 175 F	—
VR8204H1006	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	—
* VR8204M1091	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	One 3/4 in. straight flange; One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Intermittent Pilot

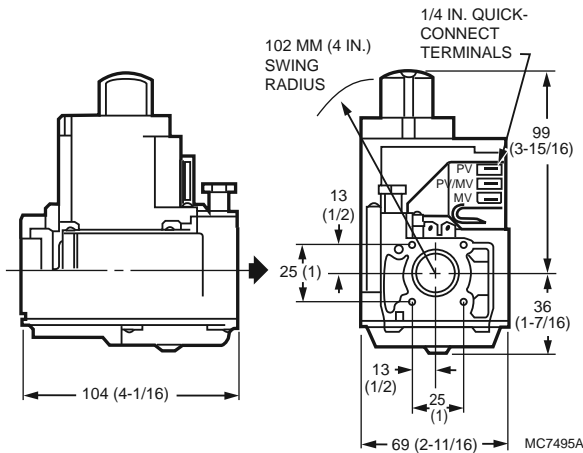
## VR8304 Intermittent Pilot Dual Automatic Valve Combination Gas Control



**Combination gas control for use in 24 Vac, gas-fired, intermittent pilot appliances with capacities from 30 to 415 cfh.**

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Use with S86F,H; S860D; S8600F,H; S8610 and S90A,B Control Modules.
- Compact size.
- Provide two automatic valves. Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- ON-OFF lighting sequence.

### Dimensions in millimeters (inches)



**Type:** Single Stage

**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 300,000 BTU/hr; 30,000 BTU/hr minimum

**Anticipator Setting:** 0.7 A

**Ignition Type:** Intermittent Pilot

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certificate: L2025007

**Canadian Gas Association:** CGA Design Certificate: L2025007

**Underwriters Laboratories, Inc.** UL Component Recognized

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
VR8304H4313	Natural	Slow Opening	3/4 in. x 3/4 in.	4.5 in. wc	-18 C to +79 C	0 F to 175 F	—
VR8304H4503	Natural	Slow Opening	3/4 in. x 3/4 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	393691 Natural to LP gas conversion kit.
VR8304M2501	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	393691 Natural to LP gas conversion kit.
* VR8304M3509	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	One 3/4 in. x 1/2 in. reducer bushing; 393691 Natural to LP gas conversion kit.
* VR8304M4515	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	Two 3/4 in. x 1/2 in. reducer bushing; 393691 Natural to LP gas conversion kit.
VR8304P4330	LP	Step Opening	3/4 in. x 3/4 in.	Full Rate: 10.0 in. wc; Step Setting: 2.5 in. wc	-40 C to +79 C	-40 F to +175 F	—
VR8304P4504	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	-40 C to +79 C	-40 F to +175 F	—
VR8304Q4511	Natural	Standard	3/4 in. x 3/4 in.	1.7 in. wc low; 3.5 in. wc high	-40 C to +79 C	-40 F to +175 F	Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings

\* TRADELINE models • SUPER TRADELINE models



# Combination Gas Controls—Direct Ignition

## VR4305 Direct Ignition Dual Automatic Valve Combination Gas Control



**Type:** Single Stage  
**Body Pattern:** Straight-through  
**Capacity @ 1 in. p.d.** 300,000 BTU/hr; 30,000 BTU/hr minimum  
**Anticipator Setting:** 0.13 A  
**Ignition Type:** Direct Ignition  
**Pressure Ratings:** 3.5 kPa (1/2 psi)  
**Pressure Tapping:** 1/8 in. NPT with plug  
**Electrical Ratings:** 120 Vac  
**Frequency:** 60 Hz

Combination gas control for use with hot surface/direct spark systems in 120 Vac, gas-fired appliances, with capacities from 30 to 415 cfh.

- Controls include manual valve, two automatic operators and pressure regulator.
- Compact size.
- Provides two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meets codes requiring dual safety shut-off.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- ON/OFF lighting sequence.

**Electrical Connections:** 1/4 in. male quick-connects; 24 in. (610 mm) leadwires.

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File No. L2025007.

**Canadian Gas Association:** CSA Design Certified: File No. L2025007.

**Underwriters Laboratories, Inc.** UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting (in. wc)	Ambient Temperature Range		Includes
					(C)	(F)	
* VR4305M4532	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings

\* TRADELINE models • SUPER TRADELINE models

Residential  
Combustion Controls

# Combination Gas Controls—Direct Ignition

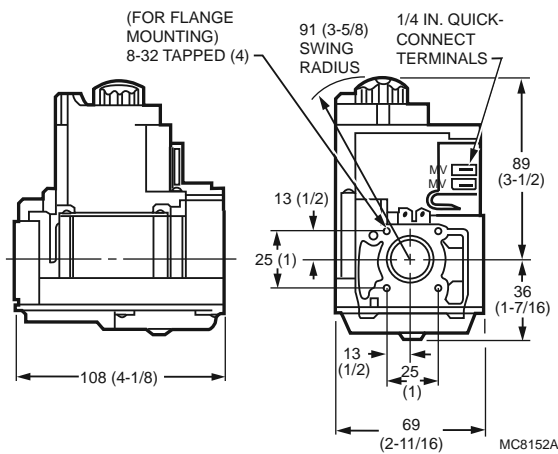
## VR8205 Direct Ignition Dual Automatic Valve Combination Gas Controls



Combination gas controls for use with hot surface/direct spark systems in 24 Vac, gas-fired appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, and pressure regulator.
- Provide two automatic valves.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm operated second automatic valve opens under control of the regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shutoff.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.
- Adjustments and wiring connections are accessible from top of the control.
- ON-OFF lighting sequence.

### Dimensions in millimeters (inches)



**Type:** Single Stage

**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 150,000 BTU/hr; 20,000 BTU/hr minimum

**Anticipator Setting:** 0.5 A

**Ignition Type:** Direct Ignition

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

### Approvals:

**American Gas Association:** AGA Design Certified: File No. L2025006.

**Canadian Gas Association:** CGA Design Certified: File No. L2025006.

**Underwriters Laboratories, Inc.** UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
* VR8205A2024	Natural	Standard	1/2 in. x 1/2 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	One 3/4 in. straight flange; One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit
VR8205C1024	Natural	Step Opening	1/2 in. x 1/2 in.	Full Rate: 3.5 in. wc; Step Setting: 1.2 in. wc	-18 C to +79 C	0 F to 175 F	—
VR8205H1003	Natural	Slow Opening	1/2 in. x 1/2 in.	3.5 in. wc	-18 C to +79 C	0 F to 175 F	—
VR8205Q2555	Natural	Standard	1/2 in. x 1/2 in.	1.7 in. wc low; 3.5 in. wc high	-40 C to +66 C	-40 F to +175 F	One 1/2 in. x 3/8 in. reducer bushing; Natural to LP Conversion Kit

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Direct Ignition

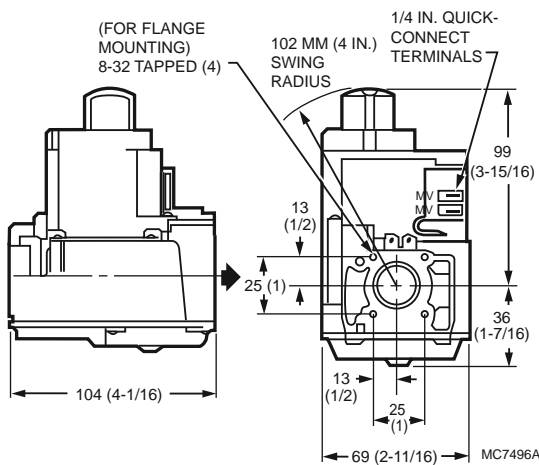
## VR8305 Direct Ignition Dual Automatic Valve Combination Gas Control



Combination gas control for use with hot surface/direct spark systems in 24 Vac, gas-fired appliances, with capacities from 30 to 415 cfh.

- Controls include manual valve, two automatic operators, and pressure regulator.
- Use with S89C,E,F and S87 series 5 and later.
- Compact size.
- Provide two automatic valves.
- Solenoid-operated first automatic valve opens on thermostat call for heat; closes when call for heat ends.
- Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Meet codes requiring dual safety shut-off.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- ON-OFF lighting sequence.
- Natural to LP and LP to Natural conversion kits available for standard and slow opening gas valves.

### Dimensions in millimeters (inches)



**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 240,000 BTU/hr; 30,000 BTU/hr minimum

**Anticipator Setting:** 0.62 A

**Ignition Type:** Direct Ignition

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

### Approvals:

**American Gas Association:** AGA Design Certificate: L2025007.

**Australian Gas Association:** Australian Gas Assoc. Design Certificate 4214; Approved for Delta C Applications

**Canadian Gas Association:** CGA Design Certificate: L2025006.

**Underwriters Laboratories, Inc.** UL Component Recognized: MH8191

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Type	Includes
				(in. wc)	(C)	(F)		
* VR8305M3506	Natural	Standard	1/2 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	Single Stage	One 3/4 in. straight flange; One 3/4 in. x 1/2 in. reducer bushing; Natural to LP Conversion Kit
VR8305P4279	Natural	Step Opening	3/4 in. x 3/4 in.	Full Rate: 3.5 in. wc; Step Setting: 0.9 in. wc	-40 C to +79 C	-40 F to +175 F	Single Stage	—
VR8305Q4500	Natural	Standard	3/4 in. x 3/4 in.	1.7 in. wc low; 3.5 in. wc high	-40 C to +79 C	-40 F to +175 F	Two Stage	Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings

\* TRADELINE models • SUPER TRADELINE models

Residential  
Combustion Controls

# Combination Gas Controls—Universal Electronic Ignition

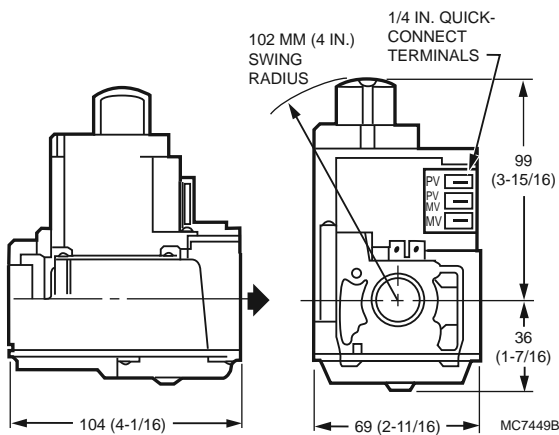
## VR8345 Universal Electronic Ignition Combination Gas Control



Universal electronic ignition combination gas control for use with direct spark ignition, hot surface ignition or intermittent pilot ignition in 24 Vac, gas-fired appliances, with capacities from 30 to 415 cfh.

- Control includes manual valve, two automatic operators, pressure regulator, pilot adjustment, pilot plug and ignition adapter.
- Replaces virtually any IP, HSI, or DSI gas control.
- For use with natural or manufactured gas or LP gas.
- Includes converter kit to adapt from natural to LP gas.
- Compact size.
- All adjustments and wiring connections accessible from top of control.
- Four-inch swing radius allows easy rotation into position inside the tightest furnace vestibules.
- Clearly marked, keyed terminal block allows quick attachment of wires and IP/DSI/HSI jumper.
- Internal inlet screen blocks contaminants in gas line from entering valve.

### Dimensions in millimeters (inches)



**Type:** Single Stage

**Body Pattern:** Straight-through

**Capacity @ 1 in. p.d.** 300,000 BTU/hr; 30,000 BTU/hr minimum

**Ignition Type:** Direct Ignition; Intermittent Pilot

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. NPT with plug

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File No. L2025007.

**Canadian Gas Association:** CGA Design Certified: File No. L2025007.

**Underwriters Laboratories, Inc.** UL Component Recognized.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Ambient Temperature Range		Includes
				(in. wc)	(C)	(F)	
• VR8345H4555	Natural	Slow Opening	3/4 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings
• VR8345M4302	Natural	Standard	3/4 in. x 3/4 in.	3.5 in. wc	-40 C to +79 C	-40 F to +175 F	Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings
• VR8345Q4563	Natural	Standard	3/4 in. x 3/4 in.	1.7 in. wc low; 3.5 in. wc high	-40 C to +79 C	-40 F to +175 F	Natural to LP Conversion Kit; Two 3/4 in. x 1/2 in. reducer bushings

\* TRADELINE models • SUPER TRADELINE models

# Combination Gas Controls—Millivolt

## VS820 Millivoltage Combination Gas Controls



**Application:** Self-powered automatic control. Use with 750 mV pilot generator.

**Dimensions, Approximate:** 121 mm high x 103 mm wide x 81 mm deep (4 3/4 in. high x 4 1/16 in. wide x 3 3/16 in. deep)

**Body Pattern:** Straight-through. multi-tapped with 1/2 in. right and left outlets plugged, except as noted.

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. npt with plug.

**Temperature Range:** 0 C to 79 C (32 F to 175 F)

**Electrical Ratings:** 750 mV

These gas controls combine a Lite-Rite manual gas cock, safety shutoff Pilotstat assembly, millivoltage automatic valve operator, and optional gas pressure regulator. They require the use of a 750 mV Powerpile generator (thermopile). The generator, heated by the pilot burner flame, provides the electrical energy to operate the combination gas control. A millivoltage thermostat with suitable accessory controls completes the automatic control system for the heating appliance.

- Include pilot flow adjustment screw.
- Easy to install, adjust and service; all adjustments and connections are accessible from top of control.
- Add separate energy cutoff (ECO) where codes call for dual safety shutoff.
- Complete safety shutoff on pilot flame failure.
- LITE-RITE (OFF-PILOT-ON) lighting sequence.
- ECO connector for V800 models, Part No. 392451-1.

**Pilot Gas Outlet:** Compression fitting for 1/4 in. OD tubing.

**Electrical Connections:** Terminal block has 3 combination screw and 1/4 in. quick connect terminals.

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**American Gas Association:** AGA Design Certified: File no. L2025003

**Canadian Gas Association:** CGA Design Certified: File no. L2025003

**Underwriters Laboratories, Inc.** UL Component Recognized

Product Number	Type of Gas	Inlet/Outlet Size (in.)	Pressure Regulator	Pressure Regulator Setting	Includes
				(in. wc)	
* VS820A1047	Natural	1/2 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	3.5 in. wc Reg. Set/ 3-5" Adj. Range	One 3/4 in x one 1/2 in reducer bushing; one 1/2 in x 3/8 in reducer bushing
* VS820A1054	Natural	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	3.5 in. wc Reg. Set/ 3-5" Adj. Range	One 1/2 in x 3/8 in reducer bushing; one 3/4 in x 1/2 in reducer bushing; one Natural to LP conversion kit; remote rod adapter
• VS820A1088	Natural	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	3.5 in. wc Reg. Set/ 3-5" Adj. Range	One 1/2 in x 3/8 in reducer bushing; one 3/4 in x 1/2 in reducer bushing; one Natural to LP conversion kit; remote rod adapter
VS820A1187	Natural	1/2 in. NPT x 1/2 in. NPT	Standard	3.5 in. wc Reg. Set/ 3-5" Adj. Range	—
* VS820A1336	LP	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Standard	10.0 in. wc Reg. Set/ 8-12" Adj. Range	One 3/4 in x one 1/2 in reducer bushing; one 1/2 in x 3/8 in reducer bushing
* VS820C1100	Natural	3/4 in. NPT x 3/4 in. NPT with 1/2 in. NPT side outlets	Step Opening	Step: 0.9 in. wc non-adjustable; Full rate: 3.5 in. wc, 3-5" adjustable	One 3/4 in x one 1/2 in reducer bushing; one 1/2 in x 3/8 in reducer bushing

\* TRADELINE models • SUPER TRADELINE models

# Gas Valve Selection Guide

## Gas Valve Selection Guide

Trade Replacements (Double-Check Specifications Before Replacement)		Specifications				Accessories (Includes)					
Universal Service Part	Direct Service Part Replacement	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting (in. wc)	Temperature Range	Q340 Thermocouple	3/4 in. x 1/2 in. Reducer Bushing	Natural to LP Conversion Kit	3/4 in. Straight Range	1/2 in. x 3/8 in. Reducer Bushing	Remote Rod Adapter
VR8300A4516	VR8300A4508	Standard	3/4 x 3/4	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	Two	One	None	None	None
	VR8300A3500	Standard	1/2 x 3/4	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	One	One	None	None	None
	VR8300A4516	Standard	3/4 x 3/4	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	One	Two	One	None	None	None
VR8245M2530	VR8204A2076	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	None	One	One	One	None
	VR8204M1091	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-40 to 79 C (-40 to 175 F)	None	None	One	One	One	None
	VR8205A2024	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	None	One	One	One	None
	VR8245M2530	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-40 to 79 C (-40 to 175 F)	None	None	One	None	One	None
VR8345H4555	VR8205H1003	Slow	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	None	None	None	None	None
	VR8304H4503	Slow	3/4 x 3/4	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	None	One	None	None	None
	VR8345H4555	Slow	3/4 x 3/4	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	Two	One	None	None	None
VR8345M4302	VR8304M3509	Standard	1/2 x 3/4	0.87 kPa (3.5 in. wc)	-40 to 79 C (-40 to 175 F)	None	One	One	None	None	None
	VR8304M4507	Standard	3/4 x 3/4	0.87 kPa (3.5 in. wc)	-40 to 79 C (-40 to 175 F)	None	Two	One	None	None	None
	VR8305M3506	Standard	1/2 x 3/4	0.87 kPa (3.5 in. wc)	-40 to 79 C (-40 to 175 F)	None	One	One	One	None	None
	VR8345M4302	Standard	3/4 x 3/4	0.87 kPa (3.5 in. wc)	-40 to 79 C (-40 to 175 F)	None	Two	One	None	None	None
VR8345Q4563	VR8205Q2555	2-Stage	1/2 x 1/2	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 79 C (-40 to 175 F)	None	None	One	None	One	None
	VR8304Q4511	2-Stage	3/4 x 3/4	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 79 C (-40 to 175 F)	None	Two	One	None	None	None
	VR305Q4500	2-Stage	3/4 x 3/4	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 79 C (-40 to 175 F)	None	One	One	None	None	None
	VR8345Q4563	2-Stage	3/4 x 3/4	1.7 in. wc Low Fire; 3.5 in. wc High Fire	-40 to 79 C (-40 to 175 F)	None	Two	One	None	None	None
VR8200A2744	VR8200A2124	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	One	None	One	One	One	None
	VR8200A2132	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	None	One	One	One	None
	VR8200A2744	Standard	1/2 x 1/2	0.87 kPa (3.5 in. wc)	-18 to 79 C (0 to 175 F)	None	None	One	One + One Elbow	One	None
VS820A1088	VS820A1054	Standard	3/4 x 3/4	0.87 kPa (3.5 in. wc)	0 to 79 C (32 to 175 F)	None	Two	None	None	One	None
	VS820A1336	Standard	3/4 s 3/x	2.49 kPa (10.0 in. wc)	0 to 79 C (32 to 175 F)	None	Two	None	None	One	None
	VS820A1088	Standard	3/4 x 3/4	0.87 kPa (3.5 in. wc)	0 to 79 C (32 to 175 F)	None	Two	One	None	One	Yes

**Notes:**

All piloted valves have a 1/4 in. compression fitting.  
 All the VR valves come set for natural gas, but can be converted to LP gas.  
 The VS820A1054 is for natural gas. The VS820A1336 is for LP gas.  
 All the VR valves have inlet and outlet pressure taps. The VS820 valves have just an outlet pressure tap

# Gas Valve Selection Guide

Competitive Replacement			
Universal Service Part	Honeywell	White-Rodgers	Robertshaw
VR8300A4516	VR8300A4003, VR8300A4011, VR8300A4037, VR8300A4045, VR8300A4557, VR8300A4565	36C01-405	720-406 (7200ER)
	VR8300A3104, VR8300A3120, VR8300A3153, VR8300A3161, VR8300A3203, VR8300A3559, VR8300A3567, VR8300A3575	36C03-300, 36C03-400, 36C03-433, 36C03-258	720-404 (7200ER)
	VR8300A4003, VR8300A4011, VR8300A4037, VR8300A4045, VR8300A4557, VR8300A4565	—	700-400
VR8245M2530	VR8204A1201, VR8204A1219, VR8204A2001, VR8204A2175, VR8204A2803, VR8300A4565	—	—
	VR8204M1075	36E01-204, 36E01-205, 36E01-206, 36E01-305, 36E93-304	722-079 (2000IPERHC)
	—	36G22-214	722-051 (2000DERHC)
	VR8205M1106, VR8205M2310, VR8205M2443, VR8205M2450, VR8205M2476	36E36-304, 36E22-214	720-079 (7200IPER), 720-080 (7200IPER-LP)
VR8345H4555	VR8205H2605, VR8305H4013, VR8305H4039	—	—
	VR8204H1006, VR8204H1055	—	720-070 (7200IPER-S7C), 720-071 (7200IPER-S7C), 720-072 (7200IPER-S7C), 720-073 (7200IPER-LP-S7C)
	—	36E98-304, 36E24-214, 36E52-214	700-052
VR8345M4302	—	—	—
	VR8304M4002	—	—
	VR8305M4066, VR8305M4165, VR8305M4231	36G22-214, 36C68-423	720-051 (7200DER)
	—	36E36-304, 36C68-423	—
VR8345Q4563	VR8205Q2662, VR8205Q2746, VR8205Q2787, VR8205Q2381	36E54-214	—
	VR8304Q4453	36C76-406, 36C76-420 36C76-463	—
	VR8305Q4146	36D13-208, 36D13-405, 36G54-214	—
	—	36E96-314	720-082 (7200IPER2-4)
VR8200A2744	VR8200A2116, VR8200A2264, VR8200A2322*	—	720-400 (7200ER), 720-402 (7200ER)
	VR8200A2116, VR8200A2264, VR8200A2322*	—	720-400 (7200ER), 720-402 (7200ER)
	VR8200A2322*	—	—
VS820A1088	VS820A1005, VS820A1013, VS820A1047, VS820A1278, VS820A5204, VS820A1922	36C03U-300, 36C03U-333, 36C03U-400, 36C03U-433	—
	VS820A1211, VS820A1740, VS820A1120, VS820A1898, VS820A1872, VS820A1906	—	—
	VS820A1807, VS820A2003, VS820A1815, VS820A1039, VS820A2011	—	—

\*Canadian Numbers

For a complete cross-reference, visit [www.customer.honeywell.com](http://www.customer.honeywell.com)

Residential  
Combustion Controls

# SmartValve® System Controls

## SV9501; SV9502 SmartValve® System



The SmartValve® System Controls provide easy field replacement of a wide range of SV9500, SV9501, SV9502 and SV9602 SmartValve System models. Gas appliance manufacturers use these models in many types of gas fired heating appliances including central furnaces, residential boilers, rooftop furnaces, commercial cooking appliances, and unit heaters. These controls provide intermittent pilot gas ignition sequencing, pilot flame sensing, and both pilot and main gas control functions in a single control. They are directly compatible with the Q3450 or Q3480 Intermittent Pilot burners used with the original controls on the appliance.

- Suitable for a wide range of gas-fired appliances including residential furnaces, roof-top furnaces, residential boilers, unit heaters, infrared heaters, space heaters and commercial cooking units.
- Replaces SV9500, SV9501 and SV9502 controls as noted below.
- Ignition sequence includes timed trial for ignition.

**Body Pattern:** Straight-through  
**Maximum Capacity at 1 in. P.D.** 4.2 m<sup>3</sup>/hr (150 ft<sup>3</sup>/hr)  
**Maximum Capacity:** 5.7 m<sup>3</sup>/hr (200 ft<sup>3</sup>/hr)  
**Minimum Capacity:** 0.6 m<sup>3</sup>/hr (20 ft<sup>3</sup>/hr)  
**Pilot Gas Outlet:** Yes  
**Electrical Ratings:** 24 Vac  
**Frequency:** 50 Hz; 60 Hz  
**Control Voltage (Thermostat or other call for heat):** 24 Vac, 60 Hz.  
**Flame Failure Response Time (sec):** 1.6 sec @ 3 µA  
**Flame Sense:** Electrode

**Ignition Sequence:** Intermittent Pilot  
**Ignition Source:** Pilot  
**Ignition System Type:** Intermittent Hot Surface Pilot Ignition  
**Ignition Trial Time:** 90 sec  
**Ignition Trials To Lockout:** continuous retry  
**Pressure Ratings:** 3.45 kPa (1/2 psi)  
**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)  
**Typical Ignition Hardware:** Q3450

**Approvals:**  
**American Gas Association:** IAS Design Certified: C2030017

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	PrePurge
				(in. wc)	
SV9501M2080	LP	Standard Opening	1/2 in. NPT x 1/2 in. NPT	10.0 in. wc	None
SV9501M2528	Natural	Standard Opening	1/2 in. NPT x 1/2 in. NPT	3.5 in. wc	None
SV9501M8129	Natural	Fast-Fast Opening	1/2 in. NPT x 1/2 in. NPT	3.4 in. wc	None
SV9502H2522	Natural	Slow Opening	1/2 in. NPT x 1/2 in. NPT	3.2 in. wc	15 seconds



## SV9510 SmartValve® System



The SV9510 SmartValve® System Controls combine gas flow control and electronic direct main burner ignition sequencing functions into a single unit. The ignition source is 120V hot surface igniter lighting the main burner flame. Provides all gas ignition safety functions by controlling gas flow, ignition source, and a 120

**Dimensions, Approximate:** 81 mm wide x 124 mm high x 104 mm long (3.2 in. wide x 4.9 in. high x 4.1 in. long)

**Body Pattern:** Straight-through

**Maximum Capacity at 1 in. P.D.** 4.2 m<sup>3</sup>/hr (150 ft<sup>3</sup>/hr)

**Maximum Capacity:** 5.7 m<sup>3</sup>/hr (200 ft<sup>3</sup>/hr)

**Minimum Capacity:** 0.6 m<sup>3</sup>/hr (20 ft<sup>3</sup>/hr)

**Electrical Ratings:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Control Voltage (Thermostat or other call for heat):** 24 Vac, 60 Hz.

**Flame Failure Response Time (sec):** 2 sec @ 5 µA

Vac combustion air blower. The control also monitors the appliance airflow proving switch circuit and limit string to assure proper appliance operation. The SmartValve System Controls provide prepurge, postpurge and timed trial for ignition with multiple ignition trials and auto reset from lockout. Diagnostic LED indicates system status.

- The control communicates directly with the ST9160 Electronic Fan Timer (EFT) in typical forced warm air furnace applications.
- It will also interface with the 208907 Terminal Board, providing compatibility with power-stealing thermostats. Or, it directly interfaces with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, the control does not provide a postpurge function, as power to the control is removed when the thermostat call for heat ends.
- This system is suitable for a wide range of fan-assisted combustion, gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

**Flame Sense:** Two Rod

**Ignition Sequence:** 17/27 sec

**Ignition System Type:** Direct Hot Surface Ignition

**Ignition Trials To Lockout:** 4 trials

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. - NPT

**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Residential  
Combustion Controls

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	PrePurge	Includes
				(in. wc)		
• SV9510K2539	Natural	Slow Opening	1/2 in. NPT x 1/2 in. NPT	3.5 in. wc	15 seconds	LP Conversion Kit
• SV9510M2511	Natural	Standard Opening	1/2 in. NPT x 1/2 in. NPT	3.5 in. wc	15 seconds	LP Conversion Kit

\* TRADELINE models • SUPER TRADELINE models

# SmartValve® System Controls

## SV9520 SmartValve® System



The SV9520 SmartValve® System Controls combine gas flow control and electronic direct main burner ignition sequencing functions into a single unit. The ignition source is 120V hot surface igniter lighting the main burner flame. Provides all gas ignition safety functions by controlling gas flow, ignition source, and a 120

**Dimensions, Approximate:** 81 mm wide x 124 mm high x 104 mm long (3.2 in. wide x 4.9 in. high x 4.1 in. long)

**Body Pattern:** Straight-through

**Maximum Capacity at 1 in. P.D.** 4.2 m<sup>3</sup>/hr (150 ft<sup>3</sup>/hr)

**Maximum Capacity:** 5.7 m<sup>3</sup>/hr (200 ft<sup>3</sup>/hr)

**Minimum Capacity:** 0.6 m<sup>3</sup>/hr (20 ft<sup>3</sup>/hr)

**Electrical Ratings:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Control Voltage (Thermostat or other call for heat):** 24 Vac, 60 Hz.

**Flame Failure Response Time (sec):** 2 sec @ 5 µA

**Flame Sense:** Two Rod

**Ignition Sequence:** 7/12 sec

Vac combustion air blower. The control also monitors the appliance airflow proving switch circuit and limit string to assure proper appliance operation. The SmartValve System Controls provide prepurge, postpurge and timed trial for ignition with multiple ignition trials and auto reset from lockout. Diagnostic LED indicates system status.

- The control communicates directly with the ST9160 Electronic Fan Timer (EFT) in typical forced warm air furnace applications.
- It will also interface with the 208907 Terminal Board, providing compatibility with power-stealing thermostats. Or, it directly interfaces with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, the control does not provide a postpurge function, as power to the control is removed when the thermostat call for heat ends.
- This system is suitable for a wide range of fan-assisted combustion, gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

**Ignition Trial Time:** 7 sec

**Ignition System Type:** Direct Hot Surface Ignition

**Ignition Trials To Lockout:** 4 trials

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. - NPT

**Ambient Temperature Range:** -18 C to +79 C (0 F to 175 F)

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**Canadian Standards Association:** CSA International: 158158-10592145

	Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	PrePurge	Ignition Trial Time (sec)	Includes
					(in. wc)			
•	SV9520H8513	Natural	Fast-Slow Opening	1/2 in. NPT x 1/2 in. NPT	3.5 in. wc	15 seconds	9 sec.	LP Conversion Kit
•	SV9520M2536	Natural	Standard Opening	1/2 in. NPT x 1/2 in. NPT	3.5 in. wc	15 seconds	7 sec.	LP Conversion Kit

\* TRADELINE models • SUPER TRADELINE models

## SV9541 SmartValve® System



The TRADELINE® SV9541 SmartValve® System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. The Q3450 or Q3480 Pilot hardware supplies the low voltage igniter, flame sensor and pilot burner. These ignition system controls provide all gas ignition safety functions by controlling gas flow, ignition source, and a 120 Vac or

**Dimensions, Approximate:** 81 mm wide x124 mm high x 104 mm long (3.2 in. wide x 4.9 in. high x 4.1 in. long)

**Body Pattern:** Straight-through

**Maximum Capacity at 1 in. P.D.** 4.2 m<sup>3</sup>/hr (150 ft<sup>3</sup>/hr)

**Maximum Capacity:** 5.7 m<sup>3</sup>/hr (200 ft<sup>3</sup>/hr)

**Minimum Capacity:** 0.6 m<sup>3</sup>/hr (20 ft<sup>3</sup>/hr)

**Pilot Gas Outlet:** Yes

**Electrical Ratings:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Control Voltage (Thermostat or other call for heat):** 24 Vac, 60 Hz.

**Flame Failure Response Time (sec):** 1.6 sec @ 3 μA

**Flame Sense:** Two Rod

**Ignition Sequence:** Intermittent Pilot

240 Vac combustion air blower. The controls also monitor the appliance airflow proving switch and limit string to assure proper appliance operation, and provide prepurge, postpurge, and timed trial for pilot ignition with 100 percent shutoff and continuous retry. A diagnostic LED indicates system status.

- These controls communicate directly with an electronic fan timer (ST9160 Electronic Fan Timer for single stage applications; ST9162 Electronic Fan Timer for two-stage applications) in typical forced warm air furnace applications.
- They also interface with the 208907 Terminal Board, providing compatibility with power stealing thermostats. Or, they directly interface with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, these controls do not provide a postpurge function, because power to the control is removed when the thermostat call for heat ends.
- The SV9541 Systems are suitable for a wide range of fan-assisted combustion gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

**Ignition Source:** Pilot

**Ignition System Type:** Intermittent Hot Surface Pilot Ignition

**Ignition Trial Time:** 90 sec

**Ignition Trials To Lockout:** continuous retry

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. - NPT

**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**

**Canadian Standards Association:** CSA-International, Design Certified

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	PrePurge	Includes
				(in. wc)		
• SV9541Q2561	Natural	Standard Opening 2-stage	1/2 in. NPT x 1/2 in. NPT	1.7 in. wc low; 3.2 in. wc high	15 seconds	LP Conversion Kit
* TRADELINE models • SUPER TRADELINE models						

# SmartValve® System Controls

## SV9601 SmartValve® System



The SV9601 SmartValve® System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. This product family offers several different intermittent pilot sequences for a wide range of applications. This system is suitable for application in a wide range of gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, space heaters, water heaters, decorative appliances, and commercial cooking units. The specific application of the SmartValve System is the responsibility of the appliance manufacturer.

**Dimensions, Approximate:** 81 mm wide x 124 mm high x 104 mm long (3.2 in. wide x 4.9 in. high x 4.1 in. long)  
**Body Pattern:** Straight-through  
**Maximum Capacity at 1 in. P.D.** 8.5 m<sup>3</sup>/hr (300 ft<sup>3</sup>/hr)  
**Maximum Capacity:** 11.8 m<sup>3</sup>/hr (415 ft<sup>3</sup>/hr)  
**Minimum Capacity:** 0.8 m<sup>3</sup>/hr (30 ft<sup>3</sup>/hr)  
**Electrical Ratings:** 24 Vac  
**Frequency:** 50 Hz; 60 Hz  
**Control Voltage (Thermostat or other call for heat):** 24 Vac, 60 Hz.  
**Flame Failure Response Time (sec):** 1.6 sec @ 3 μA  
**Flame Sense:** Two Rod

**Ignition Sequence:** Intermittent Pilot  
**Ignition Source:** Pilot  
**Ignition System Type:** Intermittent Hot Surface Pilot Ignition  
**Ignition Trial Time:** 90 sec  
**Ignition Trials To Lockout:** continuous retry  
**Pressure Ratings:** 3.5 kPa (1/2 psi)  
**Pressure Tapping:** 1/8 in. - NPT  
**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)  
**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	Includes
				(in. wc)	
• SV9601M4571	Natural	Standard Opening	3/4 in. NPT x 3/4 in. NPT.	3.5 in. wc	Two 3/4 in. x 1/2 in. reducer bushings and an LP conversion kit.

\* TRADELINE models • SUPER TRADELINE models

## SV9602 SmartValve® System



The SV9602 SmartValve® System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. This product family offers several different intermittent pilot sequences for a wide range of applications. This system is suitable for application in a wide range of gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, space heaters, water heaters, decorative appliances, and commercial cooking units. The specific application of the SmartValve System is the responsibility of the appliance manufacturer.

**Dimensions, Approximate:** 81 mm wide x 124 mm high x 104 mm long (3.2 in. wide x 4.9 in. high x 4.1 in. long)  
**Body Pattern:** Straight-through  
**Maximum Capacity at 1 in. P.D.** 8.5 m<sup>3</sup>/hr (300 ft<sup>3</sup>/hr)  
**Maximum Capacity:** 11.8 m<sup>3</sup>/hr (415 ft<sup>3</sup>/hr)  
**Minimum Capacity:** 0.8 m<sup>3</sup>/hr (30 ft<sup>3</sup>/hr)  
**Electrical Ratings:** 24 Vac  
**Frequency:** 50 Hz; 60 Hz  
**Control Voltage (Thermostat or other call for heat):** 24 Vac, 60 Hz.  
**Flame Failure Response Time (sec):** 1.6 sec @ 3 μA  
**Flame Sense:** Two Rod  
**Ignition Sequence:** Intermittent Pilot

**Ignition Source:** Pilot  
**Ignition System Type:** Intermittent Hot Surface Pilot Ignition  
**Ignition Trial Time:** 90 sec  
**Ignition Trials To Lockout:** continuous retry  
**Pressure Tapping:** 1/8 in. - NPT  
**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)  
**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

**Approvals:**  
**Canadian Standards Association:** CSA-International, Design Certified

Residential  
Combustion Controls

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	PrePurge
				(in. wc)	
* SV9602P4816	Natural	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 3.5 in. wc; Step Setting: 0.7 in. wc	30 seconds
* SV9602P4824	Natural	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 3.5 in. wc; Step Setting: 2.5 in. wc	30 seconds
* SV9602P4832	LP	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 10.0 in. wc; Step Setting: 2.5 in. wc	30 seconds
* SV9602P4840	LP	Step Opening	3/4 in. NPT x 3/4 in. NPT.	Full Rate: 10.0 in. wc; Step Setting: 1.4 in. wc	30 seconds

\* TRADELINE models • SUPER TRADELINE models

# SmartValve® System Controls

## SV9641 SmartValve® System



The TRADELINE® SV9641 SmartValve® System Controls combine gas flow control and electronic intermittent pilot sequencing functions into a single unit. The Q3450 or Q3480 Pilot hardware supplies the low voltage igniter, flame sensor and pilot burner. These ignition system controls provide all gas ignition safety functions by controlling gas flow, ignition source, and a 120 Vac or

**Dimensions, Approximate:** 81 mm wide x 124 mm high x 104 mm long (3.2 in. wide x 4.9 in. high x 4.1 in. long)

**Body Pattern:** Straight-through

**Maximum Capacity at 1 in. P.D.** 8.5 m<sup>3</sup>/hr (300 ft<sup>3</sup>/hr)

**Maximum Capacity:** 11.8 m<sup>3</sup>/hr (415 ft<sup>3</sup>/hr)

**Minimum Capacity:** 0.8 m<sup>3</sup>/hr (30 ft<sup>3</sup>/hr)

**Pilot Gas Outlet:** Yes

**Electrical Ratings:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Control Voltage (Thermostat or other call for heat):** 24 Vac

**Flame Failure Response Time (sec):** 1.6 sec @ 3 µA

240 Vac combustion air blower. The controls also monitor the appliance airflow proving switch and limit string to assure proper appliance operation, and provide prepurge, postpurge, and timed trial for pilot ignition with 100 percent shutoff and continuous retry. A diagnostic LED indicates system status.

- These controls communicate directly with an electronic fan timer (ST9160 Electronic Fan Timer for single stage applications; ST9162 Electronic Fan Timer for two-stage applications) in typical forced warm air furnace applications.
- They also interface with the 208907 Terminal Board, providing compatibility with power stealing thermostats. Or, they directly interface with the appropriate power supplies and a system thermostat for additional appliance applications.
- When controlled directly by a thermostat, these controls do not provide a postpurge function, because power to the control is removed when the thermostat call for heat ends.
- The SV9641 Systems are suitable for a wide range of fan-assisted combustion gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.

**Flame Sense:** Two Rod

**Ignition Sequence:** Intermittent Pilot

**Ignition Source:** Pilot

**Ignition System Type:** Intermittent Hot Surface Pilot Ignition

**Ignition Trial Time:** 90 sec

**Ignition Trials To Lockout:** continuous retry

**Pressure Ratings:** 3.5 kPa (1/2 psi)

**Pressure Tapping:** 1/8 in. - NPT

**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)

**Mounting:** 0 to 90 degrees in any direction from the upright position of the gas control knob, including vertically.

Product Number	Type of Gas	Opening Characteristics (standard, step)	Inlet/Outlet Size (in.)	Pressure Regulator Setting	PrePurge	Includes
				(in. wc)		
• SV9641M4510	Natural	Standard Opening	3/4 in. NPT x 3/4 in. NPT.	3.5 in. wc	15 seconds	Two 3/4 in. x 1/2 in. reducer bushings and an LP conversion kit.

\* TRADELINE models • SUPER TRADELINE models

# SmartValve® Control Systems Selection Guide

## SmartValve® Control Systems Selection Guide

		Specifications							Cross-Reference
Ignition/ Application	Universal Service Part	Gas Type	Opening Characteristics	Ambient Temperature Range	Natural to LP Conversion Kit (Included)	3/4 in. x 1/2 in. Reducer Bushings (Included)	Extension Harness (Included)	OEM Brands	Replaces
HSI Water Heaters	SV9570A2518	Natural	Standard Opening	0 to 150 F (-18 to 66 C)	No	None	No	A.O Smith	SV9570A2054, SV9570A2070, SV9570A2096
	SV9570A2526	LP						A.O. Smith	SV9570A2062, SV9570A2088, SV9570A2187
Intermittent HSI Pilot with Combustion Air Control and Limit Monitoring Forced Air Furnace	SV9541Q2561	Natural	2-Stage	-40 to 175 F (-40 to 79 C)	Yes	None	No	ICP, Heil, Tempstar, Arcoaire, Comfortmaker, KeepRite	SV9540Q2464, SV9541Q3098
	SV9641M4510		Standard Opening					Yes	Two
Direct Ignition, General Application	SV9510M2511	Natural	Standard Opening	-40 to 175 F (-40 to 79 C)	Yes	None	No	Modine	SV9510M2347, SV9510M2362, SV9410M2902, SV9510M2412, SV9510M2354, SV9410M2910, SV9510M2388, SV9510M2420
	SV9520M2536			-40 to 175 F (-40 to 79 C)				—	SV9420M2331, SV9520M2403, SV9420M2323
	SV9510K2539		Slow Opening	-40 to 175 F (-40 to 79 C)				Roberts Gordon	SV9510H2228, SV9510K2133, SV9510K2158, SV9510K2141, SV9510K2166
	SV9520H8513		Fast-Slow Opening	0 to 175 F (-18 to 79C)				Armstrong, Concord, AirEase	SV9520H8042, SV9520H8034, SV9520H8067, SV9520H8026

Residential  
Combustion Controls

# SmartValve® Control Systems Selection Guide









		Specifications						Cross-Reference		
Ignition/ Application	Universal Service Part	Gas Type	Opening Characteristics	Ambient Temperature Range	Natural to LP Conversion Kit (Included)	3/4 in. x 1/2 in. Reducer Bushings (Included)	Extension Harness (Included)	OEM Brands	Replaces	
Intermittent HSI Pilot, General Application	SV9601M4571	Natural	Standard Opening	-40 to 175 F (-40 to 79C)	Yes	Two	No	—	SV9601M4167, SV9601M3003, SV9601M4225	
	SV9501M2528								SV9501M2056, SV9501M2080, SV9501M2726, SV9501M2031, SV9501M2049, SV9501M2239, SV9501M2700, SV9501M2718, SV9501M2734, SV9501M2742, SV9501M2064	
	SV9501M8129		Fast-Fast	0 to 175 F (-18 to 79)	None	Two	Yes	—	SV9501M8103	
	SV9502H2522		Slow Opening						SV9501H3415, SV9501H2417, SV9501H2409, SV9502H1706, SV9502H2704, SV9501H3423, SV9501H2425	
	SV9602P4816		Step Opening	-40 to 175 F (-40 to 79 C)	None	Two	Yes	Burnham, ICP, Heil, Tempstar, Arcoaire, Comfortmaker, KeepRite	SV9501P2004, SV9601P4107, SV9501P2053, SV9502P2101, SV9602P4105	
	SV9602P4824								Burnham	SV9501P2087, SV9601P4172, SV9502P2127, SV9602P4121
	SV9602P4832								Burnham	SV9501P2020, SV9501P2046, SV9601P4149, SV9601P4164, SV9502P2119, SV9502P2135, SV9602P4113, SV9602P4139
	SV9602P4840								—	SV9601P4115

For a complete cross-reference, visit [www.customer.honeywell.com](http://www.customer.honeywell.com)






# Combination Gas Controls Parts and Accessories

## Parts and Accessories for Combination Gas Controls

Product Number	Description	Used With	
386449	Compression fitting for 1/4 inch OD pilot tubing, 0.65 inch total overall length	All Honeywell Combination Gas Controls	
386449-1	Compression fitting for 1/4 inch OD pilot tubing, 0.78 inch total overall length	All Honeywell Combination Gas Controls	
386449-4	Compression fitting for 1/4 inch OD pilot tubing, 1.15 inch total overall length	All Honeywell Combination Gas Controls	
390427A	3/4 inch x 1/2 inch reducer bushing for valves	All Honeywell Combination Gas Controls	
391936	LP to Natural Gas Conversion kit, including regulator spring, O-ring, screw and cap	V800, VS821, VS820	
391937	Natural Gas to LP Conversion kit, including regulator spring, O-ring, screw and cap	V800, VS821, VS820	
392449-1	Compression fitting for 1/8 inch OD pilot tubing, 0.78 inch total overall length	VR8200, VR8300	
392449-4	Compression fitting for 1/8 inch OD pilot tubing, 1.15 inch total overall length	VR8200, VR8300	
392451-1	ECO (energy cutoff) connector for 1/4 inch (6 mm) quick-connects	V800, VS821, VS820	
393200-1	ECO connector bag assembly, includes ECO adapter with 1/4 inch (6 mm) quick-connects	VR8200, VR8300, VR4200, VR4300	
393690-13	Flange Kit bag assembly, includes 1/2 inch angle flange, O-ring, 9/64 inch hex screws and 9/64 inch hex wrench	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
393690-3	Flange Kit bag assembly, includes 1/2 in. angle flange, O-ring, and hex screws.	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
393690-4	Flange Kit bag assembly, includes 3/4 in. angle flange, O-ring, and hex screws.	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	

Residential  
Combustion Controls

# Combination Gas Controls Parts and Accessories

Product Number	Description	Used With	
393691	Natural Gas to LP Conversion kit, including regulator spring, screw and cap	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
394588	LP to Natural Gas Conversion kit, including regulator spring, screw and cap	VR8200, VR8300, VR4200, VR4300, SV9500, VR8305, VR4204, VR4304, VR4305, VR8204, VR8205, VR8304	
396021	2 Stage LP Conversion Kit	VR8305, VR8204, VR8205, VR8304, SV9540	
396025	2 Stage LP to Nat. Conversion Kit	SV9540, VR8305, VR8204, VR8205, VR8304	
396079	Piezo Ignitor	VS8420, VS8421, VS8510, VS8520, VS8521	
396087-2	LP Gas Conversion Kit	VS8510, VS8410, VS8420, VS8520	

# Thermopiles and Thermocouples

## Q313 Replacement Thermopile Generators



**Q313 Thermopile Generator contains multiple thermocouples connected in series to increase the millivoltage output. The power generated is sufficient to operate an automatic millivolt gas control system, independent of any outside power source.**

- Push-in clip, split nut, and adapter assembly for easy pilot burner installation.
- Spade or quick-connect terminals available for millivolt gas control connections.
- Male nut connector for Pilotstat™ safety control power units.
- Available in a variety of lead lengths.

**Open Circuit Output:** 600 mV to 750 mV

**Voltage:** 750 mV

**Temperature Ratings Cold Junction:** 416 C (780 F)

**Temperature Ratings Hot Junction:** 760 C (1400 F)

Product Number	Lead Length		Connection Type	Resistance	Includes	Used With
	(mm)	(inch)				
Q313A1055	1194 mm	47 in.	Spade Terminals	2.90 ohms	1/2 in. thermopile attaching nut.	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
* Q313A1188	889 mm	35 in.	Spade Terminals	2.89 ohms	push-in clip, 1/2 in. thermopile attaching nut.	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
Q313A1402	889 mm	35 in.	Spade Terminals	2.89 ohms	PG9 adapter (part no. 393948) and 1/2 in. thermopile attaching nut	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners
Q313B1005	889 mm	35 in.	Spade Terminals	2.89 ohms	Junction box for series hookup with high limit switch and 1/2 in. thermopile attaching nut	Q314, Q324, Q327, Q377, Q379, Q382 Pilot Burners

\* TRADELINE models • SUPER TRADELINE models

## Q340 Universal 30 mV Thermocouple



**Thermocouples generate a thermoelectric current that senses a pilot flame on gas-fired heating systems. The pilot flame heats the tip of the thermocouple, producing a temperature differential between it and the base. This temperature difference generates a small amount of DC power, measured in millivolts.**

- Push-in clip, split nut, and adapter assembly for easy pilot burner installation.
- Spade or quick-connect terminals available for millivolt gas control connections.
- Male nut connector for Pilotstat™ safety control power units.
- Available in a variety of lead lengths.

**Open Circuit Output:** 26 mV to 32 mV

**Voltage:** 30 mV

**Temperature Ratings Cold Junction:** 416 C (780 F)

**Temperature Ratings Hot Junction:** 760 C (1400 F)

Product Number	Lead Length		Connection Type	Resistance	Includes	Used With
	(mm)	(inch)				
* Q340A1405	457 mm	18 in.	Push-in Clip	0.02 ohms	Clip and adapter assembly	Q303, Q308, Q314, Q324, Q327
• Q340A1413	610 mm	24 in.	Push-in Clip	0.02 ohms	Clip and adapter assembly	Q303, Q308, Q314, Q324, Q327
* Q340A1421	762 mm	30 in.	Push-in Clip	0.02 ohms	Clip and adapter assembly	Q303, Q308, Q314, Q324, Q327
• Q340A1439	914 mm	36 in.	Push-in Clip	0.02 ohms	Clip and adapter assembly	Q303, Q308, Q314, Q324, Q327
* Q340A1447	1219 mm	48 in.	Push-in Clip	0.03 ohms	Clip and adapter assembly	Q303, Q308, Q314, Q324, Q327

\* TRADELINE models • SUPER TRADELINE models

# Thermopiles and Thermocouples

## Q390 Thermocouple



**Open Circuit Output:** 26 mV to 32 mV  
**Voltage:** 30 mV

Thermocouples generate a thermoelectric current that senses a pilot flame on gas-fired heating systems. The pilot flame heats the tip of the thermocouple, producing a temperature differential between it and the base. This temperature difference generates a small amount of DC power, measured in millivolts.



- Push-in clip, split nut, and adapter assembly for easy pilot burner installation.
- Spade or quick-connect terminals available for millivolt gas control connections.
- Male nut connector for Pilotstat™ safety control power units.
- Available in a variety of lead lengths.

**Temperature Ratings Cold Junction:** 416 C (780 F)  
**Temperature Ratings Hot Junction:** 760 C (1400 F)

	Product Number	Lead Length		Connection Type	Resistance	Includes
		(mm)	(inch)			
*	Q390A1046	610 mm	24 in.	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
*	Q390A1053	762 mm	30 in.	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
*	Q390A1061	914 mm	36 in.	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip
*	Q390A1095	457 mm	18 in.	11/32 32 Male Connector Nut	0.02 ohms	Adapter and Push In Clip

\* TRADELINE models • SUPER TRADELINE models

## Thermocouple and Thermopile Accessories

Product Number	Description	
393948	PG9 Adapter Assembly	
394530	Thermocouple Tester Assembly	

# Thermopiles and Thermocouples Selection Guide

## Thermopiles/Thermocouples



Contractors depend on Honeywell for easy installation and reliable performance. Built for long service life, the Honeywell Q313A, Q340A and Q390A will meet your service needs.

When selecting a thermocouple or thermopile for your next job, look for these Honeywell features:

- Variety of lead lengths
- Easy installation
- Many accessories included
- Durability

## Thermopiles and Thermocouples Selection Guide

Thermocouples							
Lead Length (in.)	Canada Tradeline	US Super Tradeline	Tradeline	White-Rodgers	Robertshaw	Husky	Johnson Controls
18	Q340A1505	Q340A1066/U	Q390A1095/U	H06E-518, H06E-18	—	K16BT-18	K19AT-18
24	Q340A1413	Q340A1074/U	Q390A1046/U	H06E-524, H06E-24	1970-24, 1980-24	K16BT-24	K19AT-24
30	Q340A1421	Q340A1082/U	Q390A1053/U	H06E-530, H06E-30	1970-30	K16BT-30	K19AT-30
36	Q340A1439	Q340A1090/U	Q370A1061/U	H06E-536, H06E-36	1970-36, 1980-36	K16BT-36	K19AT-36
48	Q340A1447	Q340A1108/U	Q390A1103/U	H06E-548, H06E-48	—	K16BT-48	K19AT-48

Thermopiles					
Model	Item	Lead Length (in.)	Connections	Tradeline/Super Tradeline	Notes
Q313	Q313A1022/U	35	Nut & Spade Terminal	Tradeline	—
	Q313A1139/U	35	Clip & Spade Terminal	Super Tradeline	Push-In Clip
	Q313A1170/U	35	Clip & Spade Terminal	Super Tradeline	PG9 Adapter (393948)
	Q313A1188/U	35	Nut & Spade Terminal	Super Tradeline	Push-In Clip, 1/2 in. Attaching Nut
	Q313A1055/U	47	Nut & Spade Terminal	Tradeline	1/2 in. Attaching Nut
	Q313A1105/B	75	Nut & Spade Terminal	Tradeline	1/2 in. Attaching Nut

For a complete cross-reference, visit [www.customer.honeywell.com](http://www.customer.honeywell.com)

# Pilot Burners

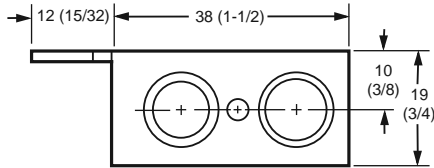
## Q314 Pilot Burner



**Nonprimary-aerated, insert orifice type pilot burner for main burner ignition with Q340 or Q390 Thermocouple for Pilotstat safety control operation.**

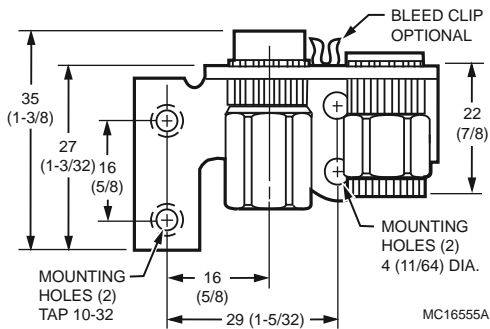
- Use with Q313 Thermopile Generator for 750 mV powerpile applications.
- Variety of mounting brackets available.
- Variety of tip styles to provide desired flame pattern.
- Interchangeable, color-coded orifice and inlet fittings can be ordered to convert between natural and LP gas.
- Single tip style.

### Dimensions in millimeters (inches)



**Type of Gas:** Natural  
**Aeration:** Non-primary

**Approvals:**  
**American Gas Association:** IAS Certified File No. L2025001



Product Number	Compression Fitting Size	Mounting Bracket	Direction of Front Tip	Orifice	Includes
Q314A3513	1/4 in.	A	(F) Front	BCR-18 (0.018 in.)	—
Q314A3547	1/4 in.	A	(L) Left	BCR-18 (0.018 in.)	—
• Q314A4586	1/4 in.	B	(F) Front	BBR-10 (0.010 in.); BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q314A6094	1/4 in.	B	(L) Left	BBR-10 (0.010 in.); BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q314A6102	1/4 in.	B	(K) Right	BBR-10 (0.010 in.); BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.

\* TRADELINE models • SUPER TRADELINE models

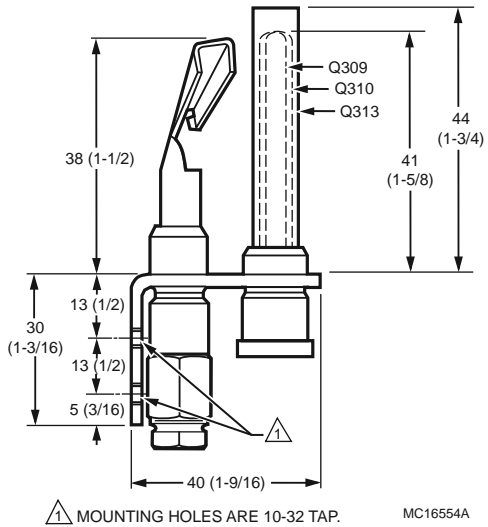
## Q327 Pilot Burner



**Primary-aerated, spud orifice-type pilot burner for main burner ignition with Q340 or Q390 Thermocouple for Pilotstat safety control operation.**

- Use with Q313 Thermopile Generator for 750 mV powerpile applications.
- Variety of mounting brackets available.
- Variety of tip styles to provide desired flame pattern.
- Interchangeable, color-coded orifice and inlet fittings can be ordered to convert between natural and LP gas.
- Batwing tip style.

### Dimensions in millimeters (inches)



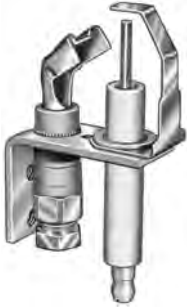
**Type of Gas:** Natural, LP  
**Aeration:** Primary

**Approvals:**  
American Gas Association: IAS Certified File No. L2025001

	Product Number	Compression Fitting Size	Mounting Bracket	Orifice
*	Q327A1626	1/4 in.	B	K14 (0.014 in.); A26 (0.026 in.)
* TRADELINE models • SUPER TRADELINE models				

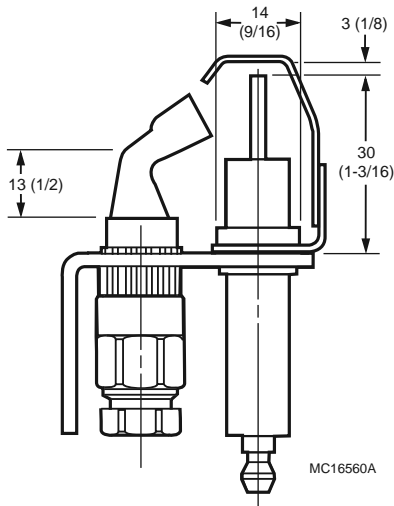
# Pilot Burners

## Q345 Igniter-Burner



- Nonprimary-aerated combination pilot burner and ignitor. Used with the S86, S860, S8610, or S8670 in intermittent pilot systems.**
- Includes pilot burner with bracket, ceramic-insulated Kanthal flame rod/spark igniter and ground strap.
  - Single tip style.

**Dimensions in millimeters (inches)**



**Type of Gas:** Natural  
**Aeration:** Non-primary  
**Leadwire Temperature Ratings:** Max. at electrode tip: 968 C

**Accessories:**  
**390686-1** LP Orifice for Q314, Q345, Q3450, Q3451, Q3452 Pilot Burners. Orifice stamped: BBR10

Product Number	Compression Fitting Length	Compression Fitting Size	Mounting Bracket	Direction of Front Tip	Orifice	Includes
* Q345A1305	0.78 in.	1/4 in.	B	(F) Front	BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q345A1313	0.78 in.	1/4 in.	B	(L) Left	BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.
* Q345A1321	0.78 in.	1/4 in.	B	(K) Right	BCR-18 (0.018 in.)	Special mounting bracket with screws to convert "B" bracket to "A" bracket.


\* TRADELINE models • SUPER TRADELINE models

## Pilot Burner Igniter Flame Rod Assembly

Product Number	Length	Used With	
Q3400A1008	18 in.	SV9500, SV9600; Field replacement for Q3450, Q3480, hot surface pilot burner	
Q3400A1024	30 in.	SV9500, SV9600, Field replacement for Q3450, Q3480 hot surface pilot burner	
Q3400A1081	36 in.	SV9500, SV9600, Field replacement for Q3450, Q3480 hot surface pilot burner	



## Residential Combustion Pilot Burner Accessories

Product Number	Description	
392431	Pilot Hardware for Y8610	

## Residential Combustion Pilot Burner Parts

Product Number	Description	Used With	
388146AG	Natural Gas Orifice for Q327 Pilot Burner. Orifice is stamped: A 26	Q327	
388146KP	LP Orifice for Q348 and Q3480 Pilot Burners. Orifice is stamped: KR 14	Q348; Q3480	
388146KR	LP Orifice for Q327 Pilot Burner. Orifice stamped: K14	Q327	
388468H	LP Orifice for Q324 Pilot Burners. Orifice stamped: N18	Q324	
390686-1	LP Orifice for Q314, Q345, Q3450, Q3451, Q3452 Pilot Burners. Orifice stamped: BBR10	Q314; Q345; Q3450; Q3451; Q3452	
390686-23	0.008 LP Pilot Orifice for Q350, Q380. Orifice stamped: GAF8	Q350, Q380	
390686-24	0.014" LP Pilot Orifice for Q345, Q346. Orifice stamped: BBR14	Q345, Q346	
390686-25	0.012 LP Pilot Orifice for Q345 and Q379. Orifice stamped BBR12	Q345, Q379	
390686-36	LP Orifice for Q314, Q345, Q3450, Q3451, Q3452 Pilot Burners. Orifice stamped: BBR11	Q314; Q345; Q3450; Q3451; Q3452	
390686-4	Natural Gas Orifice for Q314, Q345, Q382, Q3450, Q3451, Q3452 pilots burners. Orifice stamped: BCR18	Q314; Q345; Q3450; Q3451; Q3452; Q382	

# Ignition Pilot Modules

## S87 Direct Spark Ignition Modules



Provide electronic control of direct spark ignition systems used on gas fire furnaces, boilers, and other heating appliances.

- Control ignition sequence and gas control operation.
- Generate high voltage potential for main burner ignition.
- Lockout after one trial for ignition if main burner fails to ignite.
- Reset from thermostat after lockout.
- Use modules (except S87C) with any combination gas control designed for direct spark applications and rated 2.0A or less.

**Application:** Provide electronic control of direct spark ignition systems used on gas fired furnaces, boilers, and other heating appliances.

**Dimensions, Approximate:** 133 mm high x 103 mm wide x 49 mm deep (5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long)

**Type of Gas:** Natural or LP

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Flame Sense:** Single Rod

**Flame Failure Re-ignition Time (sec.):** 0.8 sec. maximum

**Flame Failure Response Time (sec.):** 0.8 sec. @ 5.0 microamp

**Ignition Sequence:** Single trial for main burner ignition (then shut down and lockout)

**Ignition Source:** Internal high voltage spark generator

**Ignition System Type:** Direct Spark Ignition

**Maximum Valve Load @ 24 Vac (Amps):** 2A

**Typical Gas Control:** VR8205, VR8305

**Typical Ignition Hardware:** Q347A

**Maximum Ambient Temperature:** -40 C to +79 C (-40 F to +175 F)

Product Number	Flame Sense	Ignition Trials To Lockout	Lockout Timing	PrePurge	Includes
S87B1008	single rod	1	6 sec.	None	Alarm terminal
S87B1016	single rod	1	11 sec.	None	Alarm terminal
S87B1024	single rod	1	21 sec.	None	Alarm terminal
S87B1065	single rod	1	4 sec.	None	Alarm terminal
S87C1006	two rod	1	6 sec.	None	—
S87C1030	two rod	1	21 sec.	None	—
S87D1004	two rod	1	6 sec.	None	Alarm terminal
S87D1012	two rod	1	11 sec.	None	Alarm terminal
S87D1020	two rod	1	4 sec.	None	Alarm terminal
S87D1038	two rod	1	21 sec.	None	Alarm terminal
S87J1026	single rod	1	11 sec.	30 sec. minimum	—
S87J1034	single rod	1	21 sec.	30 sec. minimum	—

## S89C Hot Surface Ignition Module



**Application:** Provide electronic control of direct hot surface ignition systems used on gas fired furnaces, boilers, and other heating appliances.

**Dimensions, Approximate:** (133 mm high x 103 mm wide x 49 mm deep) 5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long

**Type of Gas:** Natural or LP

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Flame Sense:** Single Rod

**Ignition Sequence:** Single trial for main burner ignition (then shut down and lockout)

**Provide operating control and system shutdown on loss of main burner flame in direct ignition central heat furnaces and heating appliances with hot surface igniter.**

- S89C,G,J are for systems with a combination igniter- sensor.
- S89C lock out after one try for ignition. S89G,H provide three tries for ignition before lockout, with 30 sec. min. purge before second and third tries.
- Compatible with Norton 201 and 271 or equivalent hot surface igniters.
- Available with leadwires for line voltage connections.
- Modules can be used on either natural or LP gas; they provide 100 percent shutoff of gas on lockout.
- Modules have relay contacts for use with any direct ignition gas control with max. 2.0 A, 24 Vat rating.
- Modules use rectification principle for flame sensing.

**Ignition Source:** Line Voltage (120 VAC) Hot Surface Element (Norton Model 201)

**Ignition System Type:** Direct Hot Surface Ignition

**Maximum Valve Load @ 24 Vac (Amps):** 2A

**Typical Gas Control:** VR8205, VR8305

**Typical Ignition Hardware:** Norton 201

**Maximum Ambient Temperature:** -40 C to +79 C (-40 F to +175 F)

**Approvals:**

**Canadian Standards Association:** Design Certified

Product Number	Flame Failure Response Time (sec)	Ignition Trial Time (sec)	Ignition Trials To Lockout	Lockout Timing	PrePurge
S89C1087	2.0 sec. @ 2.5 microamp	6 sec.	1	6 sec.	None

## S89E,F Direct Spark Ignition Modules



**Application:** Provide electronic control of direct spark ignition systems used on gas fired furnaces, boilers, and other heating appliances.

**Dimensions, Approximate:** 133 mm high x 103 mm wide x 49 mm deep (5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long)

**Type of Gas:** Natural or LP

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Flame Sense:** Two Rod

**Flame Failure Re-ignition Time (sec.):** 0.8 sec. maximum

**Flame Failure Response Time (sec.):** 2.0 sec @ 2.5 microamps

**Provide electronic control of direct spark ignition systems, with external spark transformers, used on gas-fired furnaces, boilers, conversion burners and other heating appliances.**

- Controls ignition sequence and gas control operation in direct spark ignition systems.
- Control separate 120 Vac spark generator that provides high voltage potential for main burner ignition.
- Lockout after one trial for ignition if main burner fails to ignite.
- Reset from thermostat after lockout. Use separate electrodes for spark ignition and flame sensing.
- Use any 24 Vac combination gas control designed for direct spark applications and rated at 2.0A or less.

**Ignition Sequence:** Single trial for main burner ignition (then shut down and lockout)

**Ignition Source:** External (120 VAC powered) High Voltage Spark Generator

**Ignition System Type:** Direct Spark Ignition

**Maximum Valve Load @ 24 Vac (Amps):** 2A

**Typical Gas Control:** VR8205, VR8305

**Typical Ignition Hardware:** Q652, Q345

**Maximum Ambient Temperature:** -40 C to +79 C (-40 F to +175 F)

**Approvals:**

**Canadian Standards Association:** Design Certified

Product Number	Ignition Trials To Lockout	Lockout Timing	PrePurge	Includes
S89E1058	1	4 sec.	—	—
S89F1098	1	4 sec.	30 sec. minimum	—
S89F1106	1	4 sec.	30 sec. minimum	Labels applied upside down for inverted mounting

# Ignition Pilot Modules

## S8610U Universal Intermittent Pilot Module



Field service replacement for most Honeywell, Robertshaw, Johnson, and UTEC (HSC) Intermittent Pilot Ignition Modules. Provides electronic control of most intermittent pilot ignition

**Application:** One or Two Rod Intermittent Pilot Control with continuous retry trial time with configurable lockout timing of 15 or 90 seconds and configurable prepurge of 30 seconds or no prepurge  
**Dimensions, Approximate:** 100 mm high x 138 mm wide x 67 mm deep (3 15/16 in. high x 5 7/16 in. wide x 2 5/8 in. deep)  
**Type of Gas:** Natural or LP  
**Electrical Ratings:** 24 Vac  
**Frequency:** 50 Hz; 60 Hz  
**Flame Sense:** Single Rod or Two Rods  
**Ignition Sequence:** Continuous retry, after trial for ignition, pilot gas shuts off for 5 minutes, then another trial for pilot ignition takes place  
**Ignition Source:** Internal high voltage spark generator

systems used on gas-fired furnaces, boilers, and other heating appliances.

- Provides ignition sequence, flame monitoring and safety shutdown for intermittent pilot central furnaces and heating appliances.
- Provides 100 percent pilot gas shutdown if pilot fails to light; after 6-minute delay, trial for ignition is repeated. Ignition trial/delay sequence is repeated until the appliance lights or call for heat is removed.
- For use with Natural or LP gas.
- For use in single rod or dual rod/remote sense applications. Includes relay contacts for use with any intermittent pilot gas control string with maximum 1.0A pilot or 2.0A main valve rating; Honeywell VR8204, VR8304 or VR8345M combination gas control recommended.
- Functional equivalent of S86, S8600, S8610 and S90 modules.
- Includes spark cable adapters to allow field replacement of both Honeywell and competitive controls without replacing existing spark cable.

**Ignition System Type:** Intermittent Pilot  
**Maximum Valve Load @ 24 Vac (Amps):** 1A Pilot, 2A Main @ 165 F; 1A Pilot, 1A Main @ 175 F  
**Typical Gas Control:** VR8204, VR8304  
**Typical Ignition Hardware:** Q345, Q3451, Q3452  
**Maximum Ambient Temperature:** -40 C to +74 C (-40 F to +165 F)

**Approvals:**  
**Canadian Standards Association:** Design Certified

**Accessories:**  
**394800-30** 30" Ignition Cable with Right Angle Boot for use with S8600 family

Product Number	Flame Failure Response Time (sec)	Ignition Trial Time (sec)	Between Trial Time (sec)	Ignition Trials To Lockout	Lockout Timing	PrePurge	Includes
• S8610U3009	2 seconds maximum	continuous retry	5 minute delay after failed trial for ignition.	continuous retry	Configurable to 15 seconds or 90 seconds	Configurable to 30 seconds or no prepurge	Damper connection with automatic vent damper plug

\* TRADELINE models • SUPER TRADELINE models

## S8910 Universal Hot Surface Ignition Module



Universal Hot Surface Ignition Module is designed to provide easy field replacement of a wide range of hot surface ignition modules manufactured by Honeywell, Robertshaw and White-Rodgers. The

**Application:** Provide electronic control of direct hot surface ignition systems used on gas fired furnaces, boilers, and other heating appliances.  
**Dimensions, Approximate:** 133 mm high x 103 mm wide x 49 mm deep (5 1/4 in. high x 4 1/16 in. wide x 1 15/16 in. long)  
**Type of Gas:** Natural or LP  
**Electrical Ratings:** 24 Vac  
**Frequency:** 60 Hz  
**Flame Sense:** Single Rod or Two Rods  
**Ignition Sequence:** The number of trials for ignition and trial time is determined by the selection tab. If a selection tab is not installed, the module will operate at four seconds trial time and one ignition trial.

S8910U Module provides operating control of a direct ignition system using a 120 Vac hot surface igniter.

- Replaces many White-Rodgers, Robertshaw and Honeywell hot surface ignition models.
- For 120 Vac (up to 5.0A) surface igniter (Norton 201/271 or equivalent).
- For local (single rod) or remote (dual rod) rectification type flame sensing.
- Contains easy-to-use instructions plus the accessories required to adapt the existing hot surface ignition module.
- Provides one or three ignition trials (four-second or seven-second trials) per call for heat; prepurge of 32 seconds or less; up to 96 seconds between purge trial times.

**Ignition Source:** Line Voltage (120 VAC) Hot Surface Element (Norton Model 201 or 270)  
**Ignition System Type:** Direct Hot Surface Ignition  
**Maximum Valve Load @ 24 Vac (Amps):** 2A  
**Typical Gas Control:** VR8205, VR8305  
**Typical Ignition Hardware:** Norton 201, Norton 271, Q354  
**Maximum Ambient Temperature:** -40 C to +79 C (-40 F to +175 F)  
**Approvals:**  
**Canadian Standards Association:** Design Certified

Product Number	Flame Failure Response Time (sec)	Ignition Trial Time (sec)	Between Trial Time (sec)	Ignition Trials To Lockout	Lockout Timing	PrePurge
• S8910U1000	1.5 sec.	4 sec. or 7 sec.	(2) 96 sec.- 3 trial mode only	1 or 3	4 sec. or 7 sec.	32 seconds

\* TRADELINE models • SUPER TRADELINE models

## Y8610U Universal Retrofit Intermittent Pilot Gas Burner Ignition Systems



Complete kits converting conventional standing pilot system to intermittent pilot system. For use with 24 Vac gas-fired atmospheric furnaces, boiler and heating appliances.

- Y8610U kits are for use with natural or LP gas: provides 100 percent pilot gas shutoff if pilot fails to light; after 6-minute delay, trial for ignition is repeated.
- Ignition trail/delay sequence is repeated until the appliance lights or call for heat is removed.

**Application:** Provide electronic control of intermittent pilot ignition systems used on gas fired furnaces, boilers, and other heating appliances.

**Dimensions, Approximate:** 100 mm high x 138 mm wide x 67 mm deep (3 15/16 in. high x 5 7/16 in. wide x 2 5/8 in. deep)

**Type of Gas:** Natural or LP

**Electrical Ratings:** 24 Vac

**Frequency:** 60 Hz

**Flame Failure Response Time:** 2.0 sec

**Ignition Sequence:** Continuous retry, after trial for ignition, pilot gas shuts off for 5 minutes, then another trial for pilot ignition takes place

**Ignition Source:** Internal high voltage spark generator

**Ignition System Type:** Intermittent Pilot

**Maximum Valve Load @ 24 Vac (Amps):** 1A Pilot, 2A Main @ 24Vac

**Typical Gas Control:** VR8204, VR8304

**Typical Ignition Hardware:** Q345, Q3451

**Maximum Ambient Temperature:** -40 F to +165 F (-40 C to +74 C)

Product Number	Ignition Trials To Lockout	Lockout Timing	PrePurge	Includes
Y8610U4001	continuous retry	15 or 90 seconds	0 or 30 seconds	VR8204A2142 valve (1/2 x 1/2; 3.5" WC setting; 150 kBtu/hr at 1" p.d.)
Y8610U6006	continuous retry	15 or 90 seconds	0 or 30 seconds	VR8304M3558 (1/2 x 3/4; 3.5" setting; 270kBtu/hr at 1 in. p.d.)

# Ignition Pilot Modules Selection Guide

## Ignition Pilot Modules Selection Guide

Universal Service Part	Applications			Timings				
	Ignition System	Flame Sensor	Ignition Sequence (Note 1)	Ignition Trials To Lockout (Note 1)	Ignition Trial Time	Between Trial Time	Pre-Purge	Flame Failure Response Time
S8910U1000	Line Volt Hot Surface Ignition	1 or 2 Rods	P	1 or 3 Field Selectable	4 sec. or 7 sec. Field Selectable	96 sec., 3 Trial Mode Only	32 sec.	1.5 sec
S8610U3009	Intermittent Pilot	1 or 2 Rods	C	C	15 sec. or 90 sec. Field Selectable	5 Minute Delay After Failed Trial for Ignition	0 sec. or 30 sec. Field Selectable	2.0 sec. max.
Y8610U6006	Intermittent Pilot	Single Rod	C	C	15 sec. or 90 sec. Field Selectable	5 Minute Delay After Failed Trial for Ignition	0 sec.	2.0 sec. max.

Features and Functions					Cross-Reference			
Universal Service Part	Type of Gas	Ignition Source	Typical Ignition Hardware	Includes	Honeywell	White-Rodgers	Robertshaw	Johnson Controls
S8910U1000	Nat or LP	Switched Line Voltage	Norton 201, Norton 271, Hot Surface Elements, Q354 Flame Rod	—	S89C1004, S89C1007, S89C1012, S89C1046, S89C1087, S89C1103, S89D1002, S89G1005, S89F1011, S89G1013, S89G1021, S89G1029, S89G1047, S89H1003, S89H1011, S89H1029, S89J1008, S89D1006, S89G1003, S89G1037, S89H1002, S890H1010	50E47 1-79, 101-179, 201-279, 301-379; 5047F1-79, 101-179, 201-279, 301-379	HS780-17NL 104A, 306A, 308A; HS780-17NR 104A, 306A, 308A; HS780-34NL 108A, 304A, 306A, 308A, 312A; HS780-34NR 104A, 306A, 308A, 312A; HS780-34PL 308A	—
S8610U3009	Nat or LP	Internal	Q345, Q3451, Q3452	Internal Damper Connector	S86 Series, S90 Series, S8600 Series, S8610 Series, S8620 Series, S8660 Series, S8670 Series, S8680J1004	50D49-350, 50D49-360, 50D49-361, 50D50-843, 50D-401	710-713, 710-715, 735-737, 780-002, 780-003, 780-701, 780-715, 780-735, 780-736, 780-737, 780-845, SP710, SP715, SP720, SP730, SP735, SP750 Series	CSA42, 43, 44, 45, 46, 48, 49; G60, G65, G67, G770 Series
Y8610U6006	Nat or LP	Internal	Adapter for Pilot Burner Included	—	Y8610U3003	—	—	—

### Notes:

1. Ignition Sequence






C = Continuous retry - After trial for ignition, pilot gas shuts off for 5 minutes, then another trial for pilot ignition takes place.

P = The number of trials for ignition and trial time is determined by the selection tab. If a selection tab is not installed, the module will operate at four seconds trial time and one ignition trial.

For a complete cross-reference, visit [www.customer.honeywell.com](http://www.customer.honeywell.com)

# Ignition Pilot Module Accessories

## Gas Ignition Module Accessories

Product Number	Description	
392125-2	36" ignition cable assembly with a right angle boot on the igniter end and a straight boot on the module end. For use with the S86/S87 family.	
394800-30	30" Ignition Cable with Right Angle Boot for use with S8600 family	
394801-30	30" Ignition Cable Assembly with straight boot for use with S8600 family	
394803-2	36" High Temperature right angle boot and cable Assembly for S8600 family	
4074EPM	Male Rajah to 1/4" Female Quick Connect adapter for use with S8600 family	

Residential  
Combustion Controls

# Igniter Bracket Replacement Cross Reference

## Q3200U Igniter Bracket Replacement Cross Reference<sup>a</sup>

Manufacturer	OEM Part Number	Q3200U Bracket <sup>b</sup>
American Road Equip.	201W	A
Arco Air	1096048	D
	1380680	
Armstrong Air	38322B001	A
Carrier/Bryant/Payne	LH33ZS001	B or E <sup>c</sup>
	LH33ZS001A	
	LH33ZS002	
	LH33ZS002A	
	LH33ZS003	
	LH33ZS003A	
Claire Bros.	C-238	A
	C242	
Coleman	1474-051	A
	1474-052	
Comfort Maker	1096048	D
Detroit Radiant	201D	A
DMO Industries	20834	A
Dornback Furnace	271W	A
Ducane	20015201	B
Enero Tech	10399	A
Evcon	1474-051	A
	1474-052	
Evcon Coleman	025-32625-000	B
Goodman	B1401009	D
	B1401018	C
	B1401018S	D
HB Smith	50018	A
Heil	1096048	D
Hupp Industries	09050	A
Intercity	1009604	D
	1096048	
Majestic	75-92-104	A
	75-92-105	
Metzger	201N	A
	201W	
Modine	5H76032A	C
Mor-Flo	3200618	A
	511-330-193	B
Nordyne	105141000	A
	632-0770	
	632-0880	
Norton/St Gobain	201	B
	271	
	201D	A
	201K	
	201L	
	201N	
	201R	
	201W	
	271N	D
	271NM	
	271P	
	271W	A
Raypak	600915	B
Rheem	62-22441-01	A

Manufacturer	OEM Part Number	Q3200U Bracket <sup>b</sup>
Roberts Gordon	90434300	B
	90436600	A
Robert-shaw	41-402	A
	41-403	B
	41-404	
	41-405	A
	41-407	B
	41-408	A
	41-409	B
	41-410	A
	41-412	D
	41-418	C
Snyder General	1380654	B
	1380672	
	1380680	
Superior Fireplace	94851	A
Tempstar	1096048	D
Trane	340039P01	A
	B138196P01	B
	B144676P01	A
	B144676P02	B
	B340039P01	A
	IGN23	B
	IGN26	
	IGN30	
IGN34	A	
Viessman	9302-094	A
Wayne Home Equip.	62821-001	A
	62821-002	
Weil McLain	511-330-139	B
	511-330-190	
	511-330-193	
White LB	120-07549	A
White-Rodgers	767A-301	A
	767A-303	F
	767A-306	A
	767A-311	
	767A-350	
	767A-353	F
	767A-354	A
	767A-357	F
	767A-361	A
	767A-364	
	767A-366	B
	767A-370	
	767A-371	A
	767A-372	
	767A-373	D
767A-376	B	
767A-377	A	
767A-382	B	
Williamson	9050	A
York	025-27766-000	A
	025-27774-000	A
	025-29043-000	A
	025-29050-000	A

a Table data is correct to the best of Honeywell's knowledge as of this publication's date. However, some appliances may have igniter applications that are beyond the capabilities of this kit.

b For igniters that require bracket A, use the template to determine the tab to be removed.

c For Carrier sealed combustion furnaces, you must use bracket E and retain the existing orange gasket for use with bracket E.

a Table data is correct to the best of Honeywell's knowledge as of this publication's date. However, some appliances may have igniter applications that are beyond the capabilities of this kit.

b For igniters that require bracket A, use the template to determine the tab to be removed.

c For Carrier sealed combustion furnaces, you must use bracket E and retain the existing orange gasket for use with bracket E.



## Q3200 Glowfly™ Universal Hot Surface Igniter Kit



The Q3200U Universal Hot Surface Igniter Kit is designed to provide a robust field service replacement igniter in gas fired appliances with Norton/St Gobain 120 VAC silicon carbide hot surface igniters. The Q3200U uses a 120 volt silicon nitride igniter design with long life and high resistance to damage or burn out in the appliance.

The kit includes the specially designed silicon nitride igniter and six different bracket configurations to adapt the igniter to the specific appliance application along with accessory parts to allow mounting and wiring the igniter. Clear instructions and application templates are provided to simplify selection of the proper bracket and ease installation of the replacement.

**Mounting Bracket:** Multiple brackets to adapt as field replacement of Norton/St. Gobain silicon carbide igniters

Product Number	Description
Q3200U1004	Glowfly™ Universal Hot Surface Igniter. Single Kit
Q3200U2002	Glowfly™ Universal Hot Surface Igniter. Service Pack of 6 kits

## Q347 Spark Igniter



**Produces spark for direct ignition of main burner.**

- Includes inner Kanthal electrode with ceramic insulator, bracket and Kanthal ground strap.
- Use with S87C, D, K; S89E,F and Q354A.

**Ignitor, Sensor, Combination:** Ignitor Only

Product Number	Length		Mounting Bracket	Rod Angle
	(mm)	(inch)		
Q347A1004	52 mm	2 1/32 in.	Bracket Style D	standard orientation

## Q354 Flame Rectification Sensor



**Detects the presence of main burner flame.**

- Includes Kanthal rod supported by ceramic insulator and mounting bracket.
- Use with S825, S87C,D,K or S89E,F.

**Ignitor, Sensor, Combination:** Sensor Only

Product Number	Length		Mounting Bracket	Rod Angle
	(mm)	(inch)		
Q354A1018	162 mm	6 3/8 in.	One 3/16 in. slot, three 3/16 in. untapped screw holes.	straight

# Air Pressure Switches

## Airflow Differential Pressure Switch



Airflow Differential Pressure Switches are used to sense positive, negative, or differential air pressure in HVAC systems. They provide high or low limit with alarm or high limit shutdown with manual reset.

- Models available with compression or barb fittings.
- SPDT contacts on automatic reset models SPST n.c. contacts on manual reset models.
- Electrical switch enclosed in metal box with cover.
- Reliable pneumatic operation. UL and CSA Listed, FM approved.
- Adjustable setpoint.

**Dimensions, Approximate:** 127 mm Diameter (5.0 in. Diameter)

**Electrical Connections:** #6-32 Screw terminal with cup washers

**Ambient Temperature Range:** -40 C to +88 C (-40 F to +190 F)

**Approvals:**

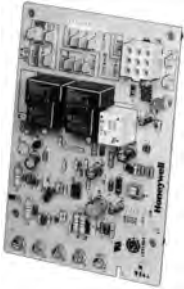
**Canadian Standards Association:** CSA file No. LR45785

**Factory Mutual:** Listed: J.I. 1H3A6.AF

**Underwriters Laboratories, Inc.** Listed: MP2168

Product Number	Electrical Ratings	Connection Type	Electrical Switch	Maximum Operating Pressure	Pilot Duty Ratings	Setpoint
AP5027-30	278 VA @ 24 Vac; 300 VA @ 120 to 277 Vac	1/4 in. Compression	SPDT	1/2 psi	15 Amps resistive to 277 Vac; 10 Milliamps @ 5 Vdc; Gold Flash Contacts	.05"±.02" wc to 12.0" wc PR
AP5210-30	278 VA @ 24 Vac; 300 VA @ 120 to 277 Vac	1/4 in. Compression	SP N.C.	1/2 psi	—	.30"±.20" wc to 12.0" wc PR

## ST9103 Electronic Fan Timers



**ST9103A integrates control of burner and circulating fan operations in an oil furnace.**

- Central appliance wiring point simplifies appliance assembly and service.
- Fixed or field-adjustable heat fan on delay; field adjustable heat fan off delay.

**Application:** A single circuit board providing combustion air blower control, two speed circulating air blower control, oil primary control, limit circuit inputs, thermostat wiring terminations, & a central appliance wiring point for an oil fixed furnace.

**Electrical Ratings:** 18 to 30 Vac

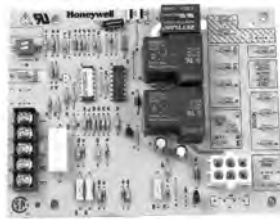
**Frequency:** 50 Hz; 60 Hz

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-17  
**Underwriters Laboratories, Inc.** Listed: Report MP466

Product Number	Heat Fan On Delay	Heat Fan Off Delay	Cool Fan On Delay	Cool Fan Off Delay	Ambient Temperature Range		Replaces
					(C)	(F)	
ST9103A1002	fixed, 45 sec	adj. 60, 90, 120, 150 sec (set at 150 sec)	fixed 0 sec	fixed 0 sec	-40 C to +66 C	-40 F to +150 F	ST9103A1002

## ST9120 Electronic Fan Timers



**ST9120U1003 integrates control of combustion blower and circulating fan operations in a gas warm air appliance.**

- Central appliance wiring point simplifies appliance assembly and service.
- Fixed or field-adjustable heat fan on delay; field adjustable heat fan off delay.

**Application:** Integrates control of combustion blower and circulating fan operations for a gas warm air appliance

**Electrical Ratings:** 18 to 30 Vac

**Frequency:** 60 Hz

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-17  
**Underwriters Laboratories, Inc.** Listed: Report MP466

Product Number	Heat Fan On Delay	Heat Fan Off Delay	Cool Fan On Delay	Cool Fan Off Delay	Ambient Temperature Range		Replaces
					(C)	(F)	
* ST9120U1003	adj.; set at 30 sec	adj.; set at 140 sec	adj. 4-30 sec, (set at 4 sec)	fixed 30 sec	-40 C to +79 C	-40 F to +175 F	ST9120C4040, ST9120C4057, ST9120C5005, ST9120C5013, ST9120D3009, ST9120G2032, ST9101A1022, ST9120C1012, ST9120C1020, ST9120C2002, ST9120C2010, ST9120C2028, ST9120C3018, ST9120C3000, ST9120C4008, ST9120C4016, ST9120G2008, ST9120G2016, ST9120G2024, ST9120G4004, ST9120G4012, ST9120G4038, ST9120B1005, ST9120A1006, ST9120A2004, ST9101A1006, ST9101A1014

\* TRADELINE models • SUPER TRADELINE models

# Contactors

## PowerPro Definite Purpose Contactors



# The Tougher Contactors

We're tougher than ever. Honeywell PowerPro, a line of definite purpose contactors, outfeatures, outperforms and is destined to soon outsell the competition.

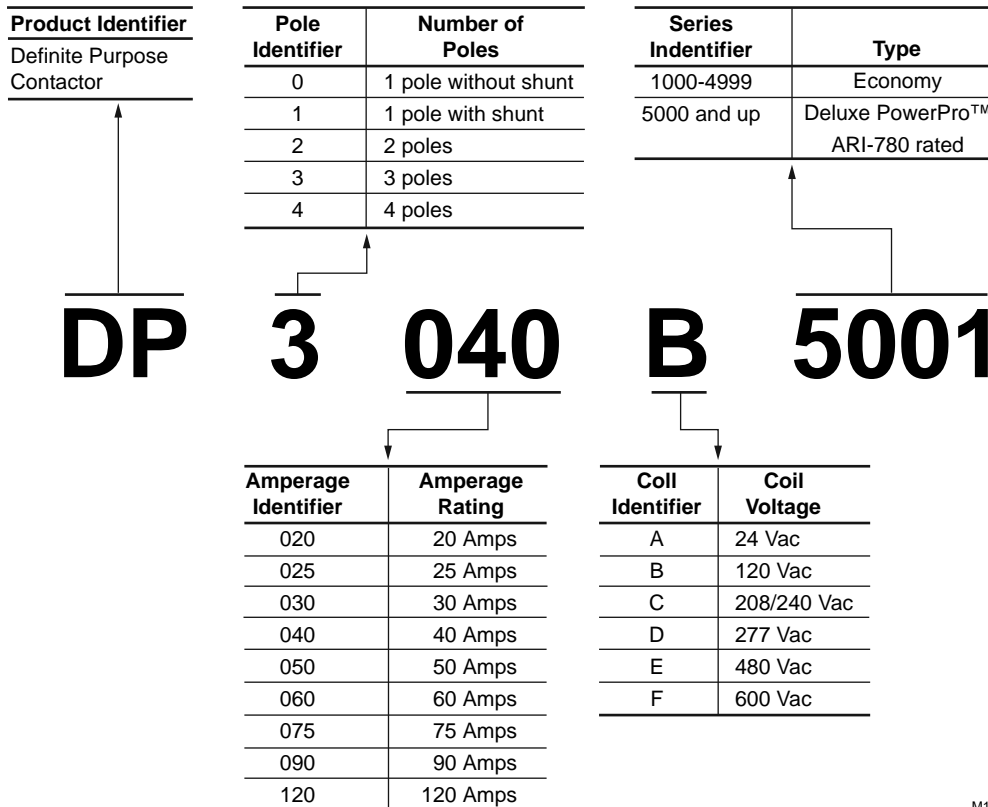
Once you compare the features of Honeywell PowerPro definite purpose contactors against what you're using now, we predict you'll soon standardize on PowerPro for all your applications. Especially in 'high stakes' situations where you can't afford to gamble on anything less.

Honeywell PowerPro definite purpose contactors will surprise you in more ways than one. Once you try them you'll be amazed at how these compact contactors easily fit in tight spaces while leaving maneuvering room for hands and tools; how easily contactor accessories snap on or off; how you view the operation of the contactor with the user-friendly button; plus many other installer-friendly features

- **Honeywell PowerPro Contactors Meet ARI Standard 780**—Meeting the ARI Standard 780 means that the contactors stand up to tests that simulate harsh, real-world conditions—500,000 cycle mechanical life test, 200,000 cycle endurance life test and 10,000 cycle recycle life test.
- **Contactors are shorter and sweeter than the competition**—Their small size makes them ideal for replacement inside today's compact equipment.
- **Advanced class H insulated contactor coil design protects against high heat conditions**—Class H contactor coils are standard on 5000 Series 3-pole, 25A through 60A models.
- **Convenient button for easy testing**—Use it to safely check for proper electrical functioning of the contactor.

## DP Contactors Order Number Guide

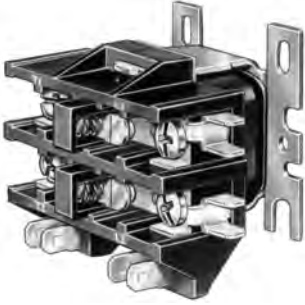
It's easy to select the order number that you need for your application. Depending on your application, determine the number of poles, amp rating, coil voltage, and whether you need an economy or deluxe model. Then, simply follow this Order Number Guide:



M14500

NOTE: Super Tradeline Contactors contain extra mounting hardware.

## Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 1 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Meets ARI-780 Standard at started ratings (500,000 cycle mechanical life, 200,000 cycle electrical life and 10,000 cycle recycle life); the most demanding ARI requirement.
- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

**Application:** PowerPro Definite Purpose Contactor  
**Temperature Range:** -20 C to +65 C (-4 F to +149 F)

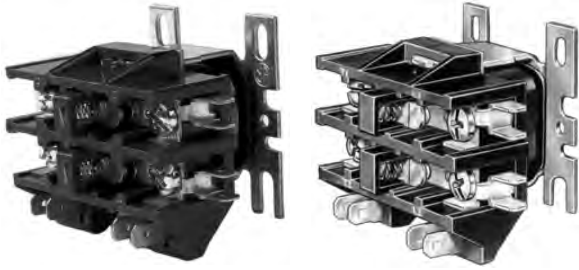
**Approvals:**

**Canadian Standards Association:** Certified: File No. LR6535  
**Underwriters Laboratories, Inc.** Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Dimensions, Approximate		Contact Electrical Ratings		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)
	(mm)	(inch)	(AFL @ 277, 480, 600 Vac)	(Resistive @ 277, 240, 600 Vac)				
DP1025A5005	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in. high x 2 1/2 in. wide x 3 5/16 in. deep	25 A @ 240/277 Vac	30 A @ 240/277 Vac, 480 Vac, 600 Vac	1 with shunt	24 Vac	1/4 in. quick-connects	#10-32 combination head screws
DP1030A5013	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in. high x 2 1/2 in. wide x 3 5/16 in. deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac	1 with shunt	24 Vac	1/4 in. quick-connects	#10-32 combination head screws

# Contactors

## Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 2 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Meets ARI-780 Standard at started ratings (500,000 cycle mechanical life, 200,000 cycle electrical life and 10,000 cycle recycle life); the most demanding ARI requirement.
- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

**Application:** PowerPro Definite Purpose Contactor

**Temperature Range:** -20 C to +65 C (-4 F to +149 F)

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR6535

**Underwriters Laboratories, Inc.** Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Dimensions, Approximate		Contact Electrical Ratings		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)
	(mm)	(inch)	(AFL @ 277, 480, 600 Vac)	(Resistive @ 277, 480, 600 Vac)				
DP2020A5021	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	20 A @ 240, 277, 480, 600 Vac	300 A @ 240/277 Vac, 480 Vac, 600 Vac	2	24 Vac	1/4 in. quick-connects	#10-32 combination head screws
DP2020B5038	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	20 A @ 240, 277, 480, 600 Vac	300 A @ 240/277 Vac, 480 Vac, 600 Vac	2	120 Vac	1/4 in. quick-connects	#10-32 combination head screws
DP2030A5004	83 mm high x 67 mm wide x 95 mm deep	3 1/4 in high x 2 5/8 in wide x 3 3/4 in deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac	2	24 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws
DP2030A5012	83 mm high x 67 mm wide x 95 mm deep	3 1/4 in high x 2 5/8 in wide x 3 3/4 in deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac	2	24 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws
DP2030B5003	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac	2	120 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws
DP2030B5011	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac	2	120 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws
DP2030C5010	56 mm high x 59 mm wide x 84 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac	2	208 Vac/240 Vac	1/4 in. quick-connects	#10-32 combination head screws and sems screws
DP2040A5003	60 mm high x 81 mm wide x 50 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	40 A @ 240/277 Vac	50 A @ 240/277 Vac	2	24 Vac	1/4 in. quick-connects	lug connectors
DP2040B5002	60 mm high x 81 mm wide x 50 mm deep	2 3/16 in high x 2 1/2 in wide x 3 5/16 in deep	40 A @ 240/277 Vac	50 A @ 240/277 Vac	2	120 Vac	1/4 in. quick-connects	lug connectors

## Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 3 Pole



These three pole definite purpose electromagnetically operated contactors provide switching for starting of induction motors.

- Shrouded coils on 3 pole (25A to 60A) models protect the coil from harsh environment factors.
- Moisture proof epoxy is used to encapsulate the 3 pole 75A through 120A coils.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.
- Traditional design meets many needs.
- Full array of replacement coils, contact sets and accessories available.

**Application:** PowerPro Definite Purpose Contactor  
**Temperature Range:** -20 C to +65 C (-4 F to +149 F)

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR6535  
**Underwriters Laboratories, Inc.** Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Dimensions, Approximate		Contact Electrical Ratings		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)
	(mm)	(inch)	(AFL @ 277, 480, 600 Vac)	(Resistive @ 277, 480, 600 Vac)				
DP3030A5003	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3	24 Vac	1/4 in. quick-connects and #6 screws	#10-32 combination head screws
DP3030B5002	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3	120 Vac	1/4 in. quick-connects and #6 screws	#10-32 combination head screws
DP3030C5001	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	#10-32 combination head screws
DP3040A5002	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3040B5001	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3040C5000	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3050A5001	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	50 A @ 240/277 Vac, 480 Vac, 600 Vac	63 A @ 240/277 Vac, 480 Vac, 600 Vac	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3050B5000	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	50 A @ 240/277 Vac, 480 Vac, 600 Vac	63 A @ 240/277 Vac, 480 Vac, 600 Vac	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3050C5009	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	50 A @ 240/277 Vac, 480 Vac, 600 Vac	63 A @ 240/277 Vac, 480 Vac, 600 Vac	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3060A5000	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	60 A @ 240/277 Vac, 480 Vac, 600 Vac	75 A @ 277 Vac, 480 Vac, 600 Vac	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors

# Contactors

Product Number	Dimensions, Approximate		Contact Electrical Ratings		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)
	(mm)	(inch)	(AFL @ 277, 480, 600 Vac)	(Resistive @ 277, 480, 600 Vac)				
DP3060B5009	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	60 A @ 240/277 Vac, 480 Vac, 600 Vac	75 A @ 277 Vac, 480 Vac, 600 Vac	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3060C5008	79 mm high x 92 mm wide x 61 mm deep	3.1 in high x 3.62 in wide x 2.4 in deep	60 A @ 240/277 Vac, 480 Vac, 600 Vac	75 A @ 277 Vac, 480 Vac, 600 Vac	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3075A5016	112 mm high x 127 mm wide x 94 mm deep	4.4 in high x 5 in wide x 3.7 in deep	75 A @ 240/277 Vac, 480 Vac, 600 Vac	95 A @ 240/277 Vac, 480 Vac, 600 Vac	3	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3075B5015	112 mm high x 127 mm wide x 94 mm deep	4.4 in high x 5 in wide x 3.7 in deep	75 A @ 240/277 Vac, 480 Vac, 600 Vac	95 A @ 240/277 Vac, 480 Vac, 600 Vac	3	120 Vac	1/4 in. quick-connects and #6 screws	lug connectors
DP3075C5014	112 mm high x 127 mm wide x 94 mm deep	4.4 in high x 5 in wide x 3.7 in deep	75 A @ 240/277 Vac, 480 Vac, 600 Vac	95 A @ 240/277 Vac, 480 Vac, 600 Vac	3	208 Vac/240 Vac	1/4 in. quick-connects and #6 screws	lug connectors

## Deluxe Honeywell PowerPro DP-Series Definite Purpose Contactors - 4 Pole



**Definite purpose four (40A) pole contactors provide switching for across-the-line starting of induction motors.**

- Shrouded coils on 3 pole (25A to 60A) models protect the coil from harsh environment factors.
- Moisture proof epoxy is used to encapsulate the 3 pole 75A through 120A coils.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.
- Traditional design meets many needs.
- Full array of replacement coils, contact sets and accessories available.

**Application:** PowerPro Definite Purpose Contactor

**Temperature Range:** -20 C to +65 C (-4 F to +149 F)

**Approvals:**

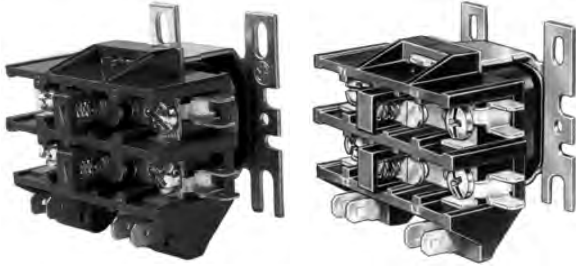
**Canadian Standards Association:** Certified: File No. LR6535

**Underwriters Laboratories, Inc.** Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Dimensions, Approximate		Contact Electrical Ratings		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)
	(mm)	(inch)	(AFL @ 277, 480, 600 Vac)	(Resistive @ 277, 480, 600 Vac)				
DP4040A5001	70 mm high x 95 mm wide x 87 mm deep	2 5/8 in high x 3 3/4 in wide x 3 7/16 in deep	40 A @ 240/277 Vac, 480 Vac, 600 Vac	50 A @ 240/277 Vac, 480 Vac, 600 Vac	4	24 Vac	1/4 in. quick-connects and #6 screws	lug connectors



## Economy DP-Series Definite Purpose Contactors - 2 Pole



These electromagnetically-operated Definite Purpose Contactors provide switching for starting induction motors.

- Silver cadmium oxide contacts provide long life under demanding duty cycles.
- Low profile design allows for more wiring room.
- Multiple mounting holes and slots for convenient, interchangeable mounting with most competitive devices.

**Application:** Economy Definite Purpose Contactor  
**Temperature Range:** -20 C to +65 C (-4 F to +149 F)

**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR6535  
**Underwriters Laboratories, Inc.** Component Recognized: File No. 14480, Guide No. NLDX2

Product Number	Dimensions, Approximate		Contact Electrical Ratings		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)
	(mm)	(inch)	(AFL @ 277, 480, 600 Vac)	(Resistive @ 277, 480, 600 Vac)				
DP2030A1003	83 mm high x 92 mm wide x 97 mm deep	3.25 in high x 3.63 in wide x 3.8 in deep	30 A @ 240/277 Vac	48 A @ 240/277 Vac, 480 Vac, 600 Vac	2	24 Vac	double 1/4 in. quick-connects	#10 combination head screws
DP2030B1002	56 mm high x 64 mm wide x 84 mm deep	2.2 in high x 2.5 in wide x 3.3 in deep	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	2	120 Vac	double 1/4 in. quick-connects	#10 combination head screws
DP2030C1001	56 mm high x 64 mm wide x 84 mm deep	2.2 in high x 2.5 in wide x 3.3 in deep	30 A @ 240/277 Vac, 480 Vac, 600 Vac	40 A @ 240/277 Vac, 480 Vac, 600 Vac	2	208 Vac/240 Vac	double 1/4 in. quick-connects	#10 combination head screws

## Auxiliary Switches

Product Number	Circuits	Configuration	Dimensions (in.) H x W x D	Contact Ratings: Resistive	Maximum (Inrush) Current at 120/240/480/600V	Used With
DP3AUX-1NC	1	Normally Closed snap-on	2.8 x 2.52 x 0.44	10A	60/30/15/12Amps	DP3030 thru DP3090 Contactors
DP3AUX-1NO	1	Normally Open snap-on	2.8 x 2.52 x 0.44	10A	60/30/15/12Amps	DP3030 thru DP3090 Contactors
DP3AUX-1NO-1NC	2	Normally Closed/ Normally Open snap-on	2.8 x 2.52 x 0.44	10A	60/30/15/12Amps	DP3030 thru DP3090 Contactors



# Contactors

## R8246 Electric Heat Contactor



Provide conventional on-off control of heating elements and fan in an electric furnace.

- Designed for quiet operation. R8246A and R8229A replace over 50 Honeywell and competitive electric heat primaries, including the Honeywell R8330 Electric Furnace Sequencer.
- Use on furnaces with a line voltage or pilot duty limit.
- Simple ON-OFF switching - readily understood and easily serviced- Eliminates cold drafts on system startup.

**Application:** Electric Heat Contactor

**Temperature Ratings:** -20 C to +65 C (-4 F to +149 F)

Product Number	Dimensions, Approximate		Poles	Coil Ratings Voltage	Contact Connections (coil)	Electrical Connections (main)	Contact Electrical Ratings
	(mm)	(inch)					(Resistive @ 277, 480, 600 Vac)
R8246A1038	56 mm high x 58 mm wide x 84 mm deep	2.2 in high x 2.3 in wide x 3.3 in deep	2	24 Vac	Terminal cap screw and Quick Connects	Male 1/4 in. (6 mm) quick-connects plus terminal clamp screws	48 A @ 240/277 Vac 1st pole resistive only

## Contactors Selection Guide

Economy Contactors									
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features	
1 with shunt	30	24 Vac	DP1030A1000	2.2 x 2.5 x 3.3	CHS	Q	48A	—	
2		24 Vac	DP2030A1003	3.25 x 3.63 x 3.8	CHS	Q	48A	—	
		120 Vac	DP2030B1002	2.2 x 3.3 x 2.16	CHS	Q	40A	—	
		208 Vac/240 Vac	DP2030C1001	2.2 x 2.5 x 3.3	CHS	Q	40A	—	
		40	24 Vac	DP2040A1002	2.37 x 3.3 x 2	LC	Q	50A	—
			120 Vac	DP2040B1001	2.37 x 3.3 x 2	LC	Q	50A	—
			208 Vac/240Vac	DP2040C1000	2.37 x 3.3 x 2	LC	Q	50A	—

PowerPro Contactors - ARI 780/790 Rated								
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features
1 with shunt	25	24 Vac	DP1025A5005	2.2 x 2.5 x 3.3	CHS	Q	30A	—
	30	24 Vac	DP1030A5013	2.2 x 2.5 x 3.3	CHS	Q	48A	—
	40	24 Vac	DP1040A5004	2.36 x 3.2 x 2.0	LC	Q	50A	—
2	20	24 Vac	DP2020A5021	2.2 x 2.5 x 3.3	CHS	Q	30A	—
		120 Vac	DP2020B5038	2.2 x 2.5 x 3.3	CHS	Q	30A	—
	30	24 Vac	DP2030A5004	3.25 x 3.63 x 3.8	CHS	Q	48A	—
		24 Vac	DP2030A5012	3.25 x 3.63 x 3.8	CHS	Q	48A	Extra Mounting HDW
		120 Vac	DP2030B5003	2.2 x 3.3 x 2.16	CHS	Q	48A	—
		120 Vac	DP2030B5011	2.3 x 3.3 x 2.16	CHS	Q	48A	Extra Mounting HDW
		208 Vac/240 Vac	DP2030C5002	2.2 x 2.5 x 3.3	CHS	Q	48A	—
		208 Vac/240 Vac	DP2030C5010	2.2 x 2.5 x 3.3	CHS	Q	48A	Extra Mounting HDW
		277 Vac	DP2030D5001	2.2 x 2.5 x 3.3	CHS	Q	48A	—
	40	24 Vac	DP2040A5003	2.36 x 3.2 x 1.96	LC	Q	50A	—
		120 Vac	DP2040B5002	2.36 x 3.2 x 1.96	LC	Q	50A	—
		208 Vac/240 Vac	DP2040C5001	2.36 x 3.2 x 1.96	LC	Q	50A	—

# Contactors Selection Guide

PowerPro Contactors - ARI 780/790 Rated								
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features
3	30	24V	DP3030A5003	3.1 x 3.62 x 2.4	CHS	Q,S	40A	—
		120v	DP3030B5002	3.1 x 3.62 x 2.4	CHS	Q,S	40A	—
		208 Vac/240 Vac	DP3030C5001	3.1 x 3.62 x 2.4	CHS	Q,S	40A	—
	40	24Vac	DP3040A5002	3.1 x 3.62 x 2.4	LC	Q,S	50A	—
		120Vac	DP3040B5001	3.1 x 3.62 x 2.4	LC	Q,S	50A	—
		208 Vac/240 Vac	DP3040C5000	3.1 x 3.62 x 2.4	LC	Q,S	50A	—
	50	24Vac	DP3050A5001	3.1 x 3.62 x 2.4	LC	Q,S	63A	—
		120Vac	DP3050B5000	3.1 x 3.62 x 2.4	LC	Q,S	63A	—
		208 Vac/240 Vac	DP3050C5009	3.1 x 3.62 x 2.4	LC	Q,S	63A	—
	60	24Vac	DP3060A5000	3.1 x 3.62 x 2.4	LC	Q,S	75A	—
		120 Vac	DP3060B5009	3.1 x 3.62 x 2.4	LC	Q,S	75A	—
		208 Vac/240 Vac	DP3060C5008	3.1 x 3.62 x 2.4	LC	Q,S	75A	—
	75	24Vac	DP3075A5016	4.4 x 5 x 3.7	LC	Q,S	95A	—
		120 Vac	DP3075B5015	4.4 x 5 x 3.7	LC	Q,S	95A	—
		208 Vac/240 Vac	DP3075C5014	4.4 x 5 x 3.7	LC	Q,S	95A	—
90	120 Vac	DP3090B5006	4.4 x 5 x 3.7	LC	Q,S	120A	—	
	208 Vac/240 Vac	DP3090C5005	4.4 x 5 x 3.7	LC	Q,S	120A	—	
4	40	24 Vac	DP4040A5001	2.63 x 3.75 x 3.1	LC	Q,S	50A	—
		120 Vac	DP4040B5000	2.63 x 3.75 x 3.1	LC	Q,S	50A	—
		208 Vac/240 Vac	DP4040C5009	2.63 x 3.75 x 3.1	LC	Q,S	50A	—

# Contactors Selection Guide

Electric Heat Contactor								
Poles	Contact Ratings (AFL @ 240, 277, 480, 600 Vac)	Input Voltage/Coil Voltage	Product Number	Dimensions (in.) H x W x D	Main Connections	Coil Connections	Contact Ratings (Resistive @ 240/277, 480, 600 Vac)	Special Features
2	30	24 Vac	R8246A1038	2.2 x 2.3 x 3.3	Q,S	TCS,Q	48A @ 240/277 Vac	First Pole Resistive Only, Second Pole Resistive/ Inductive Combined. ARI 780/790 rated.

<b>Connectors:</b>	CHS - #10-32 Combination Head Screw
	LC - Lug Connector
	Q - Quick Connect
	S - # 6 Screw
	SS - Sems Screw
	TCS - Terminal Clamp Screw
<b>Temp Rating:</b>	-4F to 149F
<b>Approvals:</b>	UL, CSA
<b>ARI -780:</b>	500,000 cycle mechanical life; 200,000 cycle electrical life; 10,000 cycle recycle life

# Relays

## Q633 Plate-Mounted Relay Receptacle



For installing R4222, R8222 and R4228, R8228 relays on junction boxes.

- Use with appropriate relay and AT72D1683 or AT72D1691 SUPER TRADELINE Transformer.
- Includes relay receptacle, cover and eight leadwires.

**Dimensions, Approximate:** 102 x102 mm plate (4 in. x 4 in. plate)

**Approvals:**

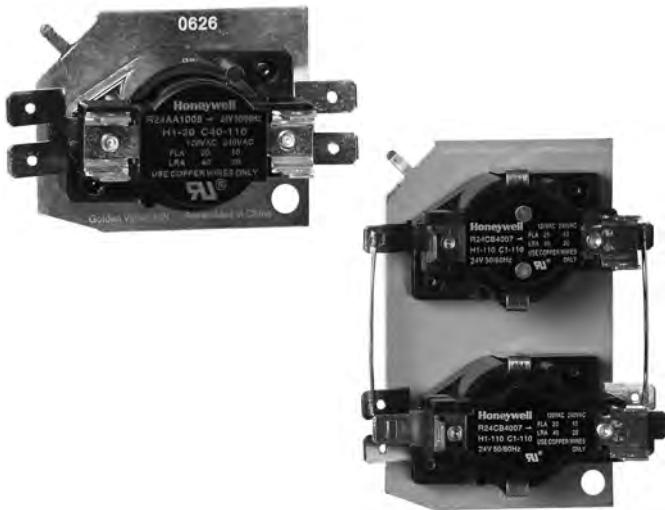
**CE:** Approved

**Canadian Standards Association:** Recognized

**Underwriters Laboratories, Inc.** UL Component Recognized

Product Number	Description
* Q633A1007	Plate Mounted Relay Receptacle
* TRADELINE models • SUPER TRADELINE models	

## R24 Heat Sequencer



Honeywell R24 Series Heat Sequencers are solid-state positive temperature coefficient (PTC) heaters that mount in any position. Quick-connect terminals speed up installation. In addition to the fact that, the R24 Series Heat Sequencers replace a wide range of models.

- Solid-state PTC Heaters
- Quick-connect terminals
- Shock and vibration resistant
- Mounts in any position
- Contact ratings - to 25 Amps at 120 or 240 Volts, and 12.5 Amps at 480 Volts
- Full-load rating auxiliary contacts
- Standard operating ambience temperature between -40 C and 73.8 C (-40 F and 165 F)
- UL approved, CSA/CUR approval pending

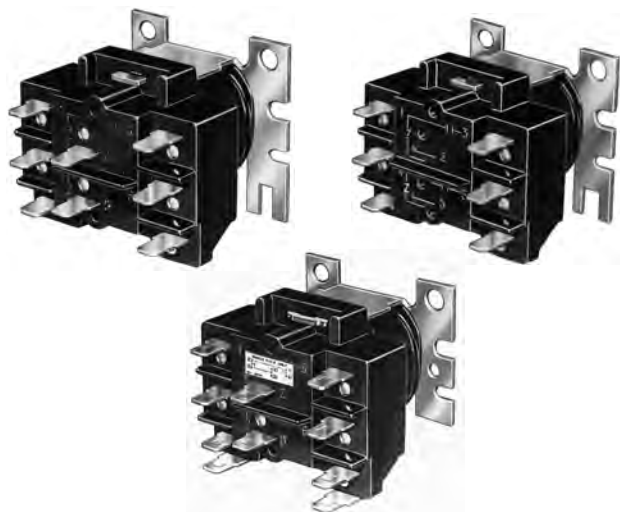
**Electrical Connections (main):** Solder or screw type 1/4 in. quick connect

**Approvals:**

**Underwriters Laboratories, Inc.** UL File 237660

Product Number	Number of Switches/Devices	Number of On-Timings	On-Timing Delay (sec)	Off-Timing Delay (sec)
R24AA1008	1	1	1 - 20 sec	40 - 110 sec
R24AA2006	1	1	1-25: Heat	65-115: Cool
R24AA3004	1	1	30 - 90 sec	1 - 30 sec
R24AA3429	1	1	15 - 35 sec	25 - 55 sec
R24BA1006	2	1	1 - 20 sec	40 - 110 sec
R24BA3002	2	1	30 - 90 sec	1 - 30 sec
R24CB4007	3	2	1 - 110 sec	1 - 110 sec
R24DB4005	4	2	1 - 110 sec	1 - 110 sec
R24ED5007	5	4	1 - 160 sec	1 - 160 sec

## R4222; R8222 General Purpose and R8228 Heavy Duty Switching Relays



Provide heavy duty switching for refrigeration and air conditioning equipment, appliances, vending machines and similar applications.

- Molded terminal numbers and circuit diagram on top of relay provide easy identification for wiring and checking system operation.
- Untaped coil assures cooler operation.
- Laminated magnet construction for higher efficiency.
- Base designed for easy replacement of competitive relays.
- Double quick-connect coil terminals.
- Plug compatible with Stevco 90-340 and Mars 90340.

**Dimensions, Approximate:** 48 mm high x 55 mm wide x 60 mm deep (1 7/8 in. high x 2 5/32 in. wide x 2 3/8 in. deep)

**Electrical Connections (main):** 1/4 in. quick-connect terminals

**Temperature Rating:** -29 C to +66 C (-20 F to +150 F)

**Approvals:**

**CE:** Approved

**Canadian Standards Association:** Approved

**Underwriters Laboratories, Inc.** UL Component Recognized

**Accessories:**

**129384A** Case and Cover Assembly

Residential  
Combustion Controls

Product Number	Electrical Ratings, Contacts			Pilot Duty Ratings
	(Full Load)	(Locked Rotor)	(Resistive)	
R4222B, R4222D, R4222N, R8222B, R8222D, R8222N, R8222V	12 A @ 120 Vac; 6 A @ 208 Vac, 240 Vac, 277 Vac; 3 A @ 480 Vac	18 A @ 480 Vac; 35 A @ 208 Vac, 240 Vac, 277 Vac, 60 A @ 120 Vac	20.8 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 10 A @ 480 Vac	Minimum: 3 VA @ 24 Vac, 120 Vac, & 480 Vac; Maximum: 25 VA @ 24 Vac, 125 VA @ 120 Vac, 240 Vac, & 480 Vac; Resistive: 3 A @ 277 Vac (0.75 power factor); Powerpile: (Normally Open Contacts Only) 0.25 A @ 0.25 to 12 Vdc
R8228B	16/18 A @ 120 Vac; 18 A @ 208 Vac, 240 Vac; 12 A @ 277 Vac; 5 A @ 480 Vac	96/72 A @ 120 Vac; 72 A @ 208 Vac, 240 Vac, 277 Vac; 30 A @ 480 Vac	25 A @ 120 Vac; 208 Vac, 240 Vac, 277 Vac; 12.5 A @ 480 Vac	—
R8228D	5.5 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 3.0 A @ 480 Vac	15 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac; 8 A @ 480 Vac		—

	Product Number	Coil Ratings Voltage	Frequency	Switching
*	R4222B1082	120 V	50 Hz; 60 Hz	SPDT
*	R4222D1013	120 V	50 Hz; 60 Hz	DPDT
*	R4222D1021	208V/240 V	50 Hz; 60 Hz	DPDT
*	R4222N1002	120 V	50 Hz; 60 Hz	DPDT - Pilot Duty
*	R8222B1067	24 Vac	50 Hz; 60 Hz	SPDT
*	R8222D1014	24 Vac	50 Hz; 60 Hz	DPDT
*	R8222N1011	24 Vac	50 Hz; 60 Hz	DPDT - Pilot Duty
*	R8222V1003	24 Vac	50 Hz; 60 Hz	DPDT (1 P&1PDuty)
*	R8228B1012	24 Vac	50 Hz; 60 Hz	SPDT
*	R8228D1018	24 Vac	50 Hz; 60 Hz	DPST N.O.

\* TRADELINE models • SUPER TRADELINE models

# Relays

## R4225; R8225 Fan Relay



**Dimensions, Approximate:** 68 mm high x 64 mm wide x 87 mm deep  
(2 11/16 in. high x 2 1/2 in. wide x 3 7/16 in. deep)

**Electrical Connections (main):** Leadwires

**Frequency:** 60 Hz

**Temperature Rating:** 46 C (115 F)

**Provide general purpose and heavy duty switching for refrigeration and air conditioning equipment, appliances, vending machines and similar applications.**

- Molded terminal numbers and circuit diagram on top of relay provide easy identification for wiring and checking system operation.
- Untaped coil assures cooler operation.
- Laminated magnet construction for higher efficiency.
- Base designed for easy replacement of competitive relays.
- Double quick-connect coil terminals.
- Plug compatible with Steveco 90-340 and Mars 90340.

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-1  
**Underwriters Laboratories, Inc.** UL Listed: File No. E14480, Vol. 1, Sec. 3, Guide No. NLDX

**Accessories:**

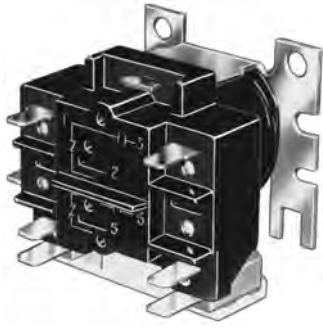
**129384A** Case and Cover Assembly

Product Number	Electrical Ratings, Contacts			Coil Ratings Voltage	Switching
	(Full Load)	(Locked Rotor)	(Resistive)		
<b>R4225A1008</b>	N.O. 8.0A, N.C., 7.0A, Aux. 2.0A @ 240 Vac; N.O. 14.0A, N.C. 14.0A, Aux. 3.0A @ 120 Vac	N.O. 84.0 A, N.C. 84.0 A, Aux. 18.0 A @ 120 Vac; N.O. 48.0 A, N.C. 42.0 A, Aux. 12.0 A @ 240 Vac	N.O. 16.0 A, N.C. 14.0 A, Aux. 3.0 A @ 120 Vac; N.O. 8.0 A, N.C. 7.0 A, Aux. 2.0 A @ 240 Vac	120 V	SPDT, 1 N.O., 1 N.C.
* <b>R8225A1017</b>	N.O. 8.0A, N.C., 7.0A, Aux. 2.0A @ 240 Vac; N.O. 14.0A, N.C. 14.0A, Aux. 3.0A @ 120 Vac	N.O. 84.0 A, N.C. 84.0 A, Aux. 18.0 A @ 120 Vac; N.O. 48.0 A, N.C. 42.0 A, Aux. 12.0 A @ 240 Vac	N.O. 16.0 A, N.C. 14.0 A, Aux. 3.0 A @ 120 Vac; N.O. 8.0 A, N.C. 7.0 A, Aux. 2.0 A @ 240 Vac	24 Vac	SPDT
<b>R8225D1003</b>	N.O. 14.0 A, Aux. 3.0 A @ 120 Vac; N.O. 8.0 A, Aux. 2.0 A @ 240 Vac	N.O. 84.0 A, Aux. 18.0 A @ 120 Vac; N.O. 48.0 A, Aux. 12.0 A @ 240 Vac	N.O. 16.0 A, Aux. 3.0 A @ 120 Vac; N.O. 8.0 A, Aux. 2.0 A @ 240 Vac;	24 Vac	DPST N.O.

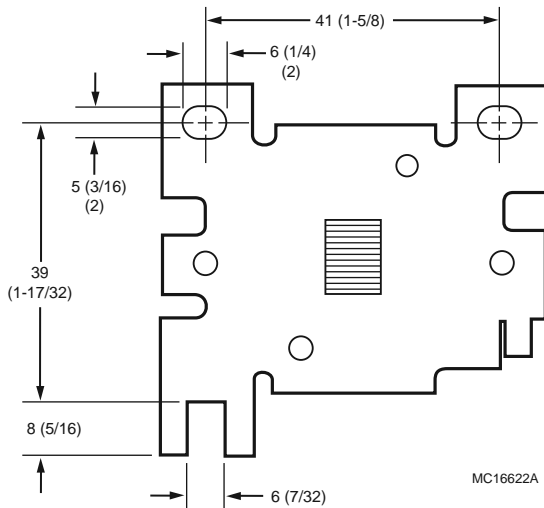
\* TRADELINE models • SUPER TRADELINE models



## R8229 Electric Heat Relay



### Dimensions in millimeters (inches)



### Normally Closed Relays And Contactors For Load Control Systems.

- Close and leave load operating in case of wiring or control problem, or relay malfunction.
- Consume no power while load is powered; require power only to shed load.
- Operate directly from a pilot duty rated relay in the load control system.

**Dimensions (Approximate):** 56 mm high x 53 mm wide x 57 mm deep (2 3/16 in. high x 2 3/32 in. wide x 2 1/4 in. deep)

**Electrical Connections (main):** #10 combination head screws

**Frequency:** 60 Hz

**Temperature Rating:** -40 C to +74 C (-40 F to +165 F)

### Approvals:

**CE:** Approved

**Canadian Standards Association:** Recognized

**Underwriters Laboratories, Inc.** UL Component Recognized

Electrical Ratings, Contacts		
(Full Load)	(Locked Rotor)	(Resistive)
7.0 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac;	35 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac;	25 A @ 120 Vac, 208 Vac, 240 Vac, 277 Vac;
3.5 A @ 480Vac;	17.5 A @ 480 Vac;	12.5 A @ 480 Vac;
2.8 A @ 600Vac	14 A @ 600 Vac	10.0 A @ 600 Vac

	Product Number	Coil Ratings Voltage	Switching	Includes
	R8229A1005	24 Vac	DPST	—
•	R8229A1021	24 Vac	DPST	Extra Mounting Hardware

\* TRADELINE models • SUPER TRADELINE models

# Relays

## R8330 Electric Furnace Sequencer



**One control switches a fan and up to three elements on and off in sequence.**

- Isolated fan switch has positive interlock to assure fan is on when the element is on, and fan is off when the element is off.
- Replaces any of the ten models in our line and many competitive devices.
- Combination rating on the first element switch allows replacing devices having fan and first element controlled by the same switch without rewiring the furnace.
- Auxiliary switch controls a second R8330 in application with more than three elements.
- Cycles ON within two minutes, OFF within four minutes.
- Ten-second minimum delay between stages (makes sequence and break sequence.)
- Timings meet EEL-NEMA and ARI 280 Standards.

**Dimensions, Approximate:** 78 mm high x 122 mm wide x 60 mm deep. (3 1/16 in. high x 4 13/16 in. wide x 2 11/32 in. deep)

**Electrical Connections (main):** terminals

**Frequency:** 60 Hz

**Temperature Rating:** -29 C to +66 C (-20 F to +150 F)

**Approvals:**

**Canadian Standards Association:** Certified

**Underwriters Laboratories, Inc.** UL Listed

Product Number	Electrical Ratings, Contacts		Coil Ratings Voltage
	(Full Load)	(Locked Rotor)	
* R8330D1039	1/3 hp; 7.2 A @ 120 vac; 3/4 hp; 6.9 A @ 120 Vac, 208 Vac, 240 Vac; 4.9 A @ 277 Vac; ;	1/3 hp; 43.2 a @ 120 Vac; 3/4 hp; 41.4 A @ 120 Vac, 208 Vac, 240 Vac; 29.4 A @ 277 Vac	24 Vac

\* TRADELINE models • SUPER TRADELINE models

## R841 Electric Heating Relay



**Use with two-wire, 24 Vac thermostat to control electric heating equipment such as baseboard, ceiling cable and duct heaters.**

- Operate with each cycle of the thermostat (4 to 6 cycles per hour).
- Each relay switches up to a 5,000 W load.
- Contacts make and break in about 75 seconds.
- Mount in any position.
- Includes 1/2 in. (13 mm) male conduit bushing.

**Dimensions, Approximate:** 98 mm high x 71 mm wide x 38 mm deep (3 7/8 in. high x 2 13/16 in. wide x 1 1/2 in. deep)

**Electrical Connections (main):** Leadwires

**Frequency:** 50 Hz; 60 Hz

**Temperature Rating:** -29 C to +66 C (-20 F to +150 F)

**Electrical Ratings, Contacts**

**Full Load:** 7.0 A @ 208 Vac, 240 Vac, 277 Vac; 14 A @ 120 Vac

**Locked Rotor:** 42 A @ 208 Vac, 240 Vac, 277 Vac; 84 A @ 120 Vac

**Approvals:**

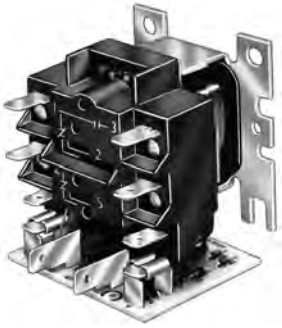
**Canadian Standards Association:** Certified

**Underwriters Laboratories, Inc.** UL Listed

Product Number	Coil Ratings Voltage	Switching	Electrical Connections (main)	Electrical Ratings, Contacts (Resistive)	Includes
R841C1029	240 V	SPST	Leadwires	22 A @ 120 Vac, 208 Vac, 240 Vac; 19 a @ 277 Vac	Enclosure w/ conduit bushing and an integral transformer.
R841C1144	347 V	SPST	Leadwires	18 A @ 120 Vac, 208 Vac, 240 Vac; 19 A @ 277 Vac	Enclosure w/ conduit bushing and an integral transformer.
R841C1151	600 Vac	SPST	Leadwires	18 A @ 120 Vac, 208 Vac, 240 Vac; 19 A @ 277 Vac	Enclosure w/ conduit bushing and an integral transformer.
* R841C1169	240 Vac; 208 V	SPST	Leadwires	18 A @ 120 Vac, 208 Vac, 240 Vac; 19 A @ 277 Vac	Enclosure w/ conduit bushing and an integral transformer.
* R841C1227	24 V	SPST	Leadwires	22 A @ 120 Vac, 208 Vac, 240 Vac; 19 a @ 277 Vac	—
* R841D1036	24 V	SPST	Leadwires	18 A @ 120 Vac, 208 Vac, 240 Vac; 19 A @ 277 Vac	Enclosure w/ conduit bushing.
* R841E1068	24 V	SPST	Leadwires	22 A @ 120 Vac, 208 Vac, 240 Vac; 19 a @ 277 Vac	Enclosure w/ conduit bushing and integral transformer; dual load.

\* TRADELINE models • SUPER TRADELINE models

## ST82 Fan Manager



Use in compressor-run air conditioning, heat pump systems and heating-cooling systems. Delays the indoor blower shutoff after the compressor has shut off.

- Eighty-second delay on break.
- Combination electronic time delay board and R8222 relay saves wiring time.
- Molded terminal numbers and circuit diagram on top of relay and letter-coded terminals on time delay board provide easy identification for wiring and system checkout.
- Laminated magnet construction for high efficiency.
- Reduces stratification and saves energy.

**Dimensions, Approximate:** 56 mm high x 52 mm wide x 65 mm deep  
(2 7/32 in. high x 2 1/16 in. wide x 2 9/16 in. deep)

**Electrical Connections (main):** 1/4 in. quick-connect terminals

**Frequency:** 50 Hz; 60 Hz

**Temperature Rating:** -29 C to +66 C (-20 F to +150 F)

**Approvals:**

**CE:** Approved

**Canadian Standards Association:** Certified: File No. LR95329-17

**Underwriters Laboratories, Inc.** UL Listed: File No. MP466, Vol. 22, Sec. 1, Guide No. MBPR2

Product Number	Coil Ratings Voltage	Electrical Ratings, Contacts			Delay Timing	Switching
		(Full Load)	(Locked Rotor)	(Resistive)		
* ST82D1004	24 Vac	12 A @ 120 Vac; 6 A @ 208 Vac, 240 Vac, 277 Vac; 3 A @ 480 Vac	60 A @ 120 Vac; 35 A @ 208 Vac, 240 Vac, 277 Vac; 18 A @ 480 Vac	15 A @ 120 Vac; 15 A @ 208 Vac, 240 Vac, 277 Vac; 10 A @ 480 Vac	80 seconds	DPDT

\* TRADELINE models • SUPER TRADELINE models

## Relay Accessories

Product Number	Description	
129384A	Case and Cover Assembly	

# Relays Selection Guide

## Relays Selection Guide

Relays							
Input Voltage/ Coil Voltage	Switching	Product Number	Full Load Amp Rating	Frequency	Dimensions (in.) H x W X D	Electrical Connections (main)	Special Features
24 V	DPST N.O.	R8228D1018	5.5	A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT (1 P&1PDuty)	R8222V1003		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT - Pilot Duty	R8222N1011		A	1 7/8 x 2 5/32 x 2 3/8	Q	Pilot Duty
	DPDT	R8222D1014		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT	ST82D1004		A	2 7/32 x 2 1/16 x 2 9/16	Q	80 sec shut off delay
	SPDT	R8222B1067		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
120 V	DPDT - Pilot Duty	R4222N1002	12	A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	DPDT	R4222D1013		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	SPDT	R4222B1082		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
208V/240V	DPDT	R4222D1021		A	1 7/8 x 2 5/32 x 2 3/8	Q	—
24V	SPDT	R8225A1017	14	B	2 11/16 x 2 1/2 x 3 7/16	L	—
	DPST N.O.	R8225D1003		B	2 11/16 x 2 1/2 x 3 7/16	L	—
120 V	SPDT, 1 N.O., 1 N.C.	R4225A1008		B	2 11/16 x 2 1/2 x 3 7/16	L	—
24 V	SPDT	R8228B1012	18	A	1 7/8 x 2 5/32 x 2 3/8	Q	—
	SPST N.O.	R8228A1014		A	1 7/8 x 2 5/32 x 2 3/8	Q	—

Frequency:	A - 60Hz/50Hz; B - 60Hz, C - 50 Hz	SPST	Single Pole Single Throw
Approvals:	UL, CSA	DPST	Double Pole Single Throw
Temp Rating:	-20 F to +150 F; 115 F max for R8225	DPDT	Double Pole Double Throw
Connectors:	CHS - Combination Head Screw; L - Leadwires; Q - Quick connect; T - Terminals	SPDT	Single Pole Double Throw

# Electric Heat Sequencer Selection Guide

## Electric Heat Sequencer Selection Guide

Electric Heat Relays							
Input Voltage/Coil Voltage	Switching	Product Number	Full Load Amp Rating	Frequency	Dimensions (in.) H x W X D	Electrical Connections (main)	Special Features
24V	DPST	R8229A1005	7	B	2 3/16 x 2 3/32 x 2 1/4	CHS	—
		R8229A1021		B	2 3/16 x 2 3/32 x 2 1/4	CHS	Extra Mounting Hardware
24V	SPST	R841D1036	14	A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @ 120/208/240VAC. Requires Transformer. Canada - replaces R841D1028
208/240V	SPST	R841C1169		A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @ 120/208/240VAC. Integral Transformer. Canada - replaces R841C1029
240V	SPST	R841E1068		A	3 7/8 x 2 13/16 x 1 1/2	L	22A resistive @120/208/240VAC. Dual Load/integral transformer
347V	SPST	R841C1144		A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @120/208/240VAC. Integral Transformer. Canada
600V	SPST	R841C1151		A	3 7/8 x 2 13/16 x 1 1/2	L	18A resistive @120/208/240VAC. Integral Transformer. Canada

Electric Furnace Sequencer					
Input Voltage/Coil Voltage	Product Number	Full Load Amp Rating	Frequency	Dimensions (in.) H x W X D	Electrical Connections (main)
24V	R8330D1039	7.2	B	3 1/16 x 4 13/16 x 2 11/32	T

Electric Heat Contactor					
Input Voltage/Coil Voltage	Switching	Product Number	Full Load Amp Rating	Dimensions (in.) H x W X D	Electrical Connections (main)
24V	DPST	R8246A1038	30	2-3/16 x 2-1/4 x 3-5/16	Q,S

Frequency:	A - 60Hz/50Hz; B - 60Hz, C - 50 Hz	SPST	Single Pole Single Throw
Approvals:	UL, CSA	DPST	Double Pole Single Throw
Temp Rating:	-20 F to +150 F; 115 F max for R8225	DPDT	Double Pole Double Throw
Connectors:	CHS - Combination Head Screw; L - Leadwires; Q - Quick connect; T - Terminals	SPDT	Single Pole Double Throw

# Electric Heat Sequencer Selection Guide

## Electric Heat Sequencer Selection Guide

Electric Heat Sequencers												
Product Number	Switches	Timings	Timings - ON					Timings - OFF				
			M1-M2	M3-M4	M5-M6	M7-M8	M9-M10	M1-M2	M3-M4	M5-M6	M7-M8	M9-M10
R24AA1008	1	1	1-20	—	—	—	—	40-110	—	—	—	—
R24AA3004	1	1	—	—	30-90	—	—	—	—	1-30	—	—
R24BA1006*	2	1	1-20	1-20	—	—	—	40-110	40-110	—	—	—
R24BA3002*	2	1	—	—	30-90	30-90	—	—	—	1-30	1-30	—
R24CB4007*	3	2	1-110	1-110	1-110	—	—	1-110	1-110	1-110	—	—
R24DB4005*	4	2	1-110	1-110	1-110	1-110	—	1-110	1-110	1-110	1-110	—
R24ED5007*	5	4	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160

Heat Pump-Air Handler Model					
WR Xref	Product Number	Switches	Timings	Heat	Cool
24A34-15	R24AA2006	1	1	1-25	65-115

<b>Temperature:</b>	-50F to 165F
<b>Terminations:</b>	[Solder or screw type 1/4" quick connect]
<b>Ratings:</b>	Estimate - 25A Resistive and 14A Inductive at 120Vac
<b>SPST:</b>	Single Pole Single Throw
<b>DPST:</b>	Double Pole Single Throw
<b>SPDT:</b>	Single Pole Double Throw
<b>DPDT:</b>	Double Pole Double Throw
<b>Agency:</b>	UL/CSA
<b>Table Notes:</b>	
*M1-M2 and M3-M4 are always first switches to turn ON and last to turn OFF. All other switches are random ON and random OFF	
*R24ED5007 Switch contacts designated F1 - F2 instead of M1 - M2	
*R24BB3428 is Double Pole Double Throw model.	
*R24AA2006 is a Single Pole Double Throw model for Heat Pump Applications	
<b>* • These contacts switch simultaneously</b>	
<b>ON Time:</b>	Elapsed time (min. to max.) to make contact after heater is energized
<b>OFF Time:</b>	Elapsed time (min. to max.) to break contact after heater is de energized

## Electric Heat Sequencer Cross Reference

Honeywell	White-Rodgers	SUPCO	GEMLINE	A1	T-O-D	Mars
R24AA1008	24A34-1	Q101	GS101	TDR10	12S20	33841
R24AA3004	24A34-2	Q102	GS102	TDR15	12S20	33842
R24BA1006	24A34-3	Q103	GS103	TDR20	12S22	33844
R24BA3002	24A34-4	Q104	GS104	TDR25	12S22	33845
R24CB4007	24A34-5	Q105	GS105	TDR30	15S21	33832
R24DB4005	24A34-6	Q106	GS106		15S22	33833
R24ED5007	24A34-14				15S241	33848
R24AA2006	24A34-15					

## R8239 Control Center



**Dimensions, Approximate:** 114 mm high, 106 mm wide, 79 mm deep  
(4 1/2 in. high, 4 3/16 in. wide, 3 3/32 in. deep)

**Electrical Ratings (W):** 12 W maximum

**Coil Ratings (inrush):** 20 VA maximum; 17 VA nominal

**Coil Ratings (sealed):** 10 VA maximum, 9 VA nominal

**Approvals:**

**Canadian Standards Association:** Certified

**NEMA Standard:** NEMA Standard DC20-1992

**Underwriters Laboratories, Inc.** UL Listed

**Include NEMA standard transformer for excellent voltage control. Provide low voltage control of line voltage fan motors and auxiliary circuits in heating, cooling or heating-cooling circuits.**

- NEMA standard Type D transformer (included) powers low voltage control systems.
- Provide overload protection for transformer.
- Convenient connections for thermostat, and heating-cooling equipment wiring.
- Mount on standard 4 x 4 junction box.
- Can be mounted in any indoor location without additional enclosure.
- Relay is easily replaced without disturbing wiring.
- Include relay enclosures.

	Electrical Ratings			
	(120 Vac, Full Load)	(120 Vac, Locked Rotor)	(240 Vac, Full Load)	(240 Vac, Locked Rotor)
R8239A	13.8 A	82.8 A	6.9 A	41.4 A
R8239B	12 A	72 A		
R8239D	13.8 A	82.8 A		

Product Number	Application	Horsepower	Voltage	Power Supply (Vac)	Power Supply (Secondary)	Switching Action	Includes
R8239A1003	For single-or two speed fan.	3/4 HP	120 Vac	40 VA	26.5 V	SPDT	R8222B
• R8239B1076	For system with F50 Electronic Air Cleaner humidifier and blower motor.	3/4 HP	208 Vac; 240 Vac; 120 Vac	50 VA	26.5 V	DPDT	R8222D
R8239D1007	For single-speed fan and pilot duty circuit (24 Vac or millivoltage).	3/4 HP	120 Vac	40 VA	26.5 V	DPST	R8222D

\* TRADELINE models • SUPER TRADELINE models

## R8285 Control Center



**Dimensions, Approximate:** 106 mm high, 114 mm wide, 71 mm deep  
(4 3/16 in. high, 4 1/2 in. wide, 2 13/16 in. deep.)

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-17

**Underwriters Laboratories, Inc.** UL Component Recognized; File No. E4436, Vol.15, Sec.1, Guide No.XAPX2

**Provides low voltage control of line voltage fan motors and auxiliary circuits in heating, cooling, or air conditioning systems.**

- Transformer powers low voltage control systems and provides overload protection.
- Low voltage terminal board provides convenient connections for thermostat and heating/cooling equipment wiring.
- Mounts on standard 4 x 4 in. junction box.
- Relay is easily replaced without disturbing wiring.

Electrical Ratings			
(120 Vac, Full Load)	(120 Vac, Locked Rotor)	(240 Vac, Full Load)	(240 Vac, Locked Rotor)
12 A	72 A	6 A	35 A

**Electrical Ratings (W):** 11 W maximum

Product Number	Application	Horsepower	Voltage	Power Supply (Vac)	Power Supply (Secondary)	Switching Action	Includes
* R8285A1048	For single-or two speed fan.	3/4 HP	120 Vac	40 VA	26.5 V	SPDT	R8222B
* R8285B1053	For "Total Comfort" applications with electronic air cleaner, humidifier and blower motor.	3/4 HP	208 Vac; 240 Vac; 120 Vac	40 VA	26.5 V	DPDT	R8222D
R8285D5001	For Hydronic Applications; use with SV9600 SmartValve® System and other systems that require 50 VA capacity.	3/4 HP	120 Vac	50 VA	26.5 V	DPST (One Power Rated, One Pilot Duty)	R8222U

\* TRADELINE models • SUPER TRADELINE models

# Fan Center Selection Guide

## Fan Center Selection Guide

Fan Centers									
Electrical Ratings- VA	Electrical Ratings - Input Voltage	Switching	Product Number	NEMA	Dimensions (in.) H x W X D	Main Connections	Secondary Connections	Frequency	Special Features
40VA	120 Vac	DPDT	R8239B1043	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Super Tradeline
		DPST	R8239D1007	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	—
		DPST (1 Power, 1 Pilot)	R8239D1015	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Tradeline
		SPDT	R8239A1052	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Tradeline
	240 Vac 208 Vac	SPDT	R8239A1003	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	—
50VA	120 Vac 240 Vac 208 Vac	DPDT	R8239B1076	Yes	4 1/2 x 4 3/16 x 3 3/32	L	L	A	Super Tradeline
40VA	120 Vac	SPDT	R8285A1048	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	Tradeline
	120 Vac 240 Vac 208 Vac	DPDT	R8285B1053	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	Tradeline
50VA	120 Vac	SPDT	R8285A1006	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	—
		DPDT	R8285D5001	No	4 3/16 x 4 1/2 x 2 13/16	L	L	A	—
Frequency:	A - 60Hz/50Hz; B - 60Hz								
Approvals:	UL, CSA								
Temp Rating:	-20 F to +105 F								
Connectors:	L - Leadwires								
Mounting:	Standard 4 X 4 in. junction box								
Supertradeline models include extra hardware.									



## AT120; AT140; AT150A,B; AT175A General Purpose Transformer



Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

**Temperature Rating:** -29 C to +41 C (-20 F to +105 F)

**Frequency:** 60 Hz

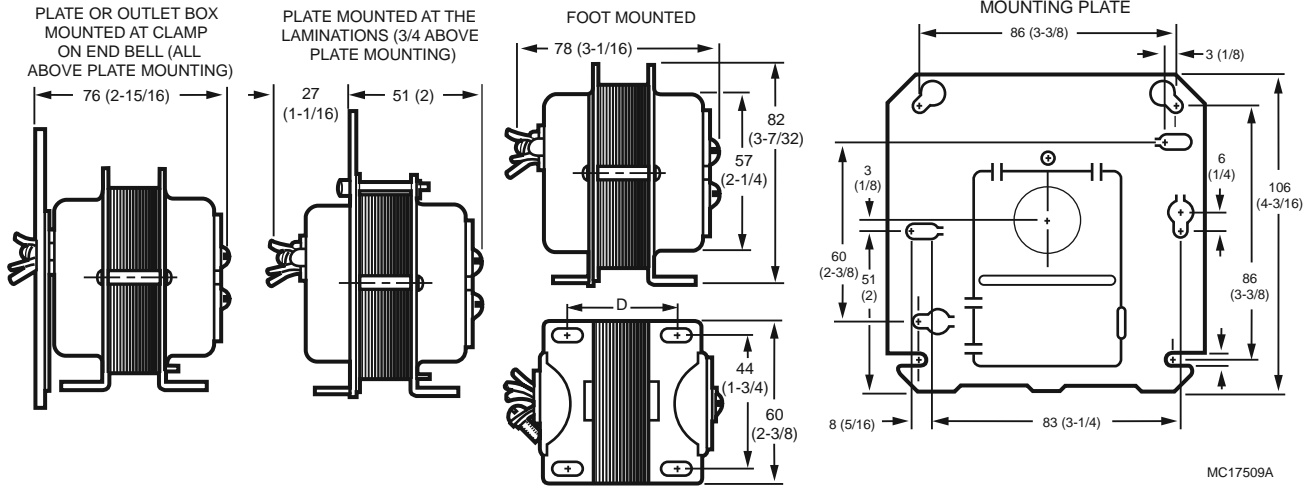
**Approvals:**

**Canadian Standards Association:** CSA Certified: A & B models.  
**Underwriters Laboratories, Inc.** UL Listed: A,C,F models. File # E14881

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	NEMA Rating	Includes
	(mm)	(inch)	(Primary Voltage)	(Output)	Primary	Secondary			
AT120A1004	73 mm high x 48 mm wide x 75 mm deep	2 7/8 in. high x 1 7/8 in. wide x 2 15/16 in. deep	120 Vac, 208 Vac, 240 Vac	24 Vac at 20 VA	229 mm (9 in.) leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. (50 mm x 101 mm) or 4x4 in. (101 mm x 101 mm) outlet box, clamp mounted using outlet box knockout, or panel mounted	No	—
AT140A1000	81 mm high x 60 mm wide x 79 mm deep	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. (50 mm x 101 mm) or 4x4 in. (101 mm x 101 mm) outlet box, clamp mounted using outlet box knockout, or panel mounted	No	Metal end bells
AT140A1018	81 mm high x 60 mm wide x 79 mm deep	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	120 Vac, 208 Vac, 240 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. (50 mm x 101 mm) or 4x4 in. (101 mm x 101 mm) outlet box, clamp mounted using outlet box knockout, or panel mounted	No	Metal end bells
AT140B1206	43 mm high x 81 mm wide x 75 mm deep	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	229 mm (9 in.) leadwires	Foot mounted	No	Plastic end caps
AT150A1007	43 mm high x 81 mm wide x 75 mm deep	1 11/16 in. high x 3 1/2 in. wide x 1 3/4 in. deep	120 Vac, 208 Vac, 240 Vac	24 Vac at 50 VA	229 mm (9 in.) leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. (50 mm x 101 mm) or 4x4 in. (101 mm x 101 mm) outlet box, clamp mounted using outlet box knockout, or panel mounted	No	Metal end bells
AT175A1008	81 mm high x 60 mm wide x 79 mm deep	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	120 Vac, 208 Vac, 240 Vac	24 Vac at 75 VA	229 mm (9 in.) leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. (50 mm x 101 mm) or 4x4 in. (101 mm x 101 mm) outlet box, clamp mounted using outlet box knockout, or panel mounted	NEMA Type E	Metal end bells

# Transformers

Dimensions in millimeters (inches) for AT120, AT140, AT150 and AT175



## AT150F Circuit Breaker Transformer



**Dimensions Diagram:** See page 164  
**Temperature Rating:** -29 C to +41 C (-20 F to +105 F)  
**Frequency:** 60 Hz

Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Rated at 50 VA.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR95329-18  
**Underwriters Laboratories, Inc.** UL Listed: File no. E14881, Guide no. XOKV.

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	Includes
	(mm)	(inch)	(Primary Voltage)	(Output)	Primary	Secondary		
* AT150F1022	81 mm high x 56 mm wide x 93 mm deep	3 3/16 in. high x 2 3/16 in. wide x 3 5/8 in. deep	120 Vac, 208 Vac, 240 Vac	24 Vac at 50 VA	229 mm (9 in.) leadwires	229 mm (9 in.) leadwires	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	Button for manually resetting the circuit breaker and metal end bells.
* AT150F1030	81 mm high x 56 mm wide x 93 mm deep	3 3/16 in. high x 2 3/16 in. wide x 3 5/8 in. deep	208 Vac, 277 Vac, 480 Vac	24 Vac at 50 VA	229 mm (9 in.) leadwires	229 mm (9 in.) leadwires	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	Button for manually resetting the circuit breaker and metal end bells.

\* TRADELINE models • SUPER TRADELINE models

## AT175F Circuit Breaker Transformer



**Dimensions Diagram:** See page 164  
**Temperature Rating:** -29 C to +41 C (-20 F to +105 F)  
**Frequency:** 60 Hz

Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Rated at 75 VA.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

**Approvals:**  
**Canadian Standards Association:** CSA Certified: A & B models.  
**Underwriters Laboratories, Inc.** UL Listed: A,C,F models. File # E14881

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	Includes
	(mm)	(inch)	(Primary Voltage)	(Output)	Primary	Secondary		
* AT175F1023	81 mm high x 56 mm wide x 102 mm deep	3 3/16 in. high x 2 3/16 in. wide x 3 15/16 in. deep	120 Vac, 208 Vac, 240 Vac	24 Vac at 75 VA	229 mm (9 in.) leadwires	229 mm (9 in.) leadwires	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	Button for manually resetting the circuit breaker and metal end bells.
* AT175F1031	81 mm high x 56 mm wide x 102 mm deep	3 3/16 in. high x 2 3/16 in. wide x 3 15/16 in. deep	208 Vac, 277 Vac, 480 Vac	24 Vac at 75 VA	229 mm (9 in.) leadwires	229 mm (9 in.) leadwires	Includes 1/2 14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and feet for surface mount.	Button for manually resetting the circuit breaker and metal end bells.

\* TRADELINE models • SUPER TRADELINE models

Residential  
Combustion Controls

# Transformers

## AT20; AT40 NEMA Standard Universal Stripped-Down Transformer



Power a 24V control system; for direct mounting, or horizontal or vertical foot-mounting.

- Channel frame mounting feet and slots allow for the three mounting positions.
- Color-coded leadwires for primary connections.
- Overload protection provided.
- Energy limiting, meet NEMA DC20-1992 Standard.
- Meet NEC Class 2 not wet, Class 3 wet and U.L. 1585 requirements.
- Mount within proper enclosure.

Dimensions Diagram: See page 164

Temperature Rating: -29 C to +41 C (-20 F to +105 F)

Frequency: 50 Hz; 60 Hz

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	NEMA Rating
	(mm)	(inch)	(Primary Voltage)	(Output)	(Primary)	(Secondary)		
* AT20A1123	50.8 mm high x 57 mm wide x 47.6 mm deep	2 in. high x 2 1/4 in. wide x 1 7/8 in. deep	120 Vac	24 Vac at 19 VA	229 mm (9 in.) color coded primary and secondary leadwires	229 mm (9 in.) color coded primary and secondary leadwires.	Channel Frame Mounting allows for Direct, Horizontal, or Vertical Foot mounting.	NEMA type B
* AT20B1056	50.8 mm high x 57 mm wide x 47.6 mm deep	2 in. high x 2 1/4 in. wide x 1 7/8 in. deep	120 Vac	24 Vac at 19 VA	229 mm (9 in.) color coded primary and secondary leadwires	229 mm (9 in.) color coded primary and secondary leadwires.	Channel Frame Mounting allows for Direct, Horizontal, or Vertical Foot mounting.	NEMA type B

\* TRADELINE models • SUPER TRADELINE models

## AT72 NEMA Standard Transformer



**24V control circuit step-down transformer designed to power any 24V control system, including thermostats, gas valves and relays.**

- Override protection provided.
- Color-coded leadwires for primary connections.
- Energy limiting, meets NEMA Standard DC20-1992.
- Transformer is marked NEMA Type D.
- Meets NEC Class 2 not wet, Class 3 wet and U.L. 1585 requirements.
- Mount within proper enclosure.

**Dimensions Diagram:** See page 164

**Temperature Rating:** -29 C to +41 C (-20 F to +105 F)

**Frequency:** 50 Hz; 60 Hz

**Approvals:**

**Canadian Standards Association:** Certified

**N.E.C.** NEC Approved.

**Underwriters Laboratories, Inc.** UL Component Recognized.

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	NEMA Rating
	(mm)	(inch)	(Primary Voltage)	(Output)	Primary	Secondary		
AT72D1006	81.8 mm high x 56.4 mm wide x 27 mm into box x 50.8 mm above box deep	3 7/32 in. high x 2 7/32 in. wide x (1 1/16 into plate x 2 in. above plate) deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	4 x 4 in. plate-mounted, protruding into junction box	NEMA type D
AT72D1188	81.8 mm high x 56.4 mm wide x 74.6 mm deep	3 7/32 in. high x 2 7/32 in. wide x 2 15/16 in. deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	229 mm (9 in.) leadwires	4 x 4 in. plate mounted without protruding into junction box.	NEMA type D
• AT72D1683	81.8 mm high x 56.4 mm wide x 77.8 mm deep	3 7/32 in. high x 2 7/32 in. wide x 3 1/16 in. deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Can be foot mounted, plate mounted on 4 x 4 in., 4 in. octagon, or 2 x 4 in. electrical boxes (transformer all above plate or 3/4 above plate); or clamp mounted via a junction box knockout.	NEMA type D
• AT72D1691	81.8 mm high x 56.4 mm wide x 77.8 mm deep	3 7/32 in. high x 2 7/32 in. wide x 3 1/16 in. deep	208 Vac, 240 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Can be foot mounted, plate mounted on 4 x 4 in., 4 in. octagon, or 2 x 4 in. electrical boxes (transformer all above plate or 3/4 above plate); or clamp mounted via a junction box knockout.	NEMA type D
• AT72D1725	164 mm high x 76 mm wide x 67 mm deep	6 7/16 in. high x 3 in. wide x 2 5/16 in. deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Multi-mounting	NEMA type D
• AT72D1733	164 mm high x 76 mm wide x 67 mm deep	6 7/16 in. high x 3 in. wide x 2 5/16 in. deep	208 Vac, 240 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Multi-mounting	NEMA type D
AT72D1956	164 mm high x 76 mm wide x 67 mm deep	6 7/16 in. high x 3 in. wide x 2 5/16 in. deep	120 Vac	24 Vac at 40 VA	229 mm (9 in.) leadwires	(2) screw terminals	Multi-mounting	NEMA type D

\* TRADELINE models • SUPER TRADELINE models

# Transformers

## AT87 NEMA Standard Transformer



Used primarily for powering 24V air conditioning circuits. Can also be used in other applications that do not exceed the listed ratings.

- Meets NEC Class 2 not wet, Class 3 wet and UL 1585 requirements.
- Transformer marked NEMA Type E.
- Overload protection provided.
- Color-coded leadwires for primary connections.

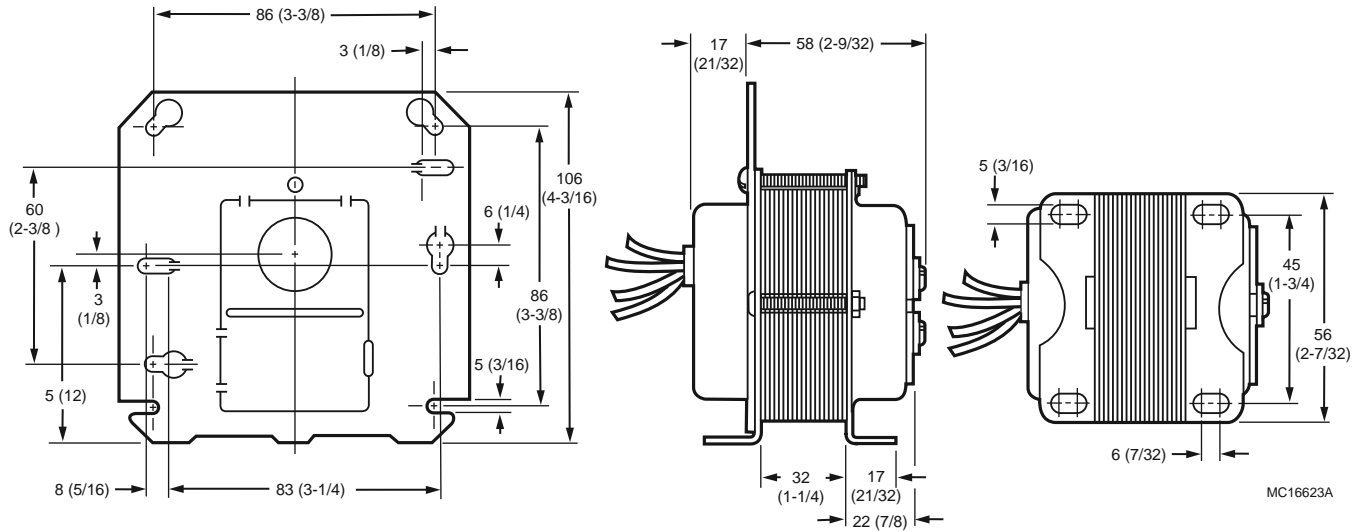
**Temperature Rating:** -29 C to +41 C (-20 F to +105 F)  
**Frequency:** 50 Hz; 60 Hz

**Approvals:**  
**Canadian Standards Association:** Certified  
**Underwriters Laboratories, Inc.** UL Component Recognized.

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	NEMA Rating	Includes
	(mm)	(inch)	(Primary Voltage)	(Output)	Primary	Secondary			
AT87A1049	74.6 mm deep x 65.4 mm wide	2 15/16 in. deep x 2 7/32 wide	120 Vac	24 Vac at 48 VA	305 mm (12 in.) leadwires	305 mm (12 in.) leadwires	Foot-mounted	NEMA type E	Energy limiting overload protection
• AT87A1106	74.6 mm deep x 65.4 mm wide	2 15/16 in. deep x 2 7/32 wide	120 Vac, 208 Vac, 240 Vac	24 Vac at 48 VA	330 mm (13 in.) leads	(2) screw terminals	Foot mounted or 4x4 in plate.	NEMA type E	Built-in protection. Primary winding burnout.
AT87A1189	74.6 mm deep x 65.4 mm wide	2 15/16 in. deep x 2 7/32 wide	277 Vac	24 Vac at 48 VA	305 mm (12 in.) leadwires	305 mm (12 in.) leadwires	Foot-mounted	NEMA type E	Energy limiting overload protection

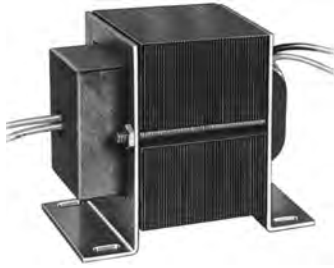
\* TRADELINE models • SUPER TRADELINE models

### Dimensions in millimeters (inches)



MC16623A

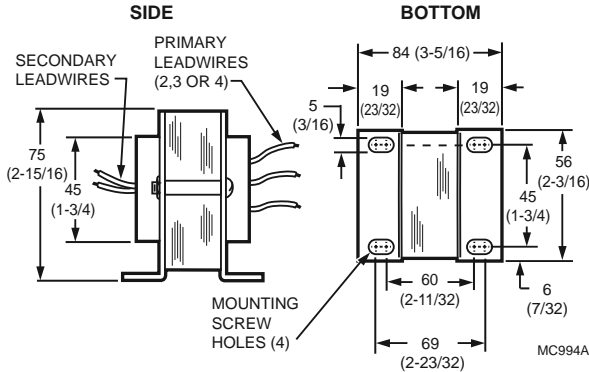
## AT88 Transformer



Powers 24 Vac air conditioning circuits and other applications that do not exceed the listed ratings.

- Meets NEC Class 2 not wet, Class 3 wet and U.L. 1585 requirements.
- Overload protection provided.
- Color-coded leadwires for primary connections.

Dimensions in millimeters (inches)



Temperature Rating: -29 C to +41 C (-20 F to +105 F)

Frequency: 50 Hz; 60 Hz

Approvals:

Canadian Standards Association: Certified

Underwriters Laboratories, Inc. UL Component Recognized.

Product Number	Dimensions, Approximate		Electrical Ratings		Electrical Connections (main)		Mounting	Includes
	(mm)	(inch)	(Primary Voltage)	(Output)	Primary	Secondary		
AT88A1005	75 mm high 56 mm wide x 84 mm deep	2 15/16 in. high x 2 3/16 in. wide x 3 5/16 in. deep	120 Vac	24 Vac at 75 VA	305 mm (12 in.) leadwires	305 mm (12 in.) leadwires	Foot-mounted	Internally fused secondary for overload protection.
* AT88A1021	75 mm high 56 mm wide x 84 mm deep	2 15/16 in. high x 2 3/16 in. wide x 3 5/16 in. deep	208 Vac, 240 Vac	24 Vac at 75 VA	305 mm (12 in.) leadwires	305 mm (12 in.) leadwires	Foot-mounted	Internally fused secondary for overload protection.

\* TRADELINE models • SUPER TRADELINE models

# Transformer Selection Guide

## Transformer Selection Guide

Transformers (NEMA Rated)								
Electrical Ratings-VA	Electrical Ratings - Input Voltage	Product Number	Mounting	Main Connections	Secondary Connections	Frequency	Dimensions (in.) H x W X D	Special Features
19VA	120 Vac	AT20A1123	F	L	L	A	2 x 2 1/4 x 1 7/8	
40VA	120 Vac	AT40A1162	F	L	L	A	2 3/32 x 2 5/8 x 2 3/16	
	120 Vac	AT72D1006	P	L	S	A	3 7/32 x 2 7/32 x (1 1/16 into x 2 in. above plate)	
	120 Vac	AT72D1089	F	L	S	A	3 7/32 x 2 7/32 x 3 1/1	
	120 Vac	AT72D1188	P	L	L	A	3 7/32 x 2 7/32 x 2 15/1	
	120 Vac	AT72D1683	M	L	S	A	3 7/32 x 2 7/32 x 3 1/16	
	120 Vac	AT72D1956	M	L	L	A	3 7/32 x 2 7/32 x 3 1/16	Canada
	208 Vac, 240 Vac	AT72D1691	M	L	S	A	3 7/32 x 2 7/32 x 3 1/16	
48VA	277 Vac	AT87A1189	F	L	L	A	2 15/16 x 2 7/32 x 2 1/4	
	480 Vac	AT87A1155	F	L	L	A	2 15/16 x 2 7/32 x 2 1/4	
50VA	120 Vac, 208 Vac, 240 Vac	AT87A1106	M	L	S	A	2 15/16 x 2 7/32 x 2 1/4	

Transformers (Not NEMA Rated)								
Electrical Ratings-VA	Electrical Ratings - Input Voltage	Product Number	Mounting	Main Connections	Secondary Connections	Frequency	Dimensions (in.) H x W X D	Special Features
20VA	120 Vac	AT120B1028	F	L	L	B	1 11/16 x 3 3/16 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT120A1004	M	L	S	B	2 7/8 x 1 7/8 x 2 15/16	
40VA	120 Vac	AT140A1000	M	L	S	B	3 3/16 x 2 3/8 x 3 1/8	
	120 Vac	AT140B1206	F	L	L	B	1 11/16 x 3 1/2 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT140A1018	M	L	S	B	3 3/16 x 2 3/8 x 3 1/8	
	120 Vac, 208 Vac, 240 Vac	AT140B1214	F	L	L	B	1 11/16 x 3 1/2 x 1 3/4	
50VA	208 Vac, 240 Vac	AT140B1024	F	L,Q	L	B	1 11/16 x 3 1/2 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT150A1007	M	L	S	B	1 11/16 x 3 3/16 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT150B1146	F	L	L	B	1 11/16 x 3 1/2 x 1 3/4	
	120 Vac, 208 Vac, 240 Vac	AT150F1022	M	L	L	B	3 3/16 x 2 3/16 x 3 5/8	Button for resetting circuit breaker & metal end bells
	208 Vac, 277 Vac, 480 Vac	AT150F1030	M	L	L	B	3 3/16 x 2 3/16 x 3 5/8	Button for resetting circuit breaker & metal end bells
75VA	277 Vac	AT150B1252	F	L,Q	L,Q	A	1 11/16 x 3 1/2 x 1 3/4	
	120Vac	AT175B1055	F	L	L	B	2 1/3 x 3 9/16 x 2 1/3	
	120 Vac, 208 Vac, 240 Vac	AT175A1008	M	L	S	B	3 3/16 x 2 3/8 x 3 5/8	
	120 Vac, 208 Vac, 240 Vac	AT175F1023	M	L	L	B	3 3/16 x 2 3/16 x 3 15/16	Button for resetting circuit breaker & metal end bells
	208 Vac, 277 Vac, 480 Vac	AT175F1031	M	L	L	B	3 3/16 x 2 3/16 x 3 15/16	Button for resetting circuit breaker & metal end bells
	120 Vac	AT88A1005	F	L	L	A	2 15/16 x 2 3/16 x 3 5/16	
	208 Vac, 240 Vac	AT88A1021	F	L	L	A	2 15/16 x 2 3/16 x 3 5/16	
480 Vac	AT88A1047	F	L	L	A	2 15/16 x 2 3/16 x 3 5/16		



## Oil Primaries Cross Reference

Ignition Type	Valve On Delay (Sec)	Blower Off Delay (Min)	Lock-out Time (Sec.)	Alarm Contacts	Manual Trip Lever w/ LED Indicator	OEM Product	Carlin Product	White-Rodgers Product	Direct Service Part	Universal Service Part
Interrupted			15			R7184A1075, R7184A1000	40200-02S	669-640,669-670	R7184A1026	R7184U1004
			30			R7184A1018	42230-02S	669-440,669-445, 669-470,669-540	R7184A1034	R7184U1012
			45						R7184A1042	R7184U1020
	15		15			R7184B1032, R7184B1016			R7184B1024	R7184U1004
	15	0.25	15			R7184P1080			R7184P1098	R7184U1004
	15	0.5/2/4/6	15	Yes		R7184P1031, R7184P1049, R7184P1056, R7184P1064, R7184P1072	50200-02S, 602000-2S, 6020002S015120, 6020002S030015, 6020002S030015, 6020002S030030, 6020002S030120, 6020002S030300, 6020002S030010		R7184U1004	
	30	0.5/2/4/6	30	Yes					R7184U1012	
	45	0.5/2/4/6	45	Yes					R7184U1020	
Intermittent			15	Yes	Yes	R8184G1294		668-601, 668-670	R8184G4066	R7184U1004
			30	Yes	Yes	R8184G1393		668-501	R8184G4074	R7184U1012
			45		Yes	R8184G1286, R8184G1427	48245-S	668-401, 6680415	R8184G4009	R7184U1020
				Yes	Yes			668-430	R8184G4025	R7184U1020
				Yes	Yes (No LED)				R8184G4082	R7184U1020
						R8184M1002		668-441, 668-451, 668-454	R8184M1051	

Residential  
Combustion Controls

# Oil Primaries

## R7184A,B,U Interrupted Electronic Oil Primary



Line voltage, safety rated, control for residential oil fired burners used in boilers, forced air furnaces and water heaters. When used with a cad cell flame sensor, operates an oil burner and optional oil valve. Can be used with both hydronic and forced air systems.

- Compatible with hydronic and forced air applications.
- Patented cad cell resistance readout.
- Available in 15-, 30-, and 45-second lockout times.
- Safe start check.
- Indicator light monitors burner flame status and system lockout.
- Uses proven flame detection and monitoring systems.
- Optional valve-on delay, blower-off delay models: 15 second, or selectable 0 or 15 second valve-on delay.
- Zero time or selectable 0-, 2-, 4-, 6-minute blower-off delay.
- Oil valve control.
- Compatible with power venters without integral timers.
- Oil-resistant plastic cover for electronics.

**Dimensions, Approximate:** 105.4 mm long x 110.5 mm wide x 63.5 mm high (4 5/32 in. long x 4 11/32 in. wide x 2 1/2 in. high)

**Ignition Type:** Interrupted

**Temperature Range:** -40 C to +64 C (-40 F to +147 F)

**Approvals:**

**Underwriters Laboratories, Inc.** UL & cUL Component Recognized

	Electrical Rating, Contacts		Alarm Load Ratings	
	(Full Load)	(Locked Rotor)	(Pilot Duty)	(Resistive)
R7184A, B	7.4 A @ 120 Vac; 3.7 a @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac	—	—
R7184U			2 A @ 30 Vac	2A @ 30 Vac

Product Number	Lead Length		Electrical Connections	Timing, Safety Switch	Mounting Bracket	Description
	(mm)	(inch)				
R7184A1026	254 mm	10 in.	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	15 sec.	Junction box on main burner	Electric Oil Primary with 15 seconds lock out timing
R7184A1034	254 mm	10 in.	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	30 sec.	Mounts on standard 4 x 4 in. junction box	Electronic Oil Primary with 10 in. leads and 30 seconds lock out timing
R7184B1024	152 mm	10 in.	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	15 sec.	Junction box on main burner	Electronic Oil Primary with 15 seconds lock out timing
R7184U1004	254 mm	10 in.	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	15 sec.	Junction box on main burner	Electronic Oil Primary with 15 seconds lock out timing and selectable valve and blower delays
R7184U1012	254 mm	10 in.	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	30 sec.	Junction box on main burner	Electronic Oil Primary with 30 seconds lock out timing and selectable valve and blower delays
R7184U1020	254 mm	10 in.	Burner motor, oil valve, ignition, cad cell, limit, thermostat, alarm	45 sec.	Mounts on standard 4 x 4 in. junction box	Electronic Oil Primary 10 in. leads, 45 seconds lock out timing and selectable valve and blower delays

## R8184G Protectorelay® Oil Burner Control



**Dimensions, Approximate:** 111 mm high x 104 mm wide x 64 mm deep (4 3/8 in. high x 4 1/8 in. wide x 2 1/2 in. deep)

**Ignition Type:** Intermittent

**Temperature Range:** -40 C to +54 C (-40 F to +130 F)

**Mounting Bracket:** For mounting on a standard 4 in. x 4 in. junction box or direct mounting on burner housing.

**Provides automatic, nonrecycling control of an intermittent ignition oil burner system.**

- Controls oil burner, oil valve (if desired) and the ignition transformer in response to a call for heat.
- Solid state flame sensing circuit.
- LED on terminal strip indicates system lockout.
- Remote lockout indication available on some models.
- Enclosed safety switch with external reset button.
- Manual trip lever opens safety switch for system maintenance.
- Mounts on standard 4 x 4 in. junction box; select models may be mounted directly on burner housing.
- C554A Cadmium Sulfide Flame Detector and 24 Vac thermostat required.

### Electrical Rating, Contacts

**Full Load:** 7.4 A @ 120 Vac; 3.7 a @ 240 Vac

**Locked Rotor:** 44.4 A @ 120 Vac; 22.2 A @ 240 Vac

### Approval

**Canadian Standards Association:** CSA Certified; File no. LR95329-1  
**Underwriters Laboratories, Inc.** UL Component Recognized; File no. MP268, Vol. 35 Sec. 1,3

Product Number	Description	Timing, Safety Switch	Alarm Load Ratings		Comments	Includes
			(Pilot Duty)	(Resistive)		
* R8184G4009	Protectorelay® Oil Burner Control with 45 seconds lock out timing	45 sec.	75 VA @ 120/240 Vac, 50-60 Hz; 25 VA @ 24V, 50-60 Hz	1.5 A @ 120/240V, 50-60Hz; 3 A @ 24 V, 50-60 Hz	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing.	—
* R8184G4025	Protectorelay® Oil Burner Control with 45 seconds lock out timing	45 sec.	75 VA @ 120/240 Vac, 50-60 Hz; 25 VA @ 24V, 50-60 Hz	1.5 A @ 120/240V, 50-60Hz; 3 A @ 24 V, 50-60 Hz	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing.	Remote Alarm Power
* R8184G4033	Protectorelay® Oil Burner Control with 30 seconds lock out timing	30 sec.	—	—	—	—
* R8184G4058	Protectorelay® Oil Burner Control with 15 seconds lock out timing	15 sec.	—	—	—	—
* R8184G4082	Protectorelay® Oil Burner Control with 45 seconds lock out timing	45 sec.	75 VA @ 120/240 Vac, 50-60 Hz; 25 VA @ 24V, 50-60 Hz	1.5 A @ 120/240V, 50-60Hz; 3 A @ 24 V, 50-60 Hz	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing. Includes remote alarm dry contacts.	Alarm
* R8184G4090	Protectorelay® Oil Burner Control with 15 seconds lock out timing	15 sec.	75 VA @ 120/240 Vac, 50-60 Hz; 25 VA @ 24V, 50-60 Hz	1.5 A @ 120/240V, 50-60Hz; 3 A @ 24 V, 50-60 Hz	With LED for lockout indication, and manual trip lever on safety switch to assure burner shutdown during servicing. Includes remote alarm dry contacts.	Alarm

\* TRADELINE models • SUPER TRADELINE models

# Oil Primaries

## R8184M Protectorelay® Oil Burner Control



Operates the oil burner and oil valve (if desired) in response to a call for heat from a low voltage control circuit.

- Ignition is on whenever the burner is on (intermittent ignition-also called constant ignition).
- Solid state flame sensing circuit.
- External button to manually reset safety switch after lockout.
- Enclosed safety switch must be manually reset after safety shutdown.
- R8184M includes 40 VA transformer and Y and G terminals for connection of cooling equipment.
- Mounts on standard 4 x 4 in. junction box.
- C554A Cadmium Sulfide Flame Detector and a 24 Vac thermostat required.

**Dimensions, Approximate:** 111 mm high x 104 mm wide x 64 mm deep (4 3/8 in. high x 4 1/8 in. wide x 2 1/2 in. deep)

**Ignition Type:** Intermittent

**Temperature Range:** -40 C to +54 C (-40 F to +130 F)

**Approvals:**

**Underwriters Laboratories, Inc.** UL Component Recognized; File no. MP268, guide no. MCCZ2

Electrical Rating, Contacts	
(Full Load)	(Locked Rotor)
7.4 A @ 120 Vac; 3.7 a @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac

	Product Number	Timing, Safety Switch	Mounting Bracket	Description
*	R8184M1051	45 sec.	Mounts on standard 4 x 4 in. junction box	Protectorelay® Oil Burner Control with 45 seconds lock out timing
* TRADELINE models • SUPER TRADELINE models				

## RA116; RA117 Protectorelay® Controls



One-piece, stack-mounted oil burner primary controls that cycle the burner on and shut down the burner on flame loss or system malfunction.

- Combine a Protectorelay® unit for cycling the burner and a Pyrostat® flame detector for sensing temperature changes of flue gases up to 1000 F (556 C).
- Manual reset of safety switch required after ignition failure completely shuts off main burner.
- Include manual trip safety switch to assure burner shutdown during servicing.
- Mount with flange for mounting on curved or flat surfaces.
- Use with line voltage or 24 Vac Control Circuit.

**Dimensions, Approximate:** 152 mm high x 132 mm wide x 81 mm deep (6 in. high x 5 3/16 in. wide x 3 3/16 in. deep)

**Approvals:**

**Canadian Standards Association:** CSA Certified; File no. LR95329-1  
**Underwriters Laboratories, Inc.** UL Listed; File no. MP268, Guide no. MCCZ

	Product Number	Ignition Type	Timing, Safety Switch	Mounting Bracket	Description
*	RA116A1063	Intermittent Ignition	75 sec. Nominal	Mount with flange for mounting on curved or flat surfaces.	Protectorelay® Oil Burner Control with 75 seconds lock out timing
*	RA117A1047	Interrupted Ignition	75 sec. Nominal	Mount with flange for mounting on curved or flat surfaces.	Protectorelay® Oil Burner Control with 75 seconds lock out timing
* TRADELINE models • SUPER TRADELINE models					

## QS7100 Cad Cell Tester



The QS7100F Flame Quality Monitor (FQM) is designed to be used with any of the Honeywell Electronic Oil Primary Controls, such as the R7184A,B,P, or U by simply connecting the devices together with the communications cable supplied.

- When these two devices are installed as a system, the burner properly adjusted and the Flame Quality Monitor (FQM) initialized, the FQM provides continuous monitoring of the flame and gives warning when the combustion process has changed from its original operational state.
- This warning normally occurs three to five days before the primary control would shut down on safety lockout after the FQM alarm. Depending on the specific cause of the warning, the actual time may be shorter or longer. Alarm contacts are un-powered and provided both normally open (NO) and normally closed (NC) contacts to match the alarm system, tank monitoring system or phone dialer to which the FQM is connected.
- Typically, the FQM is attached as a zone to the home security system or can be connected to a small alarm in the home. In either case, the person responsible for monitoring the alarm function is provided with directions on how to contact the appropriate oil service dealer so that service can be scheduled at a mutually convenient time.

Product Number	Color	Description	Used With
QS7100D1003	Black	Cad Cell Primary Tester	R7184G, R8184 Cad Cell Primaries

## QS7100T Portable Tester/Analyzer

The QS7100F Flame Quality Monitor (FQM) is designed to be used with any of the Honeywell Electronic Oil Primary Controls, such as the R7184A,B,P, or U by simply connecting the devices together with the communications cable supplied.

- When these two devices are installed as a system, the burner properly adjusted and the Flame Quality Monitor (FQM) initialized, the FQM provides continuous monitoring of the flame and gives warning when the combustion process has changed from its original operational state.
- This warning normally occurs three to five days before the primary control would shut down on safety lockout after the FQM alarm.

Depending on the specific cause of the warning, the actual time may be shorter or longer. Alarm contacts are un-powered and provided both normally open (NO) and normally closed (NC) contacts to match the alarm system, tank monitoring system or phone dialer to which the FQM is connected.

- Typically, the FQM is attached as a zone to the home security system or can be connected to a small alarm in the home. In either case, the person responsible for monitoring the alarm function is provided with directions on how to contact the appropriate oil service dealer so that service can be scheduled at a mutually convenient time.

Product Number	Application	Description	Used With
QS7100T1004	Testing R8184 and R7184 Cad Cell Primaries.	Portable Tester/Analyzer	R7184G, R8184 Cad Cell Primaries

# Flame Detectors

## C554 Cadmium Sulfide Flame Detector



**Photoconductive flame sensing device for sequencing oil burner systems.**

- On flame failure, the light sensitive cadmium sulfide cell, in conjunction with flame sensing circuitry, causes the Protectorelay® control to shutdown the main oil burner.
- Glass-to-metal hermetic seal in plug-in cell prevents deterioration by humidity, soot or oil fumes.

**Dimensions, Approximate:** 47 mm high x 25 mm long x 13 mm wide  
(1 7/8 in. high x 1 in. long x 1/2 in. wide)

**Temperature Range:** 60 C (140 F)

**Approvals:**

**Canadian Standards Association:** CSA Component Listed: File no. LR95329-1

**Underwriters Laboratories, Inc.** UL Listed: File no. MP268, Vol. 39, Sec. 1, Guide MCCZ

**Accessories:**

**4074BJS** Oil line mounting bracket assembly, including nut and screw

**Replacement Parts:**

**120320** Replacement Cad Cell. 7.5 mA minimum sensitivity at 2 ft. candles

**130367** Replacement Cad Cell. 12.0 mA minimum sensitivity at 2 ft. candles

Product Number	Lead Length		Electrical Connections	Mounting Bracket	Includes	Used With
	(mm)	(inch)				
• C554A1463	1524 mm	60 in.	leadwires: NEC Class 1; Includes 2 flag 1/4 in. quick connects.	Type R	A, B, E, J and P mounting brackets and fuel line adaptor	R4166, R4184, R8182, R8184, R8185, R8404, R8991, R7997
C554A1919	381 mm	15 in.	leadwires: NEC Class 1 (2) 1/4 in. Q.C.	Type S w/ higher sensitivity cell	—	R4166, R4184, R8182, R8184, R8185, R8404, R8991, R7997
C554A1315	762 mm	30 in.	leadwires: NEC Class 1	Type B	—	R4166, R4184, R8182, R8184, R8185, R8404, R8991, R7997

\* TRADELINE models • SUPER TRADELINE models

## A7184 Cad Cell Primary Tester



The A7184 Cad Cell Primary Tester is a convenient on-the-job tester that can be used for all R8184 and R7184 Cad Cell Primaries. It lets the service technician check out the primary quickly and easily by simply connecting it to the tester and plugging the tester into a standard 120 or 240 volt ac electrical outlet. This is an extremely rugged instrument with a minimum of electrical components and switches to use. It's an ideal carry-around that should be in every service person's tool kit.

Product Number	Description	Comments	Used With
A7184A1008	Cad Cell Primary Tester	120 Vac	R7184, R8184 Cad Cell Primaries.

## V4046A,B Magnetic Valves



For ON-OFF control of oil flow to domestic oil burner equipment.

- Power interruption closes the valve immediately.
- Mount directly to pipeline or on support bracket.

**Body Pattern:** Straight through  
**Dimensions, Approximate:** 70 mm high x 41 mm wide x 67 mm deep  
 (2 3/4 in. high x 1 5/8 in. wide x 2 5/8 in. deep)  
**Current (max amps at rated Vac/Hz):** 0.115 amps  
**Power Consumption:** 8 W  
**Electrical Ratings:** 120 Vac  
**Frequency:** 60 Hz  
**Electrical Connections:** Two 36-in. (914 mm) leadwires, 1/2 in. conduit  
 bushing  
**Connection Type:** NPT  
**Materials (Body):** Aluminum

**Mounting:** Directly in pipe or on support bracket  
**Pressure Ratings:** 1034.2 kPa; 2068.4 kPa (150 psi; 300 psi)  
**Temperature Range:** 0 C to 46 C; 54 C max Fluid (32 F to 115 F; 125 F  
 max Fluid)  
**Type of Fuel:** #2 fuel oil  
**Approvals:**  
**Canadian Standards Association:** File no. LR95329-1  
**Factory Mutual:** Listed: Report 16960  
**Underwriters Laboratories, Inc.** Listed: File no. MH1639, vol. 3, sec.  
 3, Guide no. YIOZ

Product Number	Pipe Size		Maximum Operating Pressure		Valve Opening Time	Valve Closing Time	Replacement Parts	Description
	(mm)	(inch)	(kPa)	(psi)				
V4046A1074	3 mm	1/8 in.	2068 kPa	300 psi	3 sec to 8 sec	1 sec maximum	116649A Coil Assembly	For controlling the flow of oil in an oil line. Valve opens with a time delay being energized. Valve closes on power failure.
V4046B1049	3 mm	1/8 in.	2068 kPa	300 psi	Open Immediately	1 sec maximum	116671A Coil Assembly	For controlling the flow of oil in an oil line. Valve opens with a time delay being energized. Valve closes on power failure.

## Magnetic Valve Accessories

Product Number	Description
116671A	Replacement Coil Assembly for 120V, 60 Hz V4046

# Pressuretrol Controller

## PA404 Pressuretrol Controller



The PA404 is a series 40 (2-wire, SPST) pressuretrol controller for use in 24, 120, 240 or 277 volt control circuits or in self powered (millivoltage) applications.

- The PA404A is a pressure actuated high limit, safety control for steam heating boilers; it breaks an electrical circuit to shut down the burner if steam pressure rises above a safe level.
- The PA404B is used with suspension-type unit heaters to make the fan circuit when a pressure rise indicates the presence of steam.
- Each model contains an SPST MICRO SWITCH snap-acting switch.
- Sensitive pressure-actuated diaphragm expands or contracts with pressure variations, moving a lever mechanism which operates the snap switch.
- A screw on top of the case allows set point adjustment without removing the cover.
- Differential is adjusted by means of a dial located inside the case.

**Dimensions, Approximate:** 114 mm high x 86 mm wide x 58 mm deep  
(4 15/32 in. high x 3 3/8 in. wide x 2 1/4 in. deep)

**Differential Pressure Range:** Additive or Subtractive: 7 to 35 kPa Adj.  
(Additive or Subtractive: 1 to 5 psi Adj.)

**Pressure Ratings (Set Point):** Recommended minimum set point is differential setting plus 1 1/2 psi.

**Pressure Surge (max.):** 345 kPa (50 psi)

**Pressure Sensing Element:** Stainless Steel diaphragm

**Adjustable Scale Range:** 3 kPa to 62 kPa (0.5 psi to 9 psi)

**Operating Humidity Range (% RH):** 95% RH, non-condensing

**Maximum Ambient Temperature:** 66 C (150 F)

### Electrical Ratings

**(Full Load):** 8.0 A @ 120 Vac; 5.1 A @ 240 Vac

**(Locked Rotor):** 48 A @ 120 Vac; 30.6 A @ 240 Vac

**(Resistive):** 8.3 A @ 120 and 240 Vac; 7.2 A @ 277 Vac

**(Sealed):** 150 VA @ 277 Vac

**Materials (Case):** Gray enamel finish

**Pipe Connections:** 1/4 in. female pipe threads

### Approvals:

**Canadian Standards Association:** CSA Listed: File no. LR1620.

**Underwriters Laboratories, Inc.** UL Listed: File no. MP466, Guide no. MBPR.

Product Number	Application	Adjustable Operating Pressure Range		Maximum Operating Pressure		Switching Action	Switch Type
		(kPa)	(psi)	(kPa)	(psi)		
PA404A1009	Safety control for steam heating boilers	3 kPa to 62 kPa	0.5 psi to 9.0 psi	137 kPa	20 psi	Makes at setpoint on pressure fall; breaks at setpoint plus differential on pressure rise.	SPST snap-acting switch
PA404A1025	Safety control for steam heating boilers	21 kPa to 103 kPa	3 psi to 15 psi	137 kPa	20 psi	—	SPST snap-acting switch
* PA404A1033	Safety control for steam heating boilers	3 kPa to 62 kPa	0.5 psi to 9.0 psi	137 kPa	20 psi	Breaks at setpoint on pressure fall; Spst makes at set point plus differential on pressure rise.	SPST snap-acting switch
* PA404B1023	Used with suspension type unit heaters	3 kPa to 62 kPa	0.5 psi to 9.0 psi	137 kPa	20 psi	Breaks at setpoint on pressure fall; Spst makes at set point plus differential on pressure rise.	SPST snap-acting switch

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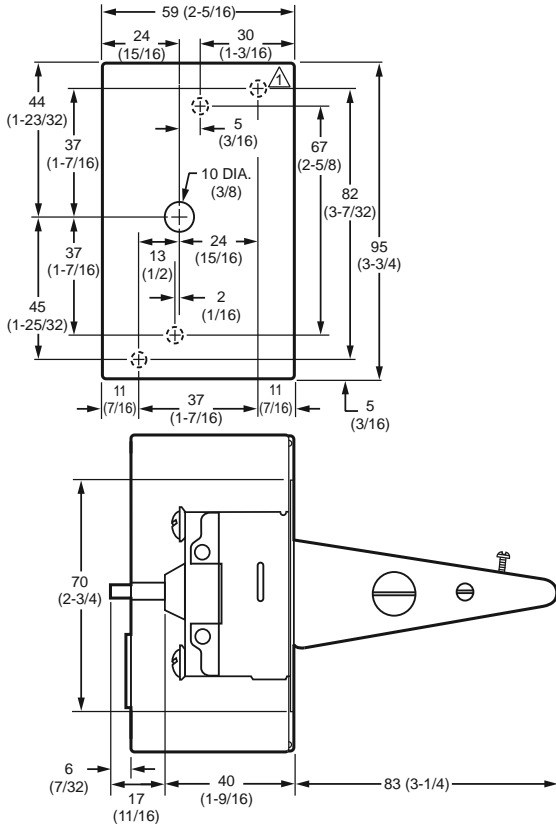
## L4029 High Limit Controller



L4029E Reset Limit Control opens a line or low voltage circuit if the air temperature reaches a critical level at controller location. The primary usage of the L4029E is as a fire thermostat in the duct work of air conditioning and ventilating systems. If the circulated air reaches a temperature indicative of fire, the limit control shuts off the fan, preventing the fan from contributing to the spread of fire. It is also suitable for use with any warm air furnace to provide positive lockout of the burner in the event of fan failure.

- Shuts off the fan when air temperature is indicative of fire.
- Internal snap-acting switch actuated by a bimetal strip inserted directly into the air stream responds rapidly to temperature changes.
- Requires manual reset.

### Dimensions in millimeters (inches)



△ 5 (3/16) DIAMETER MOUNTING HOLES L4029E WITH CASE AND COVER.  
MC27077

**Maximum Ambient Temperature:** Switch: 88 C; Sensing Element: 177 C (Switch: 190 F; Sensing Element: 350 F)

### Electrical Rating Limit:

**Full Load:** 5 A @ 240 Vac; 10 A @ 120 Vac; 2 A @ 30 Vac

**Locked Rotor:** 30 A @ 240 Vac; 60 A @ 120 Vac

**Pilot Duty:** 0.25 A @ 0.25 to 12 Vdc

### Approvals:

**Canadian Standards Association:** Certified: File No. LR95329-5

**Underwriters Laboratories, Inc.** Listed: File No. MP466, Vol. 8, Guide No. MBPR2

Product Number	Element Insertion Length		High Limit Stop	Switching Action
	(mm)	(inch)		
L4029E1003	76 mm	3 in.	165 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
L4029E1011	76 mm	3 in.	135 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
L4029E1029	76 mm	3 in.	200 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
L4029E1037	76 mm	3 in.	125 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
L4029E1045	76 mm	3 in.	240 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
* L4029E1219	76 mm	3 in.	165 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.
* L4029E1227	76 mm	3 in.	125 F	Normally closed SPST switch opens on temperature rise to the set point. Switch must be manually reset to operate.

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# Fan and Limit Controllers

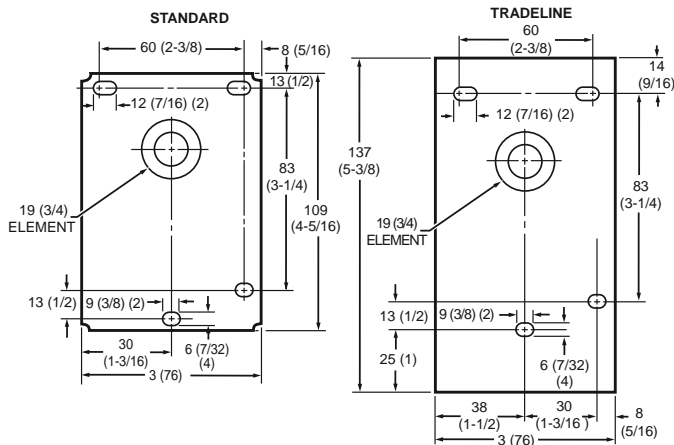
## L4064 Fan and Limit Controllers



**For control of high limit and fan motor in all types of forced air heating systems.**

- Three wiring terminal options available for easy installation:
- Push-in receptacles for stripped wire.
- Female receptacles for 1/4 in. male flag connectors.
- Field add-on screw terminals.
- Controls adapt to many competitive mounting holes in replacement applications.
- Available in a variety of fan and high limit setting ranges.
- L4064B,W models have manual fan switch that overrides fan control to keep fan running continuously.
- TRADELINE models with mounting adapters for easy installation and strain relief bushings to protect wiring from field abuse.

### Dimensions in millimeters (inches)



NOTE: OVERALL DEPTH WITH FAN SWITCH IS 51 MM (2 INCHES); MODELS LESS FAN SWITCH ARE 41 MM (1-5/8 INCHES).

MC23227

**Application:** Forced warm air heating systems

**High Limit Temperature Range:** 38 C to 121 C (100 F to 250 F)

**Switching Action:** Fan switch makes and high limit switch breaks on temperature rise.

**Electrical Rating Fan:**

**Full Load:** 7 A @ 240 Vac; 14 A @ 120 Vac

**Locked Rotor:** 42 A @ 240 Vac; 84 A @ 120 Vac

**Electrical Rating Limit:**

**Full Load:** 8 A @ 120 Vac; 4 A @ 240 Vac

**Locked Rotor:** 48 A @ 120 Vac; 24 A @ 240 Vac

**Pilot Duty:** 2 A @ 24 Vac; 0.25 A @ 0.25 to 12 Vdc

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1622

**Underwriters Laboratories, Inc.** Listed: File No. LR1322-336 and -323

**Accessories:**

**129250AA** Double wing mounting flange assembly for Fan and Limit Control L4064

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Fan-off Stop	Fan-on Stop	High Limit Stop	Timing	Mounting	Comments
	(mm)	(inch)	(C)	(F)	(C)	(F)						
L4064A1321	292 mm	11 1/2 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	—	—
L4064A1339	127 mm	5 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	—	—
L4064A1347	203 mm	8 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	—	—
L4064A1453	292 mm	11 1/2 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	—	—
L4064A1503	127 mm	5 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	—	—
L4064A1511	203 mm	8 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	—	—
L4064A2980	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	170 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Less jumper from switch. Replaces L4064A,B,E
L4064A2998	203 mm	8 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	170 F	—	—	—
L4064A3046	292 mm	11 1/2 in.	—	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	210 F	—	—	—

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# Fan and Limit Controllers

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Fan-off Stop	Fan-on Stop	High Limit Stop	Timing	Mounting	Comments
	(mm)	(inch)	(C)	(F)	(C)	(F)						
• L4064B1451	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Rigid bracket	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Deluxe cover. Replaces L4064A,B,E.
• L4064B1469	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Rigid bracket	
L4064B1592	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Replaces L4064A,B,E.
L4064B1618	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	
L4064B1683	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	Rigid bracket	
L4064B1691	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	Rigid bracket	
L4064B1725	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	Swivel	
* L4064B2210	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface	
* L4064B2228	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Small case and cover. Replaces L4064A,B,E.
* L4064B2236	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface	
L4064B2608	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	80 F	130 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Replaces L4064A,B,E.
L4064B2640	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	
L4064B2723	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	
L4064B2756	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	90 F	130 F	230 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 230F (110 C). With manual fan switch. Replaces L4064A,B,E.
L4064B2772	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	130 F	180 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 180F (82 C). With manual fan switch. Replaces L4064A,B,E.
L4064B2897	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	85 F	130 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Replaces L4064A,B,E.
L4064B2905	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	85 F	130 F	200 F	—	Surface mounting or bracket (rigid or swivel)	

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# Fan and Limit Controllers

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Fan-off Stop	Fan-on Stop	High Limit Stop	Timing	Mounting	Comments
	(mm)	(inch)	(C)	(F)	(C)	(F)						
* L4064B2947	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Small case and cover. Replaces L4064A,B,E.
* L4064B2954	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	
* L4064B2962	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	
L4064B3010	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	180 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 180F (82 C). With manual fan switch. Replaces L4064A,B,E.
L4064B3069	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	250 F	—	Swivel	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 250F (121 C). With manual fan switch. Replaces L4064A,B,E.
L4064B3374	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	104 F	122 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Jumper in. Replaces L4064A,B,E.
L4064B3457	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	170 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 170F (77 C). Breakaway jumper, with cover. Replaces L4064A,B,E.
L4064B3465	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	170 F	—	Surface mounting or bracket (rigid or swivel)	
L4064B3481	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	120 F	220 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 220F (104 C). With manual fan switch. Replaces L4064A,B,E.
L4064B3499	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	110 F	140 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With flat, spiral bimetal sensing element. High limit stop set at 200F (93 C). With manual fan switch. Replaces L4064A,B,E.
L4064B3515	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	90 F	110 F	160 F	—	Surface mounting or bracket (rigid or swivel)	
L4064D1010	63.5 mm	2 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	
L4064J1008	292 mm	11 1/2 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F (Factory set)	250 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 180F (82 C). With manual fan-auto switch.

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# Fan and Limit Controllers

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Fan-off Stop	Fan-on Stop	High Limit Stop	Timing	Mounting	Comments
	(mm)	(inch)	(C)	(F)	(C)	(F)						
L4064N1074	292 mm	11 1/2 in.	—	—	—	—	151 F	165 F	200 F	—	Flush with B.E.A.B	Turns fan on and off according to plenum temperature. High limit stop set at 200F (93 C). With manual fan switch and manual limit reset switch, ground screw and cover screw.
L4064N1157	127 mm	5 in.	—	—	—	—	104 F	122 F	248 F	—	Flush Mount	Turns fan on and off according to plenum temperature. High limit stop set at 248F (120 C). Less jumper from switch. With manual fan switch and manual limit reset switch, ground screw and cover screw.
L4064N1165	292 mm	11 1/2 in.	—	—	—	—	151 F	165 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. High limit stop set at 200F (93 C). Jumper in. With manual fan switch and manual limit reset switch, ground screw and cover screw.
L4064N1199	292 mm	11 1/2 in.	—	—	—	—	66C	74C	93C	—	Flush with B.E.A.B	Turns fan on and off according to plenum temperature. High limit stop set at 200F (93 C). With manual fan switch and manual limit reset switch, ground screw and cover screw.
L4064R1019	203 mm	8 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	180 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 180F (82 C). With manual fan-auto switch.
L4064R1027	292 mm	11 1/2 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	250 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 250F (121 C). With manual fan-auto switch.
L4064R1043	127 mm	5 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	220 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 220F (104 C). With manual fan-auto switch.
L4064R1126	203 mm	8 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	200 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). With manual fan-auto switch.
* L4064R1134	292 mm	11 1/2 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	250 F	—	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 250F (121 C). Small Case. With manual fan-auto switch.
* L4064R1142	203 mm	8 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	250 F	—	Surface mounting or bracket (rigid or swivel)	
* L4064R1159	127 mm	5 in.	27 C to 143 C	80 F to 290 F	38 C to 152 C	100 F to 305 F	100 F	125 F	250 F	—	Surface mounting or bracket (rigid or swivel)	

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# Fan and Limit Controllers

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Fan-off Stop	Fan-on Stop	High Limit Stop	Timing	Mounting	Comments
	(mm)	(inch)	(C)	(F)	(C)	(F)						
L4064T2457	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	170 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 170F (77 C). Breakaway jumper with cover. With timed on fan feature.
L4064T2481	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	200 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper in. With timed on fan feature.
* L4064W1080	127 mm	5 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	200 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper in. With timed on fan feature and manual fan switch. Replaces L4064T, Y.
* L4064W1098	203 mm	8 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	200 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	
* L4064W1106	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	200 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	
L4064W1197	127 mm	5 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	210 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 210F (99 C). Jumper in. With timed on fan feature and manual fan switch.
L4064W1205	203 mm	8 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	210 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	
L4064W1213	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	20 to 90 sec. after call for heat	20 to 90 sec. after call for heat	100 F	125 F	210 F	20 to 90 sec. after call for heat	Surface mounting or bracket (rigid or swivel)	

\* TRADELINE models • SUPER TRADELINE models

## L4064K Airstat Fan Safety Cutoff Controller



The L4064K is a manual reset fan safety cutoff switch used in all types of heating, ventilating and air conditioning system to shut down fan operation.

- Three wiring terminal options available for easy installation:
- Push-in receptacles for stripped wire.
- Female receptacles for 1/4 in. male flag connectors.\*Field add-on screw terminals.
- Controls adapt to many competitive mounting holes in replacement applications.
- Must be manually reset before the fan can resume operation.

**Application:** Forced warm air heating systems

**Maximum Ambient Temperature:**

Switch: 88 C; Sensing Element: 177 C

(Switch: 190 F; Sensing Element: 350 F)

Product Number	Element Insertion Length		High Limit Stop	Switching Action	Mounting
	(mm)	(inch)			
L4064K1048	127 mm	5 inch	75C	Fan switch makes and high limit switch breaks on temperature rise.	Flush mount, or rigid bracket, or swivel

# Fan and Limit Controllers

## L6064 Fan and Limit Controllers



Device for use in forced warm air furnaces. Provides switching to control fan motor speeds and burner circuits.

**Application:** Forced warm air heating systems

**Dimensions, Approximate:** 109 mm high x 76 mm wide x 40 mm deep excluding element (4 9/32 in. high x 3 in. wide x 1 19/32 in. deep excluding element)

**Operating Temperature Range:** -40 C to +88 C (-40 F to +190 F)

**Maximum Ambient Temperature:** Switch: 88 C; max at bimetal element: 177 C (Switch: 190 F; max at bimetal element: 350 F)

**Differential Temperature:** Adjustable; High limit 14 C (Adjustable; High limit 25 F)

**High Limit Temperature Range:** 38 C to 121 C (100 F to 250 F)

**Switching Action:** Normally closed fan switch breaks, normally open fan switch makes and high limit switch breaks on temperature rise.

**Mounting:** Surface mounting or bracket (rigid or swivel)

**Electrical Rating Fan:**

**Full Load:** 14 A @ 120 Vac

**Locked Rotor:** 84 A @ 120 Vac

**Electrical Rating Limit:**

**Full Load:** 8 A @ 120 Vac

**Locked Rotor:** 48 A @ 120 Vac

**Pilot Duty:** 2 A @ 24 Vac

**Approvals:**

**Canadian Standards Association:** Certified MBPR2

**Underwriters Laboratories, Inc.** Listed File: LR1322-336, Guide MBPR

Product Number	Element Insertion Length		Fan-off Range		Fan-on Range		Fan-off Stop	Fan-on Stop	High Limit Stop	Comments
	(mm)	(inch)	(C)	(F)	(C)	(F)				
L6064A1003	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper out. Economy cover. Replaces L4064A,B,E.
* L6064A1037	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper out. Small case and economy cover. Replaces L4064A,B,E.
* L6064A1045	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	
L6064A1052	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	125 F	200 F	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper out. Large case and economy cover. Replaces L4064A,B,E.
L6064A1086	203 mm	8 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	100 F	130 F	200 F	Turns fan on and off according to plenum temperature. With helical bimetal sensing element. High limit stop set at 200F (93 C). Jumper out. Economy cover. Replaces L4064A,B,E.
L6064A1151	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	85 F	165 F	200 F	
L6064A1276	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	90 F	120 F	230 F	
L6064A1318	292 mm	11 1/2 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	85 F	100 F	140 F	
L6064A1334	127 mm	5 in.	10 C to 93 C	50 F to 200 F	18 C to 102 C	65 F to 215 F	90 F	110 F	200 F	

\* TRADELINE models • SUPER TRADELINE models

## Fan and Limit Control Accessories

Product Number	Description	Used With
110265A	Mounting Flange Assembly for Fan and Limit Control	Limit stop Tool
32612AB	Mounting Flange and Installation sheet for L4064 Fan and Limit Controllers	—
272862	Flange for fan and limit L4064	L4064



# Single and Multi-Function Aquastat® Controllers

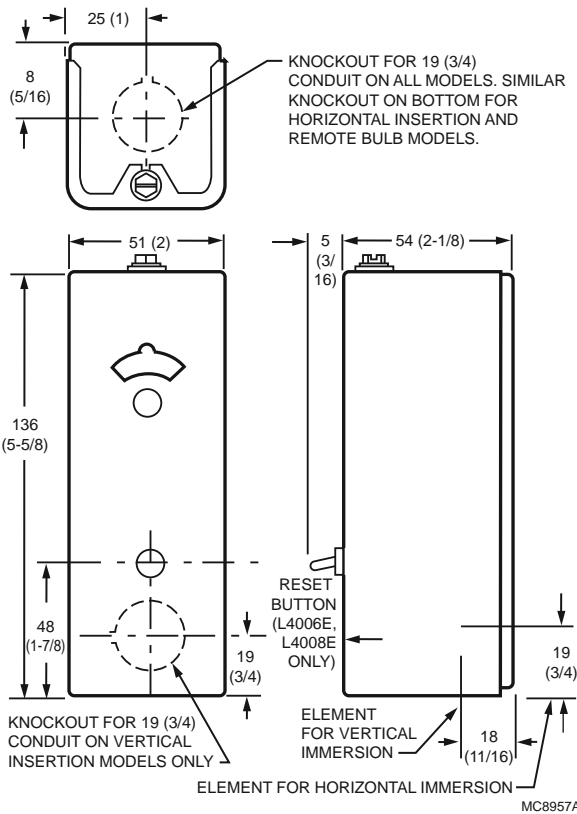
## L4006; L6006 Aquastat® Controller



Aquastat® Controllers are immersion type devices for limiting or regulating the temperature of liquids in boilers, storage tanks, and other applications where temperature control is required.

- Totally enclosed Micro Switch® snap-acting switches operate on temperature rise to setpoint.
- Visible control point scale and external adjustment screw permit easy setting.
- Horizontal or vertical insertion of the sensing element.
- Direct or well immersion of the sensing element.
- Models available for strap-on mounting.
- Remote bulb model may be used to sense air temperature in ducts and in outside air sensing applications.
- TRADELINE models include heat-conductive compound.
- Select models have wells.

### Dimensions in millimeters (inches)



**Case Dimensions:** 143 mm high x 51 mm wide x 54 mm deep (5 5/8 in. high x 2 in. wide x 2 1/8 in. deep)

**Maximum Ambient Temperature:** 66 C (150 F)

**Bulb Size:** 10 mm x 73 mm copper (3/8 in. x 2 7/8 in. copper)

### Approvals:

**American Gas Association IAS:** AGA Certified

**Canadian Standards Association:** Certified: File No. LR95329-1

**Underwriters Laboratories, Inc.** UL Component Recognized: File No. MP466, Vol. 6, Sec.1, Guide No. MBPR2

Product Number	Electrical Ratings		
	(Full Load)	(Locked Rotor)	(Millivolt)
L4006A1009	8A @ 120 Vac; 5.1A @ 240 Vac	48A @ 120 Vac; 30.6A @ 240 Vac	0.25 A @ 0.25 to 12 Vdc
L4006A1017			
L4006A1678			
L4006A1959	2.6A @ 120 Vac; 1.3A @ 240 Vac	15.6A @ 120 Vac; 7.8A @ 240 Vac	—
L4006B1007	8A @ 120 Vac; 5.1A @ 240 Vac	48A @ 120 Vac; 30.6A @ 240 Vac	0.25 A @ 0.25 to 12 Vdc
L4006E1042	8A @ 120 Vac; 1.3A @ 240 Vac		
L4006E1067			
L4006H1004			
L6006A1004	8A @ 120 Vac; 5.1A @ 240 Vac		
L6006A1145			
L6006C1018			
L6006C1034	8.0A @ 120 Vac	48.0A @ 120 Vac	

Product Number	Application	Differential Temperature		Operating Temperature Range		Spud Size		Insulation Depth		Switching Action	Mounting	Includes
		(C)	(F)	(C)	(F)	(mm)	(inch)	(mm)	(inch)			
L4006A1009	High or Low limit	3 C fixed	5 F Fixed	38 C to 116 C	100 F to 240 F	19 mm NPT	3/4 in. NPT	38 mm	1 1/2 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation
L4006A1017	High or Low limit	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	19 mm NPT	3/4 in. NPT	38 mm	1 1/2 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation
* L4006A1678	High or Low limit	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	19 mm NPT	3/4 in. NPT	76 mm	3 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation, stop factory-set at 240 F (116 C), and heat-conductive compound.

\* TRADELINE models • SUPER TRADELINE models

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# Single and Multi-Function Aquastat Controllers

Product Number	Application	Differential Temperature		Operating Temperature Range		Spud Size		Insulation Depth		Switching Action	Mounting	Includes
		(C)	(F)	(C)	(F)	(mm)	(inch)	(mm)	(inch)			
* L4006A1959	High or Low limit	1 C fixed	2 F fixed	4 C to 82 C	40 F to 180 F	19 mm	3/4 in.	76 mm	3 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation and heat-conductive compound.
L4006B1007	Circulator	3 C fixed	5 F Fixed	38 C to 116 C	100 F to 240 F	13 mm	1/2 in.	38 mm	1 1/2 in.	SPST, contacts make on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation
L4006E1042	High Limit; Manual Reset	Manual Reset	Manual Reset	54 C to 132 C	130 F to 270 F	—	—	—	—	SPST, contacts break on temperature rise.	Horizontal or Vertical	stop Factory-set at 240 F
* L4006E1067	High Limit; Manual Reset	Manual Reset	Manual Reset	54 C to 132 C	130 F to 270 F	—	—	76 mm	3 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation, stop factory-set at 250 F (121 C); well adapter and heat-conductive compound.
* L4006H1004	High Limit; strap-on mounting on well mount.	Manual Reset	Manual Reset	38 C to 116 C	100 F to 240 F	—	—	38 mm	1 1/2 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	Bracket for strap-on mounting, stop factory-set at 240 F (116 C), and heat-conductive compound.
L6006A1004	Circulator Control and High Limit or Low Limit	3 C	5 F	38 C to 116 C	100 F to 240 F	13 mm	1/2 in.	—	—	SPDT	Horizontal or Vertical	—
• L6006A1145	Circulator Control and High Limit or Low Limit	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	—	—	76 mm	3 in.	SPDT	Horizontal	Stop factory-set at 240F (116 C) and heat-conductive compound
* L6006C1018	Circulator Control and High Limit or Low Limit	3 C to 17 C adj.	5 F to 30 F adj.	18 C to 93 C	65 F to 200 F	—	—	—	—	SPDT	Horizontal or Vertical or Strap-on-mounting	—
L6006C1034	Circulator Control and High Limit or Low Limit	3 C to 17 C adj.	5 F to 30 F adj.	18 C to 93 C	65 F to 200 F	—	—	—	—	SPDT	Horizontal or Vertical or Strap-on-mounting	—

\* TRADELINE models • SUPER TRADELINE models

# Single and Multi-Function Aquastat Controllers

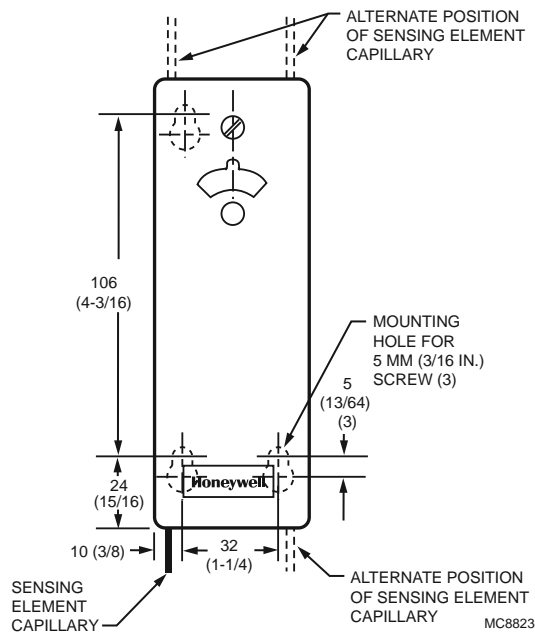
## L4008; L6008 Remote Bulb Controller



Aquastat® Controllers are immersion type devices for limiting or regulating the temperature of liquids in boilers, storage tanks, and other applications where temperature control is required.

- Remote temperature sensing element detects and responds rapidly to temperature changes.
- Totally enclosed Micro Switch® snap-acting switch.
- Visible control point scale and external adjustment screw permit easy setting.
- Horizontal or vertical mounting of the remote element into boiler, tank, or other container.
- Case mounts to a vertical surface.

### Dimensions in millimeters (inches)



**Case Dimensions:** 143 mm high x 51 mm wide x 54 mm deep (5 5/8 in. high x 2 in. wide x 2 1/8 in. deep)

**Maximum Ambient Temperature:** 66 C (150 F)

**Bulb Size:** 10 mm x 73 mm copper (3/8 in. x 2 7/8 in. copper)

### Electrical Ratings

**(Full Load):** 8A @ 120 Vac; 5.1A @ 240 Vac

**(Locked Rotor):** 48A @ 120 Vac; 30.6A @ 240 Vac

**(Millivolt):** 0.25 A @ 0.25 to 12 Vdc

**Mounting:** Horizontal or Vertical

### Approvals:

**Canadian Standards Association:** Certified: File No. LR95329-1

**Underwriters Laboratories, Inc.** UL Component Recognized: File No. MP466, Vol. 6, Sec.1, Guide No. MBPR2

Product Number	Application	Differential Temperature		Operating Temperature Range		Switching Action	Includes
		(C)	(F)	(C)	(F)		
L4008A1015	High or Low limit	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	SPST, contacts break on temperature rise.	5 1/2 ft (1.7 m) capillary.
L4008A1130	High or Low limit	3 C to 17 C adj.	5 F to 30 F adj.	54 C to 132 C	130 F to 270 F	SPST, contacts break on temperature rise.	10 ft (3.04 m) capillary; factory-set stop at 200 F (93 C).
L4008B1013	Circulator	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	SPST, contacts make on temperature rise.	5 1/2 ft (1.7 m) capillary.
L4008E1040	High Limit; Manual Reset	Manual Reset	Manual Reset	54 C to 132 C	130 F to 270 F	SPST, contacts break on temperature rise.	—
L4008E1156	High Limit; Manual Reset	Manual Reset	Manual Reset	54 C to 132 C	130 F to 270 F	SPST, contacts break on temperature rise.	5 1/2 ft (1.7 m) capillary; factory-set stop at 250 F (121 C); heat-conductive compound.
L4008E1313	High Limit; Manual Reset	Manual Reset	Manual Reset	38 C to 116 C	100 F to 240 F	SPST, contacts break on temperature rise.	—
L6008A1093	Circulator Control and Low Limit	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	SPDT	—
L6008A1192	Circulator Control and Low Limit	3 C to 17 C adj.	5 F to 30 F adj.	38 C to 116 C	100 F to 240 F	SPDT	66 in. capillary

# Single and Multi-Function Aquastat Controllers

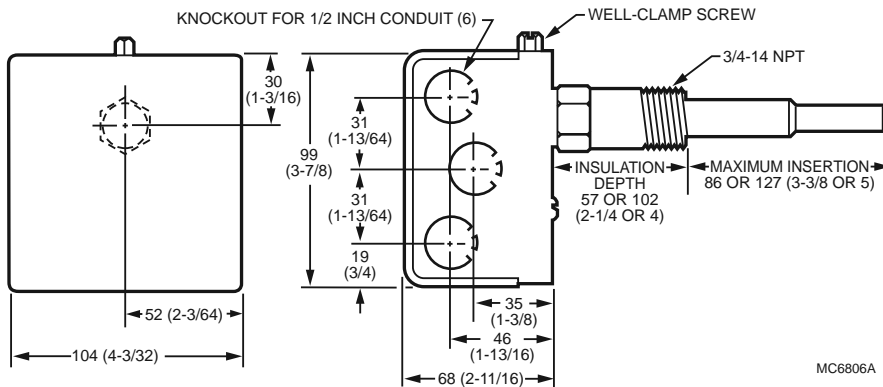
## L4103 Combination Aquastat® and High Limit Controller



The L4103A,B is an immersion-type controller for oil-fired water heaters. The Aquastat® Controller senses water temperature and cycles the burner through the oil primary. The high-limit controller breaks the circuit to the burner on a temperature rise past the factory-set setpoint. The L4103C is an immersion-type controller for gas systems that provides water temperature regulation. The high-limit controller breaks the circuit to the burner on a temperature rise past the factory-set setpoint.

- L4103A,B,C have a sensing element and a high limit sensor with automatic reset.
- Mounts on a horizontal immersion well in water heater wall.
- Adjustable temperature setting scale.
- Fluid-filled element operates SPST, Micro Switch® snap-acting switch.
- Integral, nonadjustable high limit. L4103C is an immersion controller for gas systems.
- L4103A,B is an immersion controller for oil systems.

### Dimensions in millimeters (inches)



MC6806A

**Case Dimensions:** 104 mm wide x 99 mm high x 68 mm deep (4 3/32 in. wide x 3 7/8 in. high x 2 11/16 in. deep)

### Operating Temperature Range:

38 C to 116 C stop set at 66 C (Scale marked- Hot-Normal-Warm);  
100 F to 240 F stop set at 150 F (Scale marked- Hot-Normal-Warm)

**Mounting:** Mounts on a horizontal immersion well in water heater wall.

### Electrical Ratings

**(Full Load):** 8A @ 120 Vac; 5A @ 240 Vac

**(Locked Rotor):** 48A @ 120 Vac; 30A @ 240 Vac

### Approvals:

**Underwriters Laboratories, Inc.** UL Component Recognized: File No. MP466, Guide No. MBPR2.

Product Number	Application	Differential Temperature		Spud Size		Insulation Depth		Switching Action
		(C)	(F)	(mm)	(inch)	(mm)	(inch)	
L4103A1100	High Limit	3.9 C ±2 C	7 F ± 4 F	19 mm NPT	3/4 in. NPT	57 mm	2 1/4 in.	SPST, contacts break on temperature rise.

# Single and Multi-Function Aquastat Controllers

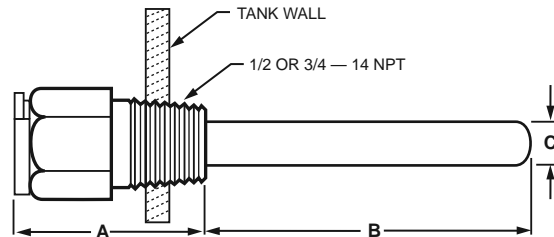
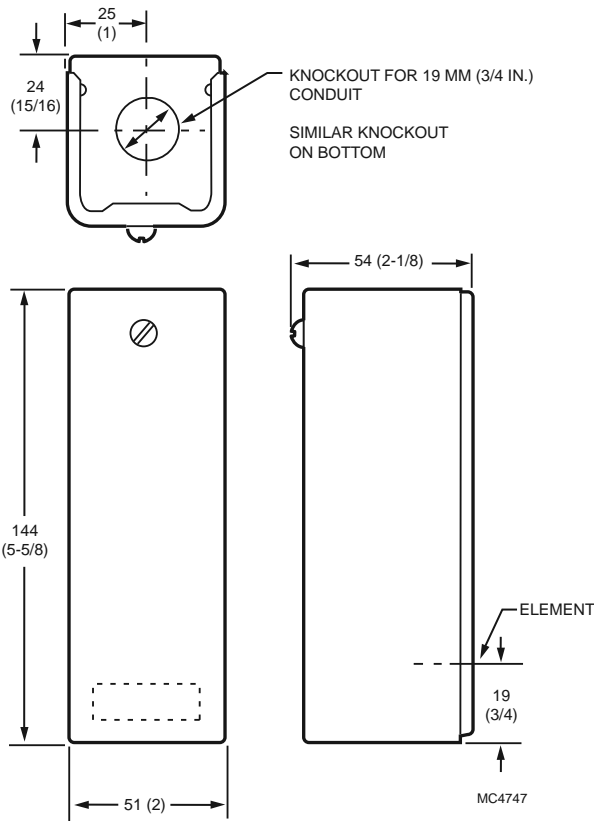
## L8100 Aquastat® Controller



L8100A,B, and C are immersion type controllers for regulating and limiting the tank temperature in water heaters. As the water temperature rises past the setpoint, the controller switches off the gas valve.

- Regulates temperature and provides energy cutoff (ECO) action on a temperature rise past the setpoint.
- Includes a second sensing element that senses average water temperature to minimize stacking.
- Fluid-filled element operates Micro Switch® SPST snap-acting switch.
- ECO switch interrupts the thermocouple circuit or main valve before tank reaches 210 F (99 C) maximum temperature.
- Includes factory-installed immersion well on controller.
- Internal adjustment screw.
- Special switch terminal provides three-wire hookup from Aquastat® controller to gas valve.

### Dimensions in millimeters (inches)



	CONTROLLER WELL		REMOTE WELL	
	MM	IN.	MM	IN.
A INSULATION DEPTH	57	2-1/4	38 OR 64	1-1/2 OR 2-1/2
B INSERTION DEPTH	127	5	76	3
C WELL DIAMETER	11	7/16	11	7/16

MC4746

**Case Dimensions:** 136 mm high x 51 mm wide x 54 mm deep (5 5/8 in. high x 2 in. wide x 2 1/8 in. deep)

**Bulb Size:** 10 mm (3/8 in.)

**Temperature Rating (ECO) Energy Cutoff:** 190 F

**Maximum Ambient Temperature:** Maximum Tank: 99 C (Maximum Tank: 210 F)

**Operating Temperature Range:** 38 C to 82 C (100 F to 180 F)

**Mounting:** Immersion Well

#### Electrical Ratings

**Millivolt:** 2A maximum at 24 Vac.

#### Approvals:

**American Gas Association IAS:** Design Certified: Report Number 23-11B

**Underwriters Laboratories, Inc.** UL Component Recognized: File No. MP466, Guide No. MBPR2

Product Number	Application	Differential Temperature		Insulation Depth		Switching Action
		(C)	(F)	(mm)	(inch)	
L8100B1037	High Limit	Controller: 3 C fixed; Energy Cutoff Switch: 11 C fixed.	Controller: 5 F, fixed. Energy Cutoff Switch: 20 F, fixed.	controller well: 57 mm, remote well: 38 mm or 64 mm	controller well: 2 1/4 in. remote well: 1 1/2 or 2 1/2 in.	SPST, contacts break on temperature rise.
L8100B1128	High Limit	Controller: 3 C fixed; Energy Cutoff Switch: 11 C fixed.	Controller: 5 F, fixed. Energy Cutoff Switch: 20 F, fixed.	38 mm	1 1/2 in.	SPST, contacts break on temperature rise.

# Single and Multi-Function Aquastat Controllers

## L4081; L6081 Multiple Aquastat® Controllers



High limit, low limit and/or circulator controllers used to regulate boiler water temperature in gas- or oil-fired hydronic heating systems.

- An immersion type liquid-filled sensing element actuates two snap switches.
- One switch operates as a high limit control.
- The other switch operates as a low limit and/or circulator control, depending on the model.
- Controller may be mounted in any positioning and needs no leveling.
- Separate, easy-to-read, calibrated dial and setpoint adjustments for each switch.
- Differential adjustment on low limit or circulator switch.
- All adjustments accessible inside front cover.
- Push-in terminals for quick connecting.
- Single sensing element for easy installation.
- One SPST and one SPDT snap switches act independently at respective temperature settings.

**Electrical Ratings (ignition):** Transformer Load: 360 VA  
**Maximum Ambient Temperature:** 66 C at switches; 129 C at sensing element (150 F at switches; 265 F at sensing element)  
**Operating Range, High Limit:** 54 C to 116 C (130 F to 240 F)  
**Operating Range, Low Limit:** 43 C to 104 C (110 F to 220 F)  
**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing  
**Mounting:** Horizontal

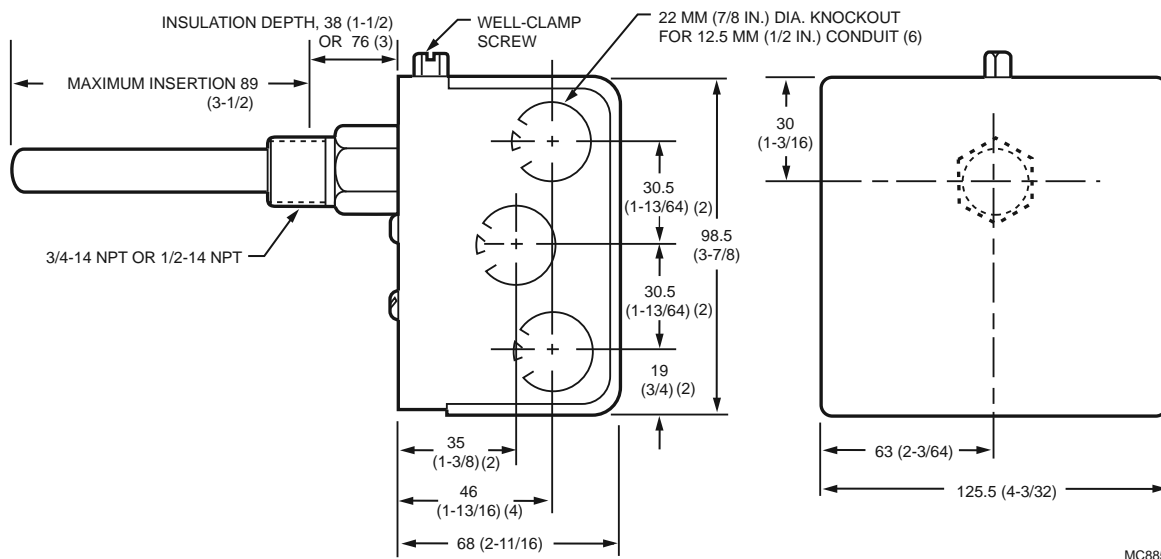
**Electrical Ratings**  
 0.25 A @ 0.25 to 12 Vdc  
**(AFL):** 8A @ 120 Vac; 5.1A @ 240 Vac  
**(ALR):** 48A @ 120 Vac; 30.6A @ 240 Vac

**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR95329-1  
**Underwriters Laboratories, Inc.** UL Listed: File No. MP466, Vol. 12, Sec. 4, Guide No. MBPR2

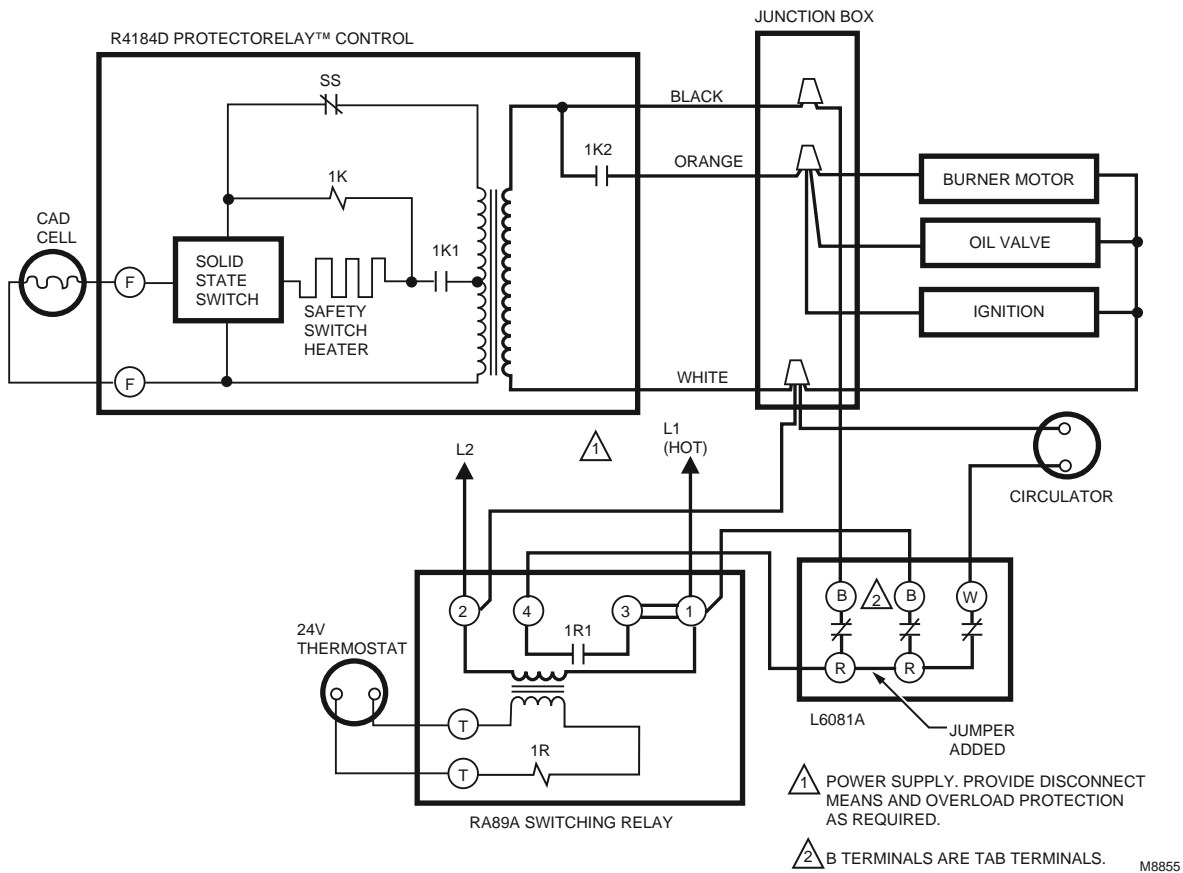
Product Number	Application	Differential Temperature	Insulation Depth		Spud Size	Includes
		(C)	(mm)	(inch)	(inch)	
L4081A1023	High and Low limit	High limit: -12 C fixed; low limit: -12 to -3 adj.	38 mm	1 1/2 in.	3/4 in. - 14 NPT	—
L4081A1155	High and Low limit	-12 C fixed	38 mm	1 1/2 in.	3/4 in. - 14 NPT	—
L4081B1112	High Limit and Circulator	-12 C fixed	38 mm	1 1/2 in.	3/4 in. - 14 NPT	—
* L6081A1010	High and Low limit	-12 C fixed	76 mm	3 in.	3/4 in. - 14 NPT	76 mm (3 in.) insertion well.
* L6081A1036	High and Low limit	High limit: -12 C fixed; low limit: -12 to -3 adj.	38 mm	1 1/2 in. to 4 in.	3/4 in. - 14 NPT	—

\* TRADELINE models • SUPER TRADELINE models

### Dimensions in millimeters (inches)



# Single and Multi-Function Aquastat Controllers



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# Single and Multi-Function Aquastat Controllers

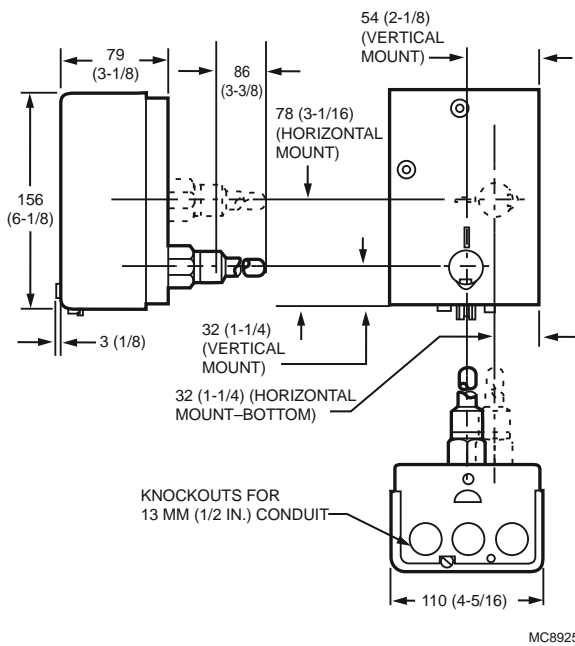
## L8124 Triple Aquastat® Relay



**Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems, including domestic hot water service.**

- Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems.
- Provide multizone control by using a separate circulator and R845 Relay for each zone.
- Include diaphragm powerhead and Micro Switch® assembly that respond to temperature changes in boiler water.
- Mount directly to boiler.
- Select models include large transformers and extra terminals for supplying power to low voltage zone valves.
- Require 24 Vac thermostat with heat anticipator set at 0.2 A (plus current draw of gas valve on L8124E).
- TRADELINE models include tube of heat conductive compound and range stops.

### Dimensions in millimeters (inches)



**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Electrical Connections:** Quick-Connect / Screw

**Maximum Ambient Temperature:** 66 C at switches, 129 C at sensing element (150 F at switches, 265 F at sensing element.)

**Minimum Ambient Temperature:** -9 C (-30 F)

**Operating Range, High Limit:** 54 C to 116 C (130 F to 240 F)

**Operating Range, Low Limit:** 43 C to 104 C (110 F to 220 F)

**Maximum Operating Pressure:** 1378 kPa on outside of immersion well, 690 kPa on capsule if inserted directly. (200 psi on outside of immersion well, 100 psi on capsule if inserted directly.)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Underwriters Laboratories, Inc.** UL Listed (models with well): File No. MP466, Guide No. MBPR; UL Component Recognized (models without well): File No. MP466, Guide No. MBPR2

	Electrical Ratings			
	burner		circulator	
	AFL	ALR	AFL	ALR
<b>L8124A</b>	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.7 A @ 240 Vac
<b>L8124C, E, G, L</b>	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.7 A @ 240 Vac

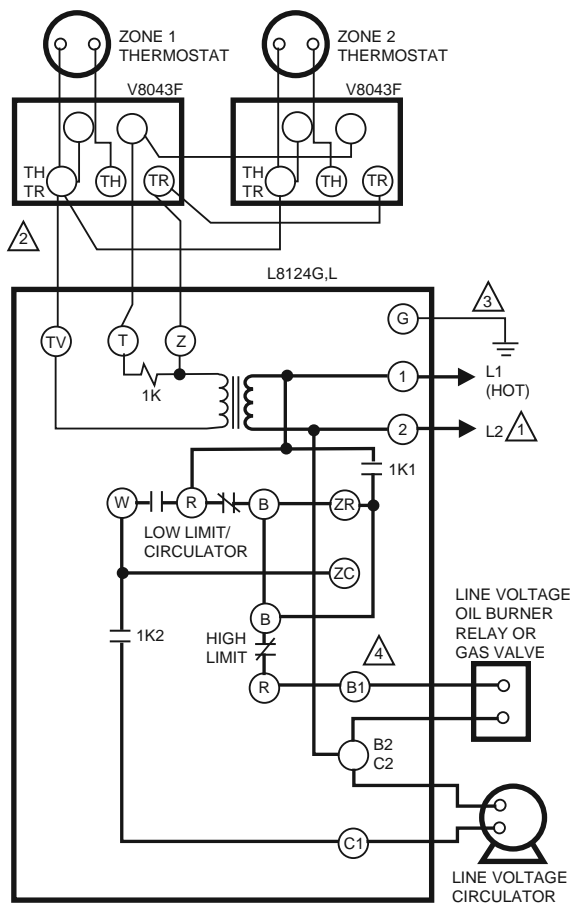
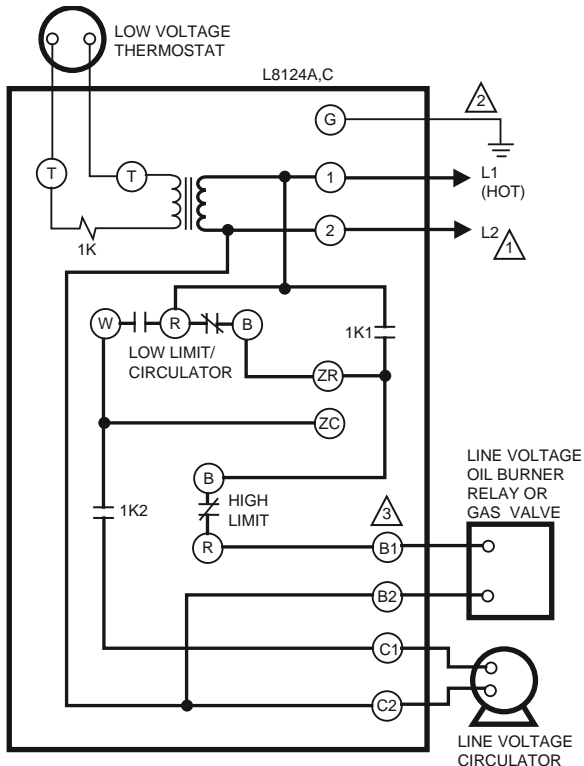
Product Number	Application	Differential Temperature	Insulation Depth		Mounting
			(mm)	(inch)	
<b>L8124A1049</b>	High Limit Protection, Low Limit and Circulation Control	High limit : 10 F fixed; low limit: 10-25 F adj.	—	—	Vertical
<b>L8124C1003</b>	Triple Aquastat Relay with High limit	High limit : 10 F fixed; low limit: 10-25 F adj.	—	—	Horizontal
<b>L8124C1102</b>	High Limit Protection, Low Limit and Circulation Control	High limit : 10 F fixed; low limit: 10-25 F adj.	38 mm to 76 mm less well	1 1/2 in. to 3 in. less well.	Horizontal
* <b>L8124E1016</b>	Triple Aquastat Relay with High limit	High limit : 10 F fixed; low limit: 10-25 F adj.	—	—	Vertical
<b>L8124G1020</b>	Triple Aquastat Relay with High limit	High limit : 10 F fixed; low limit: 10-25 F adj.	—	—	Vertical
<b>L8124L1011</b>	Triple Aquastat Relay with High limit	High limit : 10 F fixed; low limit: 10-25 F adj.	—	—	Horizontal

\* TRADELINE models • SUPER TRADELINE models



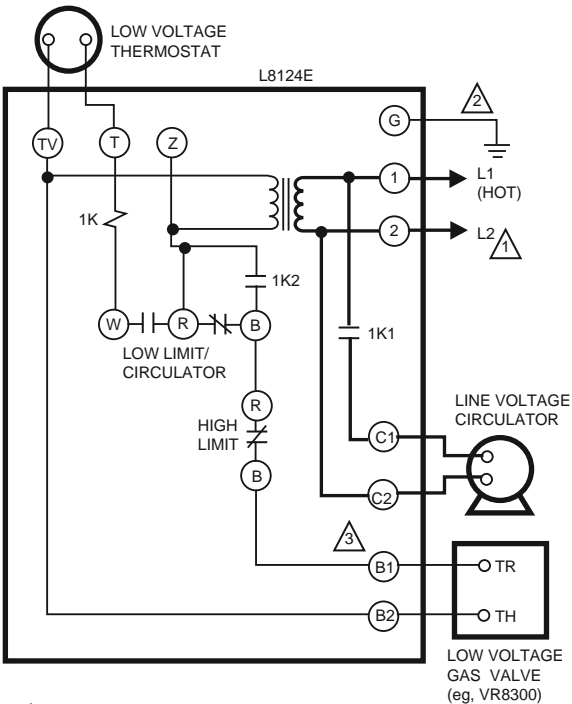
# Single and Multi-Function Aquastat Controllers

Residential  
Combustion Controls



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
  - 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
  - 3 B1 IS 1/4 IN. TAB TERMINAL.
- M8802

- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
  - 2 UP TO TWO V8043F ZONE VALVES CAN BE POWERED WITH L8124G,L. ADD ADDITIONAL TRANSFORMER FOR EVERY TWO OR LESS VALVES.
  - 3 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
  - 4 B1 IS 1/4 IN. TAB TERMINAL.
- M1795B



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
  - 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
  - 3 B1 IS 1/4 IN. TAB TERMINAL.
- M8803

# Single and Multi-Function Aquastat Controllers

## L8148 Aquastat® Relay



**Anticipator Setting:** 0.2 A

**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Electrical Connections:** Quick-Connect / Screw

**Maximum Ambient Temperature:** 66 C with 1.2 A 24 V load; 25 C with 1.4 A 24 V load (150 F with 1.2 A 24 V load; 77 F with 1.4 A 24 V load)

**Setpoint Temperature Range:** 116 C (240 F)

**Operating Range, High Limit:** 54 C to 116 C (120 F to 240 F)

**Immersion-type controllers that combine high limit protection with switching relay control of burner and circulator motors.**

- High limit opens burner circuit only.
- Include transformer and accessory terminals for adding a remote low limit controller.
- Case available for horizontal or vertical mounting.
- Requires a 24 Vac thermostat with heat anticipator set at 0.2A.
- TRADELINE models include well adapter, tube of heat conductive compound and range stops.

**Maximum Operating Pressure:** Immersion Well: 1757 kPa (Immersion Well: 255 psi)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Underwriters Laboratories, Inc.** UL Listed: File No. MP466, Vol. 13, Sec. 2, Guide No. MBPR2.

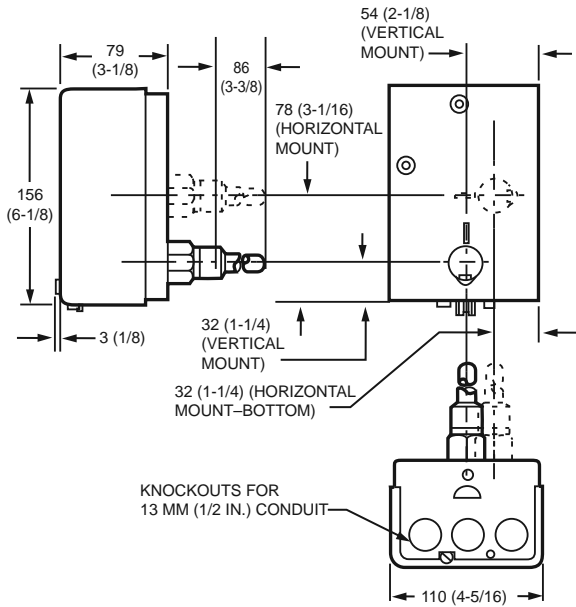
	Electrical Ratings						
	(ALR)	(AFL)	(burner AFL)	(burner ALR)	(burner millivolt)	(circulator AFL)	(circulator ALR)
L8148A	—	—	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac
L8148E	0.25 A @ 0.25 to 12 Vdc	44.4A @ 120 Vac; 22.2A @ 240 Vac	Low Voltage: 0.8 A max. @ 24 Vac; Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac
L8148J	—	—	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	7.4 A @ 120 Vac; 3.7 A @ 240 Vac	44.4 A @ 120 Vac; 22.2 A @ 240 Vac

	Product Number	Application	Capillary Length		Differential Temperature		Insulation Depth		Switching Action	Mounting	Includes
			(mm)	(inch)	(C)	(F)	(mm)	(inch)			
*	L8148A1017	High Limit	114 mm	4 1/2 in.	-13 C fixed	8 F fixed	38 mm to 76 mm less well	1 1/2 in. to 3 in. less well	SPST: High Limit & Circulator	Horizontal	—
*	L8148E1265	High Limit	114 mm	4 1/2 in.	-9 C fixed	15 F fixed	38 mm to 76 mm less well	1 1/2 in. to 3 in. less well	SPST: High Limit & Circulator	Vertical Mount	Molex® plug for use with vent damper, includes heat- conductive compound. Molex® plug for use with vent damper, includes heat- conductive compound.
*	L8148J1009	Aquastat Relay	114 mm	4 1/2 in.	-13 C fixed	8 F fixed	38 mm to 76 mm less well	1 1/2 in. to 3 in. less well.	SPST: High Limit & Circulator	Horizontal or Vertical	—

\* TRADELINE models • SUPER TRADELINE models

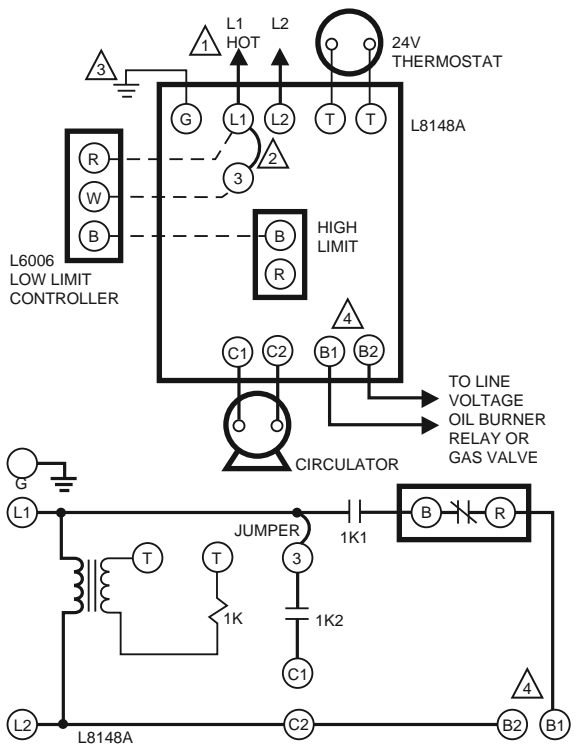
# Single and Multi-Function Aquastat Controllers

Dimensions in millimeters (inches)



MC8925

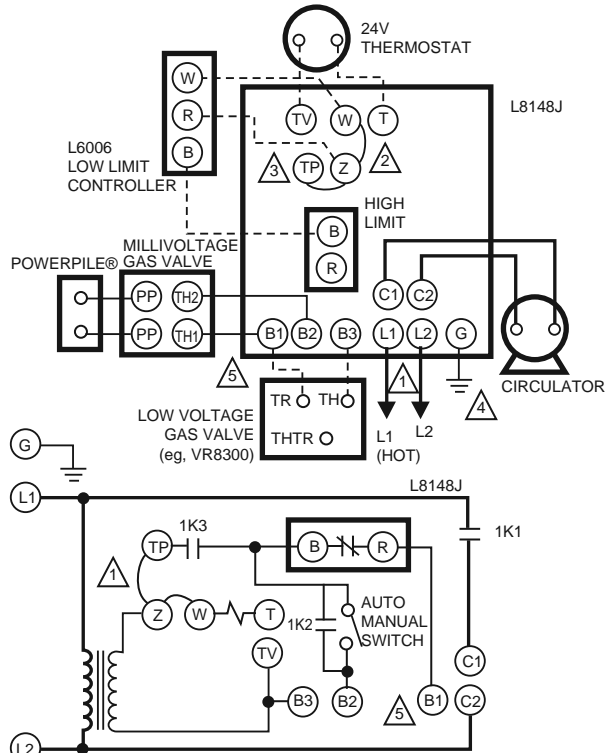
External connections and internal schematic for L8148A



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 REMOVE JUMPER WHEN ADDING L6006 LOW LIMIT CONTROLLER.
- 3 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 4 B1 IS 1/4 IN. TAB TERMINAL.

M2842A

Internal schematic and external connections for wiring L8148J for either low voltage or millivoltage gas valves

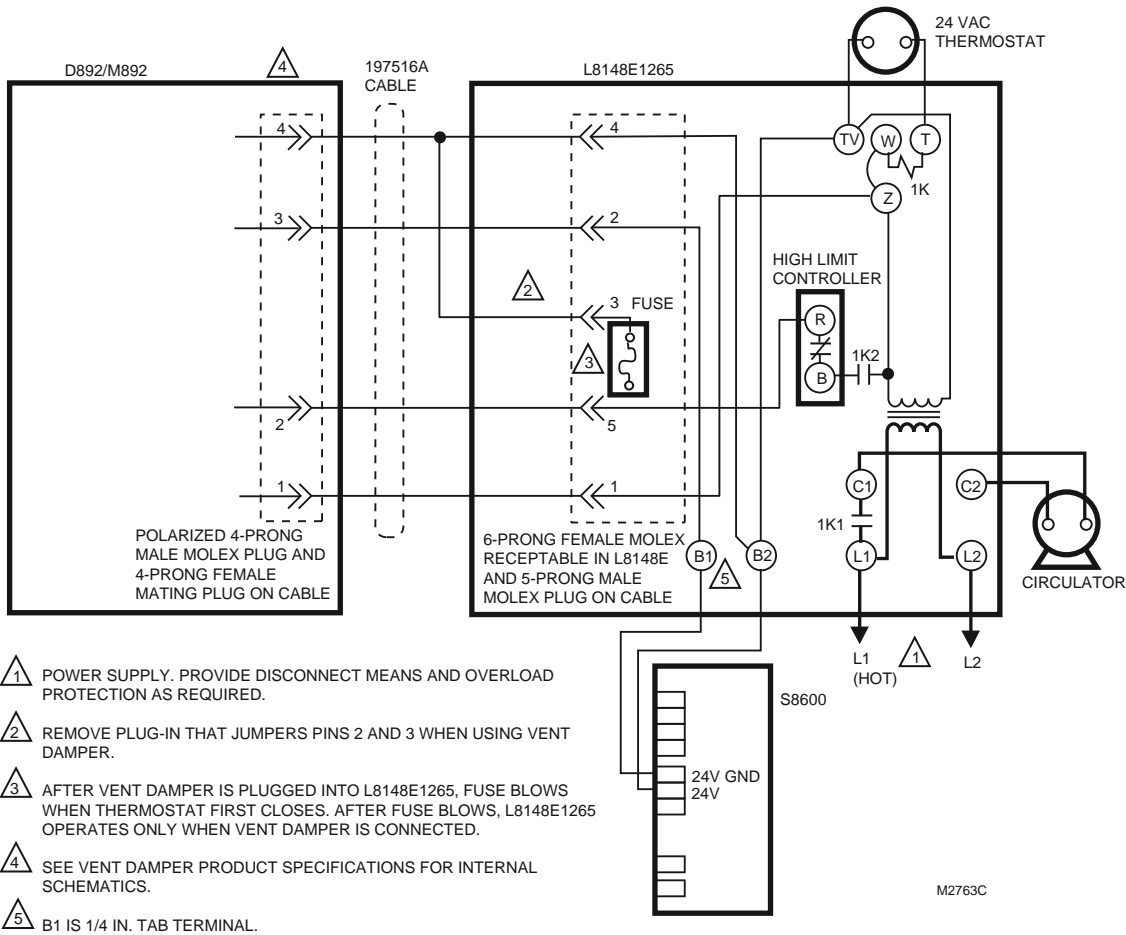


- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 REMOVE Z-W JUMPER IF SERIES 60 LOW LIMIT IS USED. WIRE LOW LIMIT CONTROLLER OR ZONE VALVES AS SHOWN. USE WITH 24V (B1-B3) CIRCUIT ONLY.
- 3 FOR 24V BURNER, WIRE B1-B3 AND USE JUMPER Z-W AND TP-Z. FOR POWERPILE® (MILLIVOLTAGE) GAS VALVES, REMOVE JUMPER TP-Z AND WIRE BURNER B1-B2. JUMPER Z-W REMAINS IN POSITION.
- 4 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 5 B1 IS 1/4 IN. TAB TERMINAL.

M1793B

Residential  
Combustion Controls

# Single and Multi-Function Aquastat Controllers



## L7224U Oil Electronic Aquastat® Controller



The L7224U is “Outdoor Temperature Reset” ready, which is enabled when connected to the 50022037-002 Outdoor Reset Module and C7089U Outdoor Temperature Sensor. The L7224U can also interface with the 50022037-005 Domestic Hot Water Module for prioritization of a domestic hot water call for heat. Ideal for indirect tank applications.

**Dimensions, Approximate:** 181 mm high x 109 mm wide x 67 mm deep (7 1/8 in. high x 4 1/4 in. wide x 2 5/8 in. deep)  
**Mounting:** Well mount, horizontal or vertical position, or flush mounted remote from the well.  
**Maximum Power Consumption:** 2000 VA  
**Voltage:** 120 Vac  
**Frequency:** 60 Hz  
**Maximum Ambient Temperature:** 66 C (150 F)  
**Minimum Ambient Temperature:** -9 C (-30 F)  
**Operating Range, High Limit:** 54 C to 116 C (130 F to 240 F)  
**Operating Range, Low Limit:** 43 C to 104 C (110 F to 220 F)  
**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Approvals:**  
 Underwriters Laboratories, Inc. Recognized

Product Number	Application	Electrical Ratings			
		(burner AFL)	(burner ALR)	(circulator AFL)	(circulator ALR)
L7224U1002	Oil Aquastat Controller	7.4 A @ 120 Vac	44.4 A inrush	7.4 A @ 120 Vac	44.4 A inrush

# Single and Multi-Function Aquastat Controllers

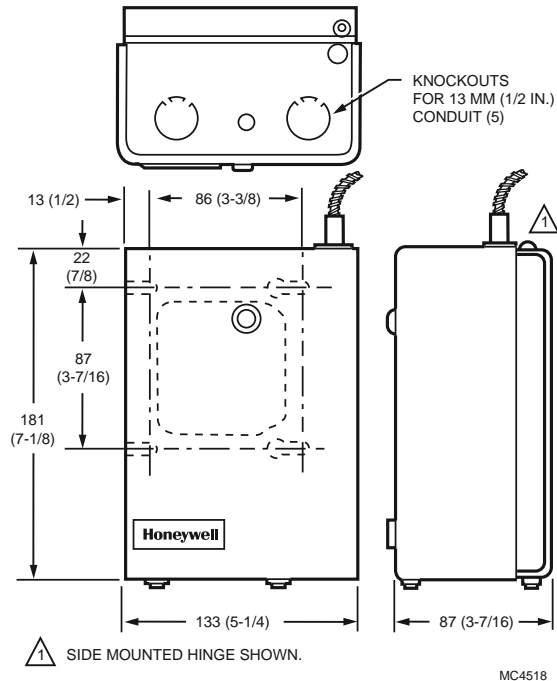
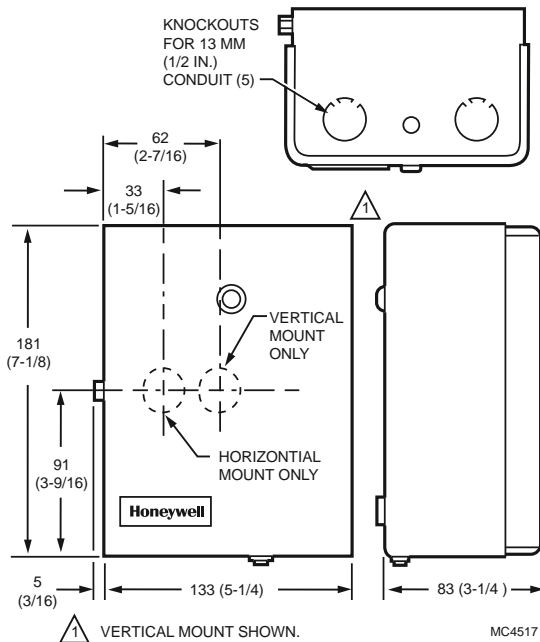
## R8182 Combination Protectorelay® and Hydronic Heating Controllers



Immersion type Aquastat controller and oil burner primary control provides high limit and low limit/circulator control for oil-fired hydronic heating systems.

- Use in intermittent ignition applications.
- Capable of zone control with zone valves.
- Circulator zone control w/ ZC and ZR terminals on R8182D,E,H,J.
- Flame failure during the running cycle results in a 45 second attempt to restart.
- If unsuccessful, safety shutoff occurs, requiring manual reset before burner can be restarted.
- R8182D,E,F mount directly on burner; R8182H,J mount on 4 x 4 in. junction box and include 5 ft (1.5 m) armored capillary with remote sensor.
- C554A Cadmium Sulfide Flame Detector and a 24 Vac thermostat required.

### Dimensions in millimeters (inches)



**Anticipator Setting:** 0.2 A  
**Electrical Ratings (ignition):** 360 VA  
**Maximum Power Consumption:** 9 W  
**Voltage:** 120 Vac  
**Frequency:** 60 Hz  
**Timing Safety Switch:** 45 sec  
**Maximum Ambient Temperature:** 121 C at element (250 F at element)  
**Operating Range, High Limit:** 54 C to 116 C (130 F to 240 F)  
**Operating Range, Low Limit:** 43 C to 104 C (110 F to 220 F)

**Maximum Operating Pressure:** 1378 kPa on immersion well; 90 kPa direct immersion. (200 psi on immersion well; 100 psi direct immersion.)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Electrical Ratings**  
**(burner AFL):** 4.4 A @ 120 Vac  
**(burner ALR):** 26.4 A @ 120 Vac

**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR95329-1  
**Underwriters Laboratories, Inc.** UL Listed: File No. listed: MP268, Vol. 3,4 (R8182D,E,F), Vol. 37 (R8182H,J), Sec. 1.

Product Number	Insulation Depth		Mounting	Includes
	(mm)	(inch)		
* R8182D1079	38 mm	1 1/2 in.	Vertical Mount	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and vertical case.
* R8182H1070	38 mm	1 1/2 in.	Junction box mount	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and horizontal case.

\* TRADELINE models • SUPER TRADELINE models

Residential  
Combustion Controls

# Single and Multi-Function Aquastat Controllers

## Outdoor Reset



The AquaReset™ Outdoor Reset Module, when connected to the C7089U Outdoor Sensor, works with any AquaReset enabled Aquastat® such as the L7224/48 via the EnviraCOM™ 3-wire bus to optimize boiler efficiency. The Outdoor Reset Module enables efficiency Aquastat functionality, such as Outdoor Temperature Reset, a Boost function, and a Warm Weather Shutdown function to generate average operational savings of up to 15%.

- Enables Boiler Outdoor Temperature Reset
- Enables Warm Weather Shutdown
- Enables Boost Override
- Easy push wire terminals that provide a secure lock with no need to screw in wires.
- Simple low-voltage, 5-wire installation (3 EnviraCOM, 2 temperature sensor)
- EnviraCOM™ Enabled

### Dimensions, Approximate:

2.410 in. high x 3.385 in. wide x .920 in deep

Electrical Ratings: 24 Vac, 60 Hz

Maximum Ambient Temperature: 150 F (66 C)

Minimum Ambient Temperature: -30 F (-9 C)

Operating Humidity Range (% RH): 0 to 95% RH, non-condensing

Product Number	Mounting	Includes
W8735S1000	Wall Mounted in any orientation	C7089U1006 Outdoor Sensor, Outdoor Reset Module
W8735S1008	Wall Mounted in any orientation	Water Pipe Temperature Sensor, Domestic Hot Water Module



## Aquastat Replacement Parts

Product Number	Description	Used With
207762C	Thermostat Sensor Assembly	L8104B

## Single and Multi-function Aquastat® Parts

Product Number	Type	Description	Bulb Diameter		Lead Length		Leadwire Ending	Leadwire Temperature	Used With
			(mm)	(inch)	(mm)	(inch)			
120650	—	Heat Conductive Compound 1/2 oz.	—	—	—	—	—	—	Well Assembly
198799Z	Sensor	Outdoor or Supply sensor with 1066 mm (42 in.) lead for AQ475, AQ675 or AQ775	9 mm	3/8 in.	1066 mm	42 in.	Strip & Retain	125 C	—
4074EUS	—	Bag Assembly containing Quick Connect to Screw Terminal for L8124 or L8148	—	—	—	—	—	—	L8148; L8124

## Well Assemblies

Product Number	Description	Materials	Insertion Length	Shell (internal diameter)	Spud Thread Size	Includes	Used With	Photo
121371A	Copper. Bulb size: 10 mm x 76 mm (3/8 in. x 3 in.). Well size: (76 mm) 3 in. insertion, 38 mm (1 1/2 in.) NPT. Includes mounting clamp.	Copper	38 mm (1 1/2 in.)	10 mm (3/8 in.)	12 mm (1/2 in.) x 14 NPT	121371 Mounting Clamp	—	
121371AA	Well clamp assembly with clamp capillary 21371 (1) screws 804644 and nuts 60156	—	38 mm (1 1/2 in.)	10 mm (3/8 in.)	12 mm (1/2 in.) x 14 NPT	121371 Mounting Clamp, Spud Set screw for armored capillary, Plug, and Nut.	—	
121371B	Copper. Bulb size: 10 mm x 76 mm (3/8 in. x 3 in.). Well size: (76 mm) 3 in. insertion, 38 mm (1 1/2 in.) NPT. Includes mounting clamp.	Copper	38 mm (1 1/2 in.)	10 mm (3/8 in.)	19 mm (3/4 in.) x 14 NPT	121371 Mounting Clamp	—	
121371E	Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.	Stainless Steel	38 mm (1 1/2 in.)	10 mm (3/8 in.)	12 mm (1/2 in.) x 14 NPT	121371 Mounting Clamp	—	
121371L	Copper. Bulb size: 10 mm x 76 mm (3/8 in. x 3 in.). Well size: (76 mm) 3 in. insertion, 38 mm (1 1/2 in.) NPT. Includes mounting clamp.	Copper	76 mm (3 in.)	10 mm (3/8 in.)	12 mm (1/2 in.) x 14 NPT	121371 Mounting Clamp	—	
123869A	Copper. Bulb size: 10 mm x 76 mm (3/8 in. x 3 in.). Well size: (76 mm) 3 in. insertion, 38 mm (1 1/2 in.) NPT. Includes mounting clamp.	Copper	38 mm (1 1/2 in.)	10 mm (3/8 in.)	12 mm (1/2 in.) x 14 NPT	—	—	
123870A	Copper. Bulb size: 10 mm x 76 mm (3/8 in. x 3 in.). Well size: (76 mm) 3 in. insertion, 38 mm (1 1/2 in.) NPT. Includes mounting clamp.	Copper	38 mm (1 1/2 in.)	10 mm (3/8 in.)	19 mm (3/4 in.) x 14 NPT	—	L4081; L4006	
123871A	Copper. Bulb size: 10 mm x 76 mm (3/8 in. x 3 in.). Well size: (76 mm) 3 in. insertion, 38 mm (1 1/2 in.) NPT. Includes mounting clamp.	Copper	76 mm (3 in.)	10 mm (3/8 in.)	19 mm (3/4 in.) x 14 NPT	—	—	





## AQ250 Electronic Relay Boiler Control Panel for Hydronic Zoning System



The AQ250 family of AQUATROL Boiler Controls provides simplified, energy-efficient control of single temperature, residential hydronic heating systems. The AQ250 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control for increased energy

- Application:** Boiler control for zoned hydronic systems
- Dimensions, Approximate:** 33 cm wide x 20.3 cm high x 8.5 cm deep (13 in wide x 8 in. high x 3 3/8 in deep)
- Power Supply:** 120V/60Hz
- User Interface (Setting, Programming):** DIP Switches
- Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals
- Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)
- Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats
- Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.
- Boiler Heat Post Purge:** 30 seconds (sent to DHW tank or Zone of Greatest Demand - selectable)
- Boiler (T-T) Output Rating:** 24 Vac, 0.5A, 12VA
- DHW Demand Input:** External dry contacts connection only
- Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

efficiency with reduced boiler cycling. AQ250 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

- Controls up to 2 stages of heat from a single thermostat.
- Use with AQ1000 2-wire communicating thermostats, or most dry contact digital thermostats.
- Zoning Control for up to 4 zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels and up to 64 zones when used with AQ254 Add-A-Temp panels.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Zone synchronization through Zone or Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self-resetting electronic fuse.

- Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP
- Zone Output Contact Rating:** Pumps: 120 Vac/250 Vac, 5A, 1/3 HP  
Valves: 24 Vac, 0.5 A, 12 VA
- ZR-ZC Contact Rating:** 120 to 240 Vac, 1/3 HP
- Sensor Temperature Rating:** -50 C to +110 C (-58 F to +230 F)
- Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire.
- Heat Demand (Thermostat R-W) Input:** External dry contacts connection only
- B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.
- R-C Input (on Control and Zoning Modules):** 24 Vac Class II
- R-C Output (on transformer):** 38 VA, 24 Vac Class II
- Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing
- Weight:** 2.3 kg (4.9 lbs)
- Approvals:**  
**Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

Hydronic Controls

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump Output Rating	DHW Pump/Valve Output Rating	Replacement Parts
AQ25042B	Zone pumps or 2-wire valves (line voltage)	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15000B boiler control module AQ12C11 supply/return/mixed loop sensor AQ10X38 24 Vac 38 VA transformer AQ15540B 4-zone pump expansion module
AQ25044B	Zone valves with end switches	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15000B boiler control module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ10X38 24 Vac 38 VA transformer

# AQUATROL Zoning System

## AQ25A Programmable Relay Control Panel for Hydronic Zoning System



The AQ25A family of AQUATROL Programmable Relay Boiler Controls provides simplified, energy-efficient control of single-temperature, residential hydronic heating systems. The AQ25A easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control for increased energy efficiency with reduced boiler cycling. AQ25A boiler controls can ensure ample supply of hot water for both

**Application:** Boiler control for zoned hydronic systems  
**Dimensions, Approximate:** 42 cm wide x 20.3 cm high x 8.5 cm deep (16 1/2 in wide x 8 in. high x 3 3/8 in deep)  
**Power Supply:** 120V/60Hz  
**User Interface (Setting, Programming):** LCD Display and a 7 button Key Pad; DIP Switches on zoning modules  
**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals  
**Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)  
**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats  
**Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.  
**Setback Program:** 7 day, up to 2 setback periods/day.  
**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)  
**Boiler (T-T) Output Rating:** 24 Vac, 0.5A, 12VA  
**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)  
**DHW Demand Input:** External dry contacts connection only  
**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

- space heating and priority generation of domestic hot water for bathing, dishes and laundry.**
- Use with AQ1000 2-wire dry contact communicating thermostats and most digital thermostats.
  - 0-10 Vdc modulating output for driving a modulating/condensing boiler.
  - Displays outdoor temperature on all AQ1000 Series thermostats when used with an AQ12C10 outdoor sensor (included).
  - Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install").
  - Customizable control settings and schedules allow for greater level of control and comfort.
  - Controls up to 2 stages of heat from a single thermostat.
  - Central programming of zone set points and setbacks
  - Zoning Control for up to 4 zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones when used with AQ254 Add-a-Temperature panels.
  - Zone synchronization through Zone of Greatest Demand control.
  - Domestic hot water priority and priority override protection.
  - Line or low-voltage output for zoning equipment (pumps or valves).
  - Boiler short cycling protection.
  - Boiler post purge.
  - Freeze protection.
  - Pump/valve exercise.
  - Boiler shock prevention from cold water returning to boiler.
  - Automated test and purge feature for quick start-up and simplified troubleshooting.
  - Integral 38 VA transformer with self resetting electronic fuse.
  - 2 hour power supply (super-capacitor) to retain day and time settings during power outage.
  - Non-volatile EPROM memory retains program settings during power outage.

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP  
**Auxiliary Low Voltage Output Rating:** 24 Vac, 0.5A, 12VA  
**Auxiliary (Demand) Input:** External dry contacts connection only  
**Zone Output Contact Rating:** Pumps: 120 Vac/250 Vac, 5A, 1/3 HP  
 Valves: 24 Vac, 0.5 A, 12 VA  
**Sensor Temperature Rating:** -50 C to +110 C (-58 F to +230 F)  
**Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire.  
**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only  
**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.  
**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)  
**R-C Output (on transformer):** 38 VA, 24 Vac Class II  
**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing  
**Weight:** 2.6 kg (5.7 lbs)  
**Approvals:**  
**Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump Output Rating	DHW Pump/Valve Output Rating	Replacement Parts
AQ25A42B	Zone pumps or 2-wire valves (line voltage)	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15A00B boiler control module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer AQ15540B 4-zone pump expansion module
AQ25A44B	Zone valves with end switches	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15A00B boiler control module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer

## AQ251 Electronic Boiler Reset Control Panel for Hydronic Zoning System



AQ25110B



AQ25142B, AQ25144B

The AQ251 family of AQUATROL Boiler Reset Controls provides simplified, energy-efficient outdoor temperature compensated control of single temperature, residential hydronic heating systems. The AQ251 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control with outdoor reset for in-creased energy efficiency with reduced boiler cycling. AQ251 boiler controls can ensure ample

**Application:** Boiler reset control for hydronic zoning system

**Dimensions, Approximate**

**AQ25110B:** 33 cm wide x 20.3 cm high x 8.5 cm deep (13 in wide x 8 in. high x 3 3/8 in deep)

**AQ25142B and AQ25144B:** 42 cm wide x 20.3 cm high x 8.5 cm deep (16 1/2 in wide x 8 in. high x 3 3/8 in deep)

**Power Supply:** 120V/60Hz

**User Interface (Setting, Programming):** LCD Display and a 7 button Key Pad

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats.

**Setback Program:** 7 day, up to 2 setback periods/day.

**Boiler Design Temperature:** 26C to 99C (80F to 210F)

**Boiler (Supply) Min. Control Temperature:** OFF, 15C to 82C (OFF, 59F to 180F)

**Boiler (Supply) Max. Control Temperature:** (OFF, 49C to 107 C) OFF, 120F to 225 F

**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)

**Boiler (T-T) Output Rating:** 24 Vac, 0.5A, 12VA

**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

**DHW Demand Input:** External dry contacts connection only

**Outdoor Low Design Control Temperature:** -51C to 0C (-60F to 32F)

**Return Minimum Control Temperature:** 27C to 82C (80 F to 180 F)

**supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.**

- Use with AQ1000 2-wire communicating thermostats (AQ25142B and AQ25144B) or most digital dry contact thermostats (AQ25110B, AQ25142B, and AQ25144B).
- 0-10 Vdc modulating output for driving a modulating/condensing boiler.
- Displays outdoor temperature on all AQ1000 thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central programming of zone set points and setback.
- Controls up to 2 stages of heat from a single thermostat.
- Zoning Control for up to four zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones by using AQ254 Add-a-Temperature expansion panels.
- Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 2 hour power supply (super-capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

**Auxiliary Low Voltage Output Rating:** 24 Vac, 0.5A, 12VA

**Auxiliary (Demand) Input:** External dry contacts connection only

**WWSD (Warm Weather Shut Down) Temperature:** Off, 1 C to 38 C (Off, 35 F to 100 F)

**Sensor Temperature Rating:** -50 C to +110 C (-58 F to +230 F)

**Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire.

**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**R-C Output (on transformer):** 38 VA, 24 Vac Class II

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight**

**AQ25110B:** 2.3 kg (4.9 lbs)

**AQ25142B and AQ25144B:** 2.6 kg (5.7 lbs)

**Approvals:**

**Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

# AQUATROL Zoning System

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump Output Rating	DHW Pump/Valve Output Rating	Replacement Parts
<b>AQ25110B</b>	None	1 (Non-communicating)	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15100B boiler reset module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer
<b>AQ25142B</b>	Pumps or 2-wire valves	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15100B boiler reset module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer; AQ15540B 4-zone pump expansion module
<b>AQ25144B</b>	Zone valves with end switches	4	120 Vac/250 Vac 5A, 1/3HP	120 Vac/250 Vac 5A, 1/3HP	AQ15100B boiler reset module AQ15740B 4-zone valve with end switch expansion module AQ12C11 supply/return/mixed loop sensor AQ12C10 outdoor sensor AQ10X38 24 Vac 38 VA transformer

## AQ252 Universal Injection/Mixing Boiler Reset Control Panel for Hydronic Zoning System



The AQ252 family of AQUATROL Universal Injection/Mixing Boiler Reset Controls provides simplified, energy-efficient outdoor temperature compensated control of single-temperature, residential hydronic heating systems. The AQ252 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control with outdoor reset for increased energy efficiency with reduced boiler cycling. AQ252 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

**Application:** Controls one boiler and one mixing (either variable speed injection or floating valve mixing) loop in a hydronic zoning system.

**Dimensions, Approximate:** 42 cm wide x 20.3 cm high x 8.5 cm deep (16 1/2 in wide x 8 in. high x 3 3/8 in deep)

**Power Supply:** 120V/60Hz

**User Interface (Setting, Programming):** LCD Display and a 7 button Key Pad

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats

**Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

**Setback Program:** 7 day, up to 2 setback periods/day.

**Boiler Design Temperature:** 26C to 99C (80F to 210F)

**Boiler (Supply) Min. Control Temperature:** OFF, 15C to 82C (OFF, 59F to 180F)

**Boiler (Supply) Max. Control Temperature:** OFF, 120F to 225 F (OFF, 49C to 107 C)

**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)

**Boiler (T-T) Output Rating:** 24 Vac, 0.5A, 12VA

**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

**DHW Demand Input:** External dry contacts connection only

**Outdoor Low Design Control Temperature:** -51C to 0C (-60F to 32F)

**Return Minimum Control Temperature:** 27C to 82C (80 F to 180 F)

**Variable Speed Injection Pump Output:** Triac modulated; 120 Vac, 2.1A, 1/6HP

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

- Use with AQ1000 2-wire communicating thermostats or most digital dry contact thermostats.
- Controls one boiler loop and one mixed temperature loop.
- Use of variable speed injection pump or motorized mixing valve for mixed temperature loop control.
- 0-10 Vdc modulating output for driving a modulating/condensing boiler or a modulating mixing valve.
- Displays of outdoor temperature on all AQ1000 thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central programming of set points and setback.
- Controls up to 2 stages of heat from a single thermostat.
- Zoning Control for up to four zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones by using AQ254 Add-a-Temperature expansion panels.
- Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 4 hours power supply (super capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

**Secondary Pump Output Rating:** 120 Vac 5A, 1/3HP

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

**Auxiliary Low Voltage Output Rating:** 24 Vac, 0.5A, 12VA

**Auxiliary (Demand) Input:** External dry contacts connection only

**WWSD (Warm Weather Shut Down) Temperature:** Off, 1 C to 38 C (Off, 35 F to 100 F)

**Zone Output Contact Rating:** Pumps: 120 Vac/250 Vac, 5A, 1/3 HP  
Valves: 24 Vac, 0.5 A, 12 VA

**Sensor Temperature Rating:** -50 C to +110 C (-58 F to +230 F)

**Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kilohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire.

**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only

**Secondary Loop Mixing (Supply) Design Temp Range:** 21 C to 99 C (70 F to 210 F)

**Secondary Loop Mixing (Supply) Max Control Temp Range:** 27 C to 99 C (80 F to 210 F)

**Secondary Loop Mixing (Supply) Min Control Temp Range:** 2 C to 66 C (35 F to 150 F)

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**R-C Output (on transformer):** 38 VA, 24 Vac Class II

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 2.7 kg (6.0 lbs)

**Approvals:**

**Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

# AQUATROL Zoning System

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Mixing Valve Floating Output (Com,O,C)	Mixing Valve Modulating Output	Boiler Pump Output Rating	DHW Pump/Valve Output Rating	Replacement Parts
AQ25242B	Zone pumps or 2-wire valves (line voltage)	4	24 Vac rated dry contacts	0-10 Vdc	120 Vac/250 Vac 5A, 1/3HP	120 Vac 5A, 1/3HP	AQ15200B universal injection/mixing boiler reset module; AQ12C11 supply/return/mixed loop sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer; AQ15540B 4-zone pump expansion module
AQ25244B	Zone valves with end switches	4	24 Vac rated dry contacts	0-10 Vdc	120 Vac/250 Vac 5A, 1/3HP	120 Vac 5A, 1/3HP	AQ15200B universal injection/mixing boiler reset module; AQ15740B 4-zone valve with end switch expansion module; AQ12C11 supply/return/mixed loop sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer

## AQ254 Add-a-Temperature Injection/Mixing Expansion Control Panel for Hydronic Zoning System



The AQ254 Add-a-Temperature Expansion Control Panel is used in conjunction with an AQ250, AQ25A, AQ251 or AQ252 Control Panel. It provides one additional loop temperature control capability for the AQ2000 control panel it is connected to and expands the total network capacity by up to 16 zones when used with AQ255 and/or AQ257 zoning panels.

- Acts as an add-on Control panel to the Main (AQ250, AQ25A, AQ251, AQ252) Control panel.
- Allows each of the 16 zones connected to it to be assigned to the system's primary or secondary loop.
- Up to 3 AQ254 panels can be added to a Main (AQ250, AQ25A, AQ251 or AQ252) Control panel.
- Mixed loop temperature is controlled by a variable speed injection pump or motorized mixing valve connected to the AQ254.
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable mixing control settings allow for greater level of control and comfort.
- Zone synchronization through Zone of Greatest Demand control.
- Integral 38 VA transformer with self resetting electronic fuse.

**Application:** Expanded zone control and mixed loop temperature control in a hydronic zoning system  
Mixed loop target temperature is reset by either outdoor temperature or calculated system load based on indoor temperature feedback  
Mixing is target controlled by a variable speed injection pump or motorized mixing valve  
**Dimensions, Approximate:** 24 cm wide x 20.3 cm high x 8.5 cm deep (9 1/2 in wide x 8 in. high x 3 3/8 in. deep)  
**Power Supply:** 120V/60Hz  
**User Interface (Setting, Programming):** LCD Display and a 3 button Key Pad  
**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals  
**Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)  
**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats  
**Variable Speed Injection Pump Output:** Triac modulated; 120 Vac, 2.1A, 1/6HP  
**Secondary Pump Output Rating:** 120 Vac 5A, 1/3HP

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP  
**Sensor Temperature Rating:** -50 C to +110 C (-58 F to +230 F)  
**Secondary Loop Mixing (Supply) Design Temp Range:** 21 C to 99 C (70 F to 210 F)  
**Secondary Loop Mixing (Supply) Max Control Temp Range:** 27 C to 99 C (80 F to 210 F)  
**Secondary Loop Mixing (Supply) Min Control Temp Range:** 2 C to 66 C (35 F to 150 F)  
**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.  
**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)  
**R-C Output (on transformer):** 38 VA, 24 Vac Class II  
**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing  
**Weight:** 1.8 kg (3.9 lbs)  
**Approvals:**  
**Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Mixing Valve Floating Output (Com,O,C)	Replacement Parts
AQ25400B	24 Vac rated dry contacts	AQ15400B Add-A-Temperature expansion control module; AQ12C11 supply/return/mixed loop sensor; AQ10X38 24 Vac 38 VA transformer

## AQ255 and AQ257 Zoning Expansion Panel for Hydronic Zoning System



The AQ255 and AQ257 family of AQUATROL Expansion Zoning panels work with AQ2000 Boiler Control Panels and AQ1000 Communicating Thermostats to control up to 4 space heating zones (or 8, for the AQ25582B Panel). Can be combined with additional expansion zoning panels and an AQ2000 control panel for a total of 16 space heating zones.

- AQ257 for zoning with zone valves with end switches
- Auto test function to test zones at system start up. It allows for operator controlled testing of zones; includes pause/restart capability.
- LED lights for visual diagnostic of zone operation.
- Allows zoning with either "Normally Open" or "Normally Closed" zone valves.
- Adjacent zoning panels can operate different zone equipment - one panel may control 4 pumps while another may control 4 zone valves.
- Easily switch from zone valves to pumps with same zoning module - just flip one DIP switch. Ensure correct voltage is applied to all zone equipment on a panel (120 Vac for pumps, 24 Vac for valves)
- R-C transformer and B-B data bus terminal connections (network communication) for easy expansion.
- Zones can be set to energize a group pump via Aux Out dry contacts on main control panel (AQ250, AQ25A, AQ251, AQ252) or expansion control panel (AQ254).
- Zone synchronization through Zone of Greatest Demand control.
- 38 VA Transformer with self resetting electronic fuse.

**Application:** Zoning control for hydronic zoning system

**Dimensions, Approximate:** 24 cm wide x 20.3 cm high x 8.5 cm deep (9 1/2 in wide x 8 in. high x 3 3/8 in. deep)

**User Interface (Setting, Programming):** DIP Switches

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:**

0 C to 55 C (32 F to 130 F)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats

**Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

**Zone Output Contact Rating:** 120 Vac/250 Vac, 5A, 1/3 HP

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Weight		Replacement Parts
			(kg)	(lb)	
AQ25542B	Zone pumps or 2-wire valves (line voltage)	4	1 kg	2.1 lbs	AQ15540B 4-zone pump expansion module
AQ25582B	Zone pumps or 2-wire valves (line voltage)	8	1.3 kg	2.6 lbs	AQ15540B 4-zone pump expansion module
AQ25742B	2-wire valve (24 Vac)	4	1.8 kg	3.9 lbs	AQ10X38 24 Vac 38 VA transformer; AQ15540B 4-zone pump expansion module
AQ25744B	Zone valves with end switches (24 Vac)	4	1.8 kg	3.9 lbs	AQ15740B 4-zone valve with end switch expansion module; AQ10X38 24 Vac 38 VA transformer

# AQUATROL Zoning System

## AQ2000 Series Replacement Control Modules



Replacement control modules for AQ2000 panels

**Dimensions, Approximate**

**AQ15000B and AQ15400B:** 9 cm wide x 6.3 cm high x 10.8 cm deep  
(3 1/2 in wide x 2 1/2 in high x 4 1/4 in wide)

**AQ15A00B, AQ15100B, and AQ15200B:** 18 cm wide x 6.3 cm high x 10.8 cm deep  
(7 1/8 in wide x 2 1/2 in high x 4 1/4 in deep)

- Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals
- Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)
- Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)
- Boiler (T-T) Output Rating:** 24 Vac, 0.5A, 12VA
- Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)
- DHW Demand Input:** External dry contacts connection only
- Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity
- Heat Demand (Thermostat R-W) Input:** External dry contacts connection only
- B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.
- R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)
- Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing
- Weight**
- AQ15000B:** 0.23 kg (0.5 lb)
- AQ15400B:** 0.3 kg (0.7 lb)
- AQ15A00B, AQ15100B, and AQ15200B:** 0.5 kg (1.0 lbs)
- Approvals:**
- Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Mixing Valve Floating Output (Com,O,C)	Mixing Valve Modulating Output	User Interface (Setting, Programming)
AQ15000B	—	—	DIP Switches
AQ15100B	—	0-10 Vdc to boiler	LCD Display and a 7 button Key Pad
AQ15200B	24 Vac rated dry contacts	0-10 Vdc to boiler or mixing valve	LCD Display and a 7 button Key Pad
AQ15400B	24 Vac rated dry contacts	0-10 Vdc to mixing valve	LCD Display and a 3 button Key Pad
AQ15A00B	—	0-10 Vdc to boiler	LCD Display and a 7 button Key Pad

## AQ2000 Series Replacement Zoning Modules



Replacement Zoning Modules for AQ2000 panels

**Dimensions, Approximate:** 9 cm wide x 6.3 cm high x 10.8 cm deep  
(3 1/2 in wide x 2 1/2 in high x 4 1/4 in deep)

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

- Control and Zoning Panel Temperature Rating:** 0 C to 55 C (32 F to 130 F)
- Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats and most digital thermostats
- Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.
- Zone Output Contact Rating:** 120 Vac/250 Vac, 5A, 1/3 HP
- B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.
- R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)
- Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing
- Weight:** 0.3 kg (0.6 lbs)
- Approvals:**
- Canadian Standards Association:** CSA C/US Certified to CSA and UL Standards, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	User Interface (Setting, Programming)
AQ15540B	Zone pumps or 2-wire valves (line voltage)	4 (Non-communicating)	DIP Switches
AQ15740B	Zone valves with end switches	4 (Non-communicating)	DIP Switches



## AQ2000 Series Accessories and Replacement Parts

Product Number	Description	
AQ10X38	Replacement transformer module for AQ250, AQ25A, AQ251, AQ252, AQ254, AQ257 and AQ25742B series control and zoning panels. It can be used to add an additional 38 VA power per transformer to drive high VA devices.	
AQ11D10	Replacement enclosure for AQ25400B, AQ25542B, AQ25742B, AQ25744B, AQ25582B panels. Consists of case, cover, and DIN rail for mounting of transformer, control or zoning modules. It can be used to add extra AQ10X38 transformers or hide system wiring and component	
AQ11D15	Replacement enclosure for AQ25042B, AQ25044B, AQ25110B panels. Consists of case, cover, and DIN rail for mounting of transformer, control or zoning modules. It can be used to add extra AQ10X38 transformers or hide system wiring and component.	
AQ11D20	Replacement enclosure for AQ25A42B, AQ25A44B, AQ25142B, AQ25144B, AQ25242B, and AQ25244B panels. Consists of case, cover, and DIN rail for mounting of transformer, control or zoning modules. It can be used to add extra AQ10X38 transformers or hide system wiring and component	
AQ12C10	Outdoor Sensor with 10 feet of lead wires and a plastic mounting bracket for use with AQ2000 Series Programmable Control Panels.	
AQ12C11	Supply/Return/Mixed Loop Pipe Sensor with 10 feet of lead wires for use with AQ2000 Series Control Panels	
AQ12C20	Slab/Floor Sensor of 15 feet lead length. It is sold separately for use with AQ1000 Series Thermostats to control floor temperatures of in-floor radiant heating applications.	

Hydronic Controls

# AQUATROL Zoning System

## AQ1000TN2 Non-Programmable Communicating Thermostat



The AQ1000TN2 thermostat is used to control the ambient air temperature or floor temperature in hydronic heating applications. It communicates with and is powered by an AQ2000 series zoning module to provide zoning control.

- 2-wire polarity-insensitive non-programmable network communicating thermostat.
- Liquid crystal display with user buttons .
- Outdoor, indoor and floor temperature displays.
- Floor temperature sensing with minimum and maximum limits (when used with optional AQ12C20 Slab/Floor Sensor - sold separately)
- Selectable temporary and permanent backlight.

**Application:** Hydronic single-stage zoning heat

**Network Zoning:** Yes

**Zones:** Single or Multi-zone

**Dimensions, Approximate:** 7 cm wide x 12 cm in high x 2.5 cm deep (2.8 in wide x 4.6 in high x 1.0 in deep)

**Electrical Connections:** Wire-clamp screw terminals

**Network Bus:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to AQ2000 series zoning modules.

**User Interface (Programming):** LCD Display

**User Interface (System Configuration):** DIP Switches

**Thermostat Type:** 2-wire Communicating Thermostat

**Sensor Element:** Thermistor

**Sensors (Floor) Used:** 10 kilohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire. Lead Length: 10 ft. (3050 mm).

**Mounting:** Vertical Mount

**Color:** Premier White®

**Temperature Control Mode Selections:** A for Ambient Air, "F" for Floor, "AF" for Ambient & Floor.

**Temperatures Displayed:** Indoor, Set Point, Outdoor

**Temperature Display Interval:** ± 0.5 C (± 1.0 F)

**Floor Sensor Temperature Rating:** -50C to 110C (-58F to 230F)

**Floor Temperature Limit Range (AF Model):**

5 C to 38 C (40 F to 100 F)

**Outdoor Temperature Display Range:** -50C to 65 C (-58 F to 149 F)

**Ambient Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Temperature Range, Storage:** -30 C to 55 C (-20 F to 130 F)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 0.1 kg (0.2 lb)

Product Number	Setting Temperature Range		Differential Temperature		Terminal Designations	Type of Control Provided	LCD Icons Displayed (Mode)	Power Method
	(C)	(F)	(C)	(F)				
AQ1000TN2	5 C to 38 C	40 F to 100 F	±0.5 C	± 1 F	TH, TH, Sensor, Sensor	Proportional Integral (PI)	Vacation Mode; Set point; Keypad Lock; Comfort/Unoccupied; Heat On	Powered (24 Vdc) by AQ zoning module

## AQ1000TP2 Programmable Heat/Cool Thermostat



The AQ1000TP2 thermostat is used to control the ambient air temperature or floor temperature in hydronic heating applications. It communicates with and is powered by an AQ2000 series zoning module to provide zoning control.

- 2-wire polarity-insensitive programmable network communicating thermostat
- Liquid crystal display, with 7 user buttons for programming
- Floor temperature sensing with minimum and maximum limits (when used with optional AQ12C20 Slab/Floor Sensor - sold separately)
- 7-day programmable
- Single-stage Heating and Cooling
- Outdoor, indoor, and floor temperature display
- Selectable temporary and permanent backlight

**Application:** Hydronic single-stage zoning, heating and cooling

**Network Zoning:** Yes

**Zones:** Single or Multi-zone

**Dimensions, Approximate:** 7.8 cm wide x 12.5 cm high x 2.5 cm deep (3.0 in. wide x 4.9 in. high x 1.0 in. deep)

**Electrical Connections:** Wire-clamp screw terminals

**Network Bus:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to AQ2000 series zoning modules.

**User Interface (Programming):** LCD Display and 7 user programming buttons

**User Interface (System Configuration):** DIP Switches

**Thermostat Type:** 2-wire Communicating Thermostat

**Sensor Element:** Thermistor

**Sensors (Floor) Used:** 10 kilohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire. Lead Length: 10 ft. (3050 mm).

**Mounting:** Vertical Mount

**Color:** Premier White®

**Temperature Control Mode Selections:** "Air" for Ambient Air, "Floor" for Floor, "Air/Floor" for Ambient & Floor limits

**Temperatures Displayed:** Indoor, Set Point, Outdoor

**Temperature Display Interval:** ± 0.5 C

**Floor Sensor Temperature Rating:** -50C to 110C (-58F to 230F)

**Floor Temperature Limit Range (Air/Floor Model):**

5 C to 38 C (40 F to 100 F)

**Outdoor Temperature Display Range:** -50C to 65 C (-58 F to 149 F)

**Ambient Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Temperature Range, Storage:** -30 C to 55 C (-20 F to 130 F)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 0.5 kg (0.3 lb)

Product Number	Setting Temperature Range		Differential Temperature		Terminal Designations	Programmability	Type of Control Provided	LCD Icons Displayed (Mode)	Power Method
	(C)	(F)	(C)	(F)					
AQ1000TP2	5 C to 38 C	40 F to 100 F	±0.5 C	± 1 F	TH, TH, Sensor, Sensor	7-day programmable	Proportional Integral (PI)	Fan On; Vacation Mode; Cool On; Set point; Keypad Lock; Comfort/Unoccupied; Heat On	Powered (24 Vdc) by AQ zoning module

# Hydronic Switching Relays

## R182 Hydronic Switching Relay

Enclosed intermediate relays for 24 volt thermostat control of line voltage devices.

**Application:** For 24 V thermostat control of line voltage devices  
**Dimensions, Approximate:** 133 mm long x 108 mm wide x 77 mm deep (5 1/4 in. long x 4 1/4 in. wide x 3 in. deep)  
**Thermostat Compatibility:** Low voltage 2 or 3-wire

**Coil Ratings**  
**Voltage:** 24 Vac, 50/60 Hz  
**Current:** 0.35A

**Contact Electrical Ratings**  
**120 Vac AFL:** 7.4A  
**120 Vac ALR:** 44.4A  
**240 Vac AFL:** 3.7A  
**240 Vac ALR:** 22.2A  
**Transformer Primary Rating:** 120 Vac, 50/60 Hz  
**Transformer Secondary Rating:** 24 Vac, 50/60 Hz

**Approvals:**  
**Canadian Standards Association:** Certified  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

Product Number	Electrical Connections (Control Circuit)	Electrical Ratings: Primary Voltage	Switching Action	Description
* R182C1051	2 or 3-wire	120V, 50/60 Hz	DPDT	Switching relay with internal transformer, two line voltage SPDT relays

\* TRADELINE models • SUPER TRADELINE models

## RA89; RA832; R845 Hydronic Switching Relay



Provide intermediate switching of a line voltage device from a low voltage controller.

- Integral transformer provides low voltage power for control circuit.

**Dimensions, Approximate:** 133 mm high x 108 mm wide x 59 mm deep (5 1/4 in. high x 4 1/4 in. wide x 2 5/16 in. deep)  
**Electrical Connections (Control Circuit):** 2-Wire  
**Transformer Primary Rating:** 120 Vac, 50/60 Hz  
**Transformer Secondary Rating:** 24 Vac

**Coil Ratings**  
**Voltage:** 24 Vac  
**Current:** 0.4A  
**Thermostat Compatibility:** Low voltage (Class 2) 2-wire  
**Temperature Range:** 46 C maximum ambient for 60 Hz. 41 C maximum ambient for 50 Hz.  
 (115 F maximum ambient for 60 Hz. 105 F Max. Ambient for 50 Hz.)  
**Includes:** Integral transformer, enclosure

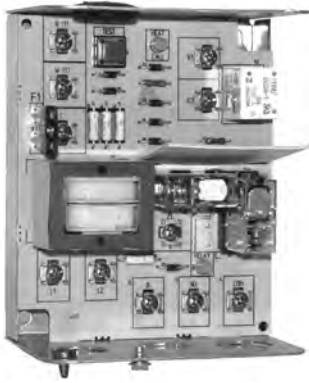
**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR1620  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

	Contact Electrical Ratings							
	Contacts Maximum Connected Loaded (120-240 Vac)	Main Contacts		Secondary Contacts				
		120 Vac	240 Vac	120 Vac	240 Vac	Dc Rating	Millivolt Rating	Pilot Duty Rating
R845A	2000 VA (120 Vac to 240 Vac)	7.4A AFL; 44.4A ALR; 10A Resistive	3.7A ALF; 22.2A ALR; 6.0A Resistive	3A ALF; 18A ALR	2A AFL; 12A ALR	—	—	50 VA @ 24V
RA832A	2000 VA (120 Vac to 240 Vac)	7.4A AFL; 44.4A ALR; 10A Resistive	3.7A ALF; 22.2A ALR; 6.0A Resistive	—	—	1A @ 12 Vdc	300 mA min. @ 750 mV	50 VA @ 24V
RA89A	—	10.2A AFL; 61.2A ALR; 10A Resistive	5.1AA ALF; 30.6A ALR; 6.0A Resistive	—	—	—	—	—

Product Number	Electrical Ratings: Primary Voltage	Switching Action	Description
* R845A1030	120V, 50/60 Hz	DPST; one pole line voltage, the other line or low voltage	Switching relay with internal transformer, provides DPST switching for hot water zone control systems, or spst control of two separate loads.
* RA832A1066	120V, 50/60 Hz	DPST; one pole line voltage, the other low voltage or millivolt	Switching Relay with internal transformer, for switching two line voltage loads having a common power source.
* RA832A1074	240V, /5060 Hz	DPST; one pole line voltage, the other low voltage or millivolt	Switching Relay with internal transformer, for switching two line voltage loads having a common power source.
* RA832A1082	240V, /5060 Hz	DPST; one pole line voltage, the other low voltage or millivolt	240V Switching Relay with internal transformer, DPST switching with one line and one low voltage relays
* RA89A1116	120V, 50/60 Hz	SPST	120V Switching Relay with internal transformer, for switching one line voltage load

\* TRADELINE models • SUPER TRADELINE models

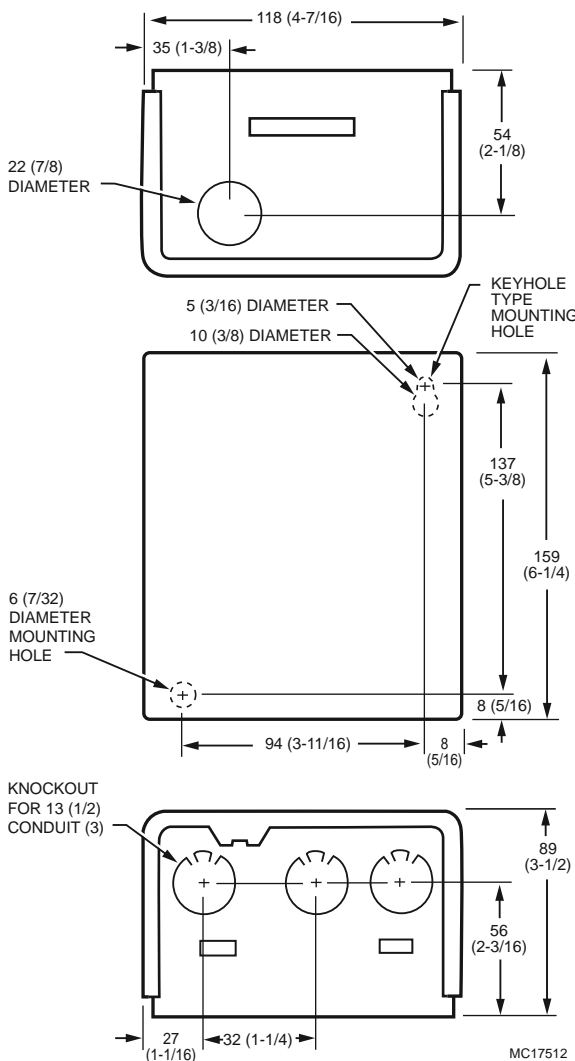
## R8845U Universal Switching Relay



The R8845U Universal Switching Relay with 24 V transformer provides intermediate switching of line-and low-voltage devices from a line- or low-voltage controller and is typically applied in Hydronic heating systems.

- Replaceable socketed relays.
- Two troubleshooting LED.
- Push-to-test button.
- Replaceable transformer fuse.
- Low-voltage contact rating for Powerpile applications.
- Long-life DC relay drive control technology.
- Relay for use with external 24 Vac or 24 Vdc supply, with line-voltage control, or with internal 24 V transformer supply.
- One model replaces many competitor models.
- One model may replace many Honeywell models: R182A,B,C,J; R482A,B,C,J; R845; R882A,B,C,J and RA832.

### Dimensions in millimeters (inches)



**Application:** Provides intermediate switching of line and low voltage devices from a line or low voltage controller

**Transformer Primary Rating:** 120 Vac, 60 Hz

**Transformer Secondary Rating:** 24 Vac, 12 VA max., 9 VA available for external load. Secondary protected by replaceable 1A automotive fuse.

### Contact Electrical Rating

**120 Vac AFL:** 7.4A AFL, 44.4A ALR on each set of line-voltage contacts. Maximum connected load is 2000 VA.

**Thermostat Compatibility:** Honeywell electromechanical and electronic 2- or 3-wire

**Thermostat Heat Anticipator Setting:** 0.12A

**Temperature Range:** (Ambient) -29 C to +49 C ((Ambient) -20 F to +120 F)

**Operating Humidity Range (% RH):** 0 to 90% RH, non-condensing

**Replacement Parts:** 32002190-001 Circulator Replacement Relay

**Includes:** Integral transformer, enclosure

### Approvals:

**Canadian Underwriters Laboratories, Inc.** Listed: Guide No. XAPX7.

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

Product Number	Coil Ratings		Electrical Connections (Control Circuit)	Electrical Ratings: Primary Voltage	Switching Action
	Voltage	Current			
R8845U1003	24 Vac	0.4A	2 or 3-wire	120V, 60 Hz	Two SPST, plus PowerPile® rated low voltage SPST relay. (If normally closed contacts are needed, use RA889A).

# Hydronic Switching Relays

## R8845U Replacement Cross Reference

Manufacturer	Model	Connections											Comments
		Input Line Voltage		Power Relay 1		Power Relay 2		Low Voltage Relay		Thermostat			
Honeywell	R8845U	L1	L2	COM	N.O.	A	B	X1	X2	W(T)	R(T)	C	—
Honeywell	R845A	1	2	3	4	5	6	—	—	T	T	—	—
Honeywell	RA832A	1	2	—	3	—	4	X	X	T	T	—	Jumper L1 to COM and A in R8845U.
Honeywell	R182A	1	2	7	8	—	—	—	—	<p>THREE-WIRE LOW VOLTAGE (SERIES 10) THERMOSTAT </p> <p>TWO-WIRE LOW VOLTAGE (SERIES 80) THERMOSTAT</p> <p> MAKES CONTACT ONLY ON TEMPERATURE FALL. M18268</p>			R8845U has lower output load rating. Check load requirements. Use RA889A if normally closed contacts are required.
Honeywell	R182B	1	3	6	8	—	—	—	—				
Honeywell	R182C	1	2	6	8	3	5	—	—				
Honeywell	R182J	L1	L2	—	4	—	7	—	—				If used to replace an R182J, install a jumper between L1, COM and A.
Honeywell	R482A	1	2	7	8	—	—	—	—	Jumper R(T) to W(T).	Line voltage switched inputs go to L1 and L2.	<p>LINE VOLTAGE CONTROL </p> <p>NEUTRAL</p> <p> WARNING! ELECTROCUTION HAZARD. POWER SUPPLY CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE WIRING OR SERVICING L1. POWERED RELAYS MUST BE WIRED AS DRY CONTACTS. M18269</p>	
Honeywell	R482B	1	2	6	8	—	—	—	—	—	—	—	Use RA889A if normally closed contacts are required. Line voltage switched inputs go to L1 and L2.
Honeywell	R482C	1	2	6	8	3	5	—	—	—	—	—	—
Honeywell	R482J	1	2	6	8	3	4	—	—	—	—	—	—
Honeywell	R882A	—	—	7	8	—	—	—	—	W	—	B	R8845U has lower output load rating. Check load requirements.
Honeywell	R882B	—	—	6	8	—	—	—	—	W	—	B	Use RA889A if normally closed contacts are required.
Honeywell	R882C	—	—	6	8	3	5	—	—	W	—	B	—
Honeywell	R882J	—	—	6	8	3	4	—	—	1	—	2	—
Argo	AR821	1	2	3	4	5	6	—	—	T	T	—	R8845U has lower output load rating. Check load requirements.
Argo	AR822	L1	L2	3	4 N.O.	5	6 N.O.	—	—	G(T)	R(T)	C	Use RA889A if normally closed contacts are required.
Erie	SR100AT	L1	N	3	4 N.O.	5	6 N.O.	—	—	G(T)	R(T)	C	—
White-Rodgers	829-189	1	2	3	4	—	—	—	—	B	R	W	R8845U has lower output load rating. Check load requirements.
White-Rodgers	829-832	1	2	—	4	—	3	X1	X2	T	T	—	—
Taco	SR501	H	N	3	4 N.O.	5	6 N.O.	—	—	W(T)	R(T)	C	Use RA889A if normally closed contacts are required.

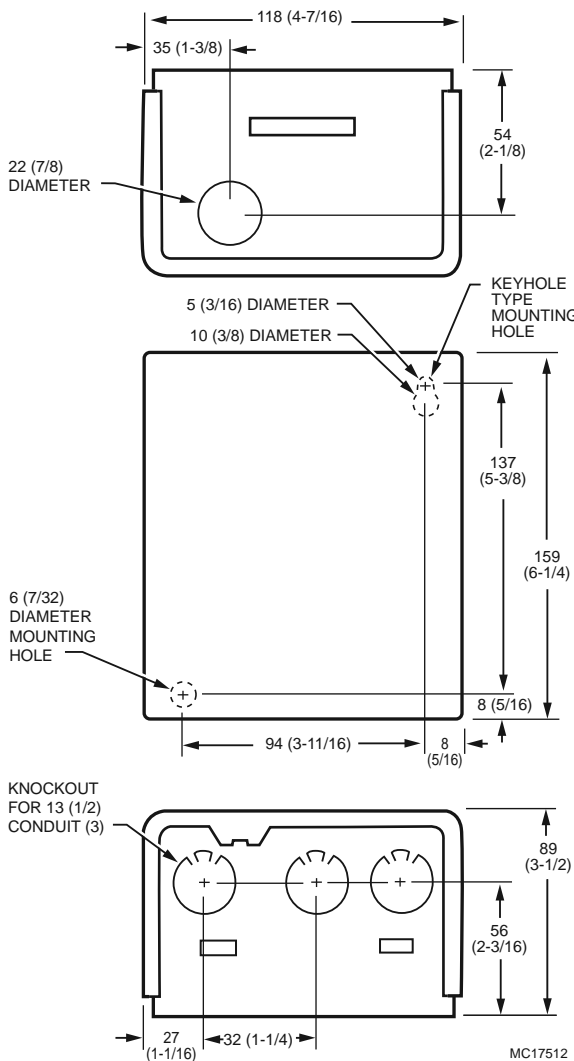
## RA889A Switching Relay



The RA889A Switching Relay with 24 V controller provides intermediate switching of line- and low-voltage devices from a line- or low-voltage controller and is typically applied in Hydronic heating systems.

- High load switching capability.
- Troubleshooting LED.
- Push-to-test button.
- Replaceable transformer fuse.
- Long-life DC relay drive control technology.
- Relay for use with external 24 Vac or 24 Vdc supply, with line-voltage control, or with internal 24 V transformer supply.
- One model replaces many Honeywell models.
- Secondary of transformer protected by replaceable 1A automotive fuse.

### Dimensions in millimeters (inches)



**Application:** For switching of line- and low-voltage devices from a line- or low-voltage controller.

**Electrical Connections (main):** No. 8 captive wire clamp screw terminals.

### Contact Electrical Ratings

**Contacts Maximum Connected Loaded (120-240 Vac):** 2000 VA

**120 Vac AFL:** 15A

**120 Vac ALR:** 30A

**Transformer Primary Rating:** 120 Vac, 60 Hz

**Transformer Secondary Rating:** 24 Vac, 12 VA max., 9 VA available for external load. Secondary protected by replaceable 1A automotive fuse.

**Thermostat Compatibility:** Honeywell electromechanical and electronic 2- or 3-wire

**Thermostat Heat Anticipator Setting:** 0.12A

**Temperature Range:** (Ambient) -29 C to +49 C  
(Ambient) -20 F to +120 F

**Operating Humidity Range (% RH):** 0 to 90% RH, non-condensing

**Includes:** Integral transformer, enclosure

### Approvals:

**Canadian Underwriters Laboratories, Inc.** Listed: Guide No. XAPX7.

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

Product Number	Electrical Ratings: Primary Voltage	Switching Action	Description
RA889A1001	120V, 60 Hz	SPDT, plus PowerPile® rated low voltage SPST relay	Enclosed switching relay with internal transformer, Spdt line voltage relay, plus Spst low voltage relay with Powerpile rating. 120V/60Hz 15 AFL/30 ALR ratings one line voltage contacts.

# Hydronic Switching Relays

## RA889A Replacement Cross Reference.

Model	Connections										Comments
	Input Line Voltage		Power Relay <sup>a</sup>			Low Voltage Relay		Thermostat			
RA889A	L1	L2	COM	N.O.	N.C.	X1	X2	W(T)	R(T)	C	—
RA89A <sup>b</sup>	1	2	3	4	—	—	—	T	T	—	—
R482B	1	2	8	6	7	—	—	Jumper R(T) to W(T).			Line voltage switched inputs go to L1 and L2.
											<p>WARNING! ELECTROCUTION HAZARD. POWER SUPPLY CAN CAUSE SEVERE INJURY OR DEATH. DISCONNECT POWER BEFORE WIRING OR SERVICING L1. POWERED RELAYS MUST BE WIRED AS DRY CONTACTS.</p> <p>M18269</p>
R882A <sup>b</sup>	—	—	8	7	—	—	—	W	—	B	—
R882B	—	—	8	6	7	—	—	W	—	B	—



# Transformer for Hydronic Heating

## AT140 General Purpose Transformer for Hydronic Heating Controls



Provide power to 24 Vac circuits in heating/cooling control systems. Intended for use in systems with predictable, uniform loads. Can be used in any application that does not exceed the listed ratings.

- Rated at 40 VA.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Meet NEC Class 2 requirements.
- Meet Underwriters Laboratories Inc. Standard UL 1585 and are identified. Class 2 not wet, Class 3 wet.

**Temperature Rating:** -29 C to +41 C (-20 F to +105 F)

**Frequency:** 60 Hz

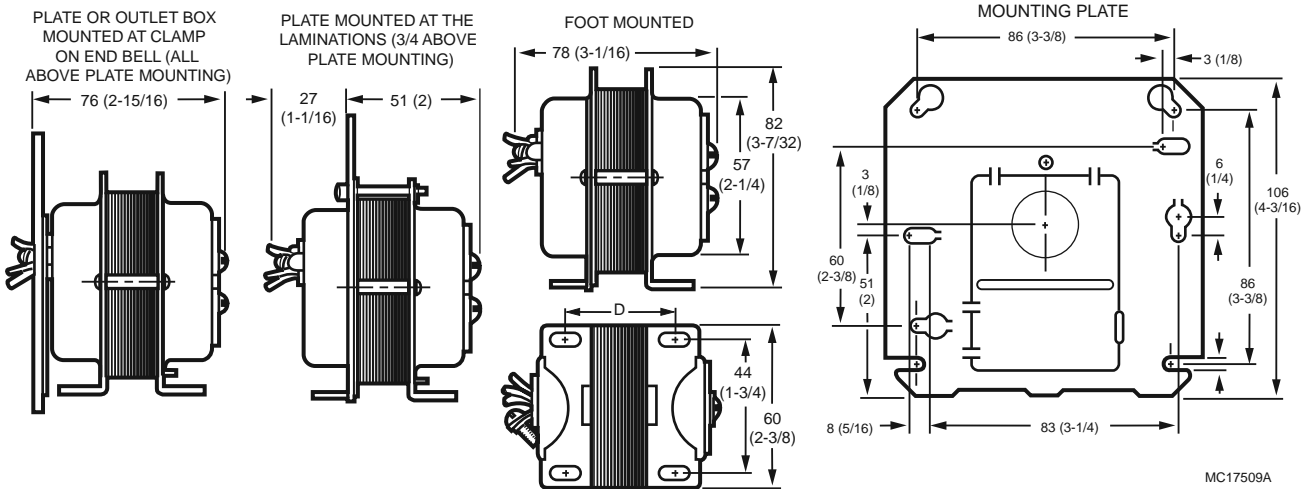
**Approvals:**

**Canadian Standards Association:** CSA Certified: A & B models.

**Underwriters Laboratories, Inc.** UL Listed: A,C,F models. File # E14881

Product Number	Dimensions, Approximate		Electrical Ratings			Electrical Connections (main)			Mounting
	(mm)	(inch)	Voltage		Output	Primary		Secondary	
			Primary	Secondary		mm	inch		
AT140A1034	81 mm high x 60 mm wide x 79 mm deep	3 3/16 in. high x 2 3/8 in. wide x 3 1/8 in. deep	120 Vac	27 V.O.C.	24 Vac at 20 VA	229 mm leadwires	9 in. leadwires	(2) screw terminals	Foot mounted, plate mounted on 2x4 in. or 4x4 in. outlet box, clamp mounted using outlet box knockout, or panel mounted

Dimensions in millimeters (inches)



Hydronic Controls

# Residential Heating Valves and Actuators

## V5442N Rotary Valve

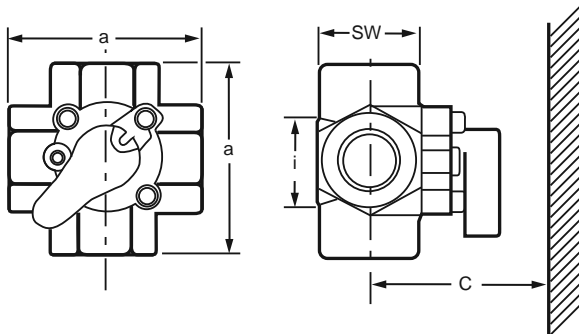


The Corona series of Compact Rotary Valves and Actuators provide integrated mixing of boiler supply, boiler return, loop supply, and loop return water in hydronic heating systems. The V5442 valve can mix both loop supply water and boiler return water simultaneously to control loop supply temperature and boiler shock or flue gas condensation protection. They may be plumbed in either a direct mixing or injection configuration. The effective Cv of the valves is increased when piped in an injection configuration.

**NOTE:** Valve cannot be used in open systems such as Combo heating where fresh water is present. Valve will corrode.

- Valves can be automated with M6063 actuator.
- 4-way mixing action for closed hydronic heating systems.
- Mixes loop supply with boiler supply and loop return.
- Mixes boiler return with boiler supply and loop return.
- Optimized mixing characteristics for most accurate control.
- Cast iron body; chrome plated plug.
- NPT threads.
- Suitable for manual or automatic control.
- Universal body orients either to the left or right to match piping.
- Functional replacement for Centra ZRK-series of compact 4-way mixing valves.

### Dimensions in millimeters (inches)



**Coupling Controller:** M6063A

**Inlet Size:** DN40 (1 1/2 in.)

**Differential (close-off) Pressure Rating:** 15 psi (1Bar)

**Static Pressure Rating:** 90 psi (6 Bar)

**Median Temperature Range:** 2 C to 110 C (36 F to 230 F)

**Shipping Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Leakage:** Less than 1% of Cv.

### Materials

**(Body):** Cast Iron

**(Interior Parts):** Chrome-plated cast iron

**(Seal):** Double O-rings

**Comments:** Valve cannot be used in open systems such as Combo heating where fresh water is present. Valve will corrode. Use with max. 50% glycol in water solution

Size [i]	[a]	[SW]	[C]	[C] with actuator
3/4 IN.	85 MM (3-3/8 IN.)	41 MM (1-5/8 IN.)	304 MM (13-3/8 IN.)	350 MM (13-3/4 IN.)
1 IN.				
1-1/4 IN.	105 MM (4-1/8 IN.)	46 MM (1-13/16 IN.)	345 MM (13-9/16 IN.)	

MC23253

Product Number	Pipe Size		Body Pattern	Capacity		Pipe Connection	Used With
	DN	inch		(Kvs)	(Cv)		
V5442N1015	DN20	3/4 in.	Rotary	6 kvs	7.4 Cv	NPT (Internal Thread)	Must be used with M6063 actuator.
V5442N1023	DN25	1 in.	Rotary	10 kvs	11.7 Cv	NPT (Internal Thread)	Must be used with M6063 actuator.
V5442N1031	DN32	1 1/4 in.	Rotary	16 kvs	18.7 Cv	NPT (Internal Thread)	Must be used with M6063 actuator.

# Residential Heating Valves and Actuators

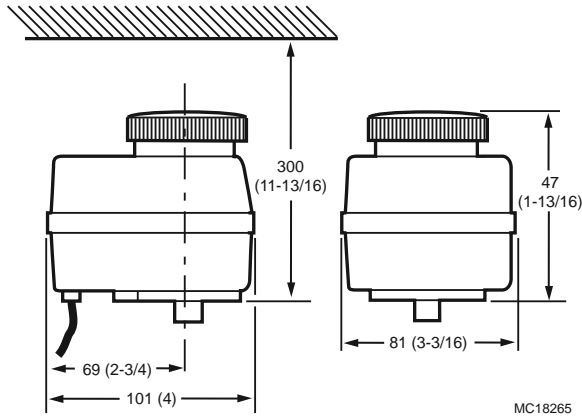
## M6063 Rotary Actuator



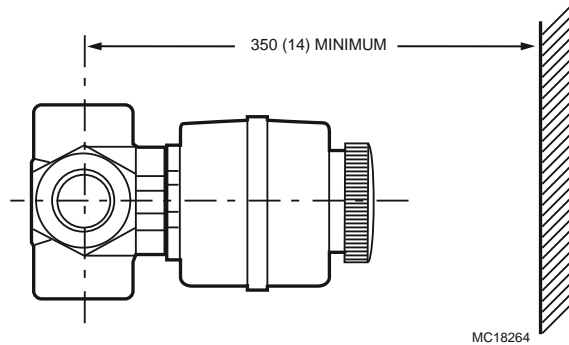
The Corona series of M6063 Actuator and V5442 Compact Rotary Valves provide integrated mixing of boiler supply, boiler return, loop supply, and loop return water in hydronic heating systems. The M6063 actuator enables automatic mixing operation when used with an AQ675A Aquatrol Outdoor Temperature Compensator, or T6984 proportional room thermostat.

- 24 Vac floating input for automatic control.
- Single screw attachment to V5442 valve body.
- Multi-prise mounting.
- Color-coded position indicator.
- Manual valve operator.
- Auxiliary end switch for cascade control outputs.
- Sealed assembly; flylead electrical connections.

### Dimensions in millimeters (inches)



### Distance for installation



**Timing:** 100 seconds for 90 degrees (full) stroke

**Electrical Connections:** Color-coded 40 in. (1 meter) cable

**Voltage:** 24V

**Frequency:** 50 Hz; 60 Hz

**Power Supply Rating:** 3 VA, SDPT, or SP3T (tri-state) for proportional control.

**Torque Rating:** 7 Nm Manual de clutch (60 lb-in. Manual de clutch)

**Cable:** Blue=Common; Brown=Clockwise rotation; Black=Counter-clockwise rotation

### Aux Switch Ratings:

24 Vac, 3A, 24 VA pilot duty, Class 2, normally closed, Gray cable.

S1 (black/gray pair) opens at left (CCW) end stop.

S2 (brown/pink pair) opens at right (CW) end stop.

**Enclosure Rating:** Double insulated. IP44 according to 60529 Standard (exceeds NEMA 3).

**Operating Humidity Range (% RH):** Less than 90% RH, non-condensing

**Ambient Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Shipping Temperature Range:** -40 C to +60 C (-40 F to +140 F)

Product Number	Controller Compatibility	Control Signal	Comments	Used With
M6063A4007	PI or PID tri-state control signal for proportional control action, such as supplied by AQ675 Outdoor Temperature Compensator, W964F reset controller, or T6984 floating commercial thermostat.	24 Vac Floating	Cross Reference: M6063 functionally replaces Centra VRK10-24 valve actuator when used with V5442 valve body.	V5442 Four-way mixing valve

# Residential Heating Valves and Actuators

## VC Series Valves



Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage SPST or SPDT or floating controller such as a room thermostat, Aquastat control, or flow switch.

- Two-way or three-way valves.
- Minimal actuator power consumption.
- Double insulated actuator.
- Quick-connect or one-meter cable electrical connections available.
- Safe for use with potable water.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- On/Off models with six second nominal timing (floating/modulating models available with 120 second timing).

**Dimensions, Approximate:** 111 mm high x 68 mm wide x 89 mm long  
(3 9/16 in high x 2 3/4 in wide x 3 3/4 in long)

**Coupling Controller:** Integral

**Aux Switch Ratings:** 24 Vac, 2.2A pilot duty, Class 2, SPDT

**Timing:** 120 sec

**Control Signal:** 24 Vac Floating

**Electrical Connections:** Color-coded 40 in. (1 meter) cable

**Voltage:** 24V

**Frequency:** 50 Hz; 60 Hz

**Power Supply Rating:** 6 VA, SPDT, or SP3T (tri-state) for proportional control.

**Differential (close-off) Pressure Rating:** 60 psi (4 Bar)

**Static Pressure Rating:** 300 psi (20 Bar)

**Median Temperature Range:** 1 C to 95 C (34 F to 203 F)

**Ambient Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Materials**

**(Body):** Bronze

Product Number	Controller Compatibility	Body Pattern	Pipe Size		Capacity		Flow Characteristic	Pipe Connection	Comments
			DN	inch	(Kvs)	(Cv)			
VC6831AA1111	PI or PID tri-state control signal for proportional control action, such as supplied by AQ675 Outdoor Temperature Compensator, W964F reset controller, or T6984 floating commercial thermostat.	Two-way	DN15	1/2 in.	2.7 kvs	3.2 Cv	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831AM1111		Two-way	DN20	3/4 in.	3.9 kvs	4.6 Cv	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831MA6111		Three-way	DN15	1/2 in.	2.7 kvs	3.2 Cv	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831ML6111		Three-way	DN20	3/4 in.	5.1 kvs	5.9 Cv	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831MS6111		Three-way	DN25	1 in.	5.7 kvs	6.6 Cv	Linear	Sweat	Use with max. 50% glycol in water solution
VC6831ZZ11		Two-way	—	—	—	—	Linear	—	Actuator only
VC8715ZZ11		24V SPST, Series 80	Two-way	—	—	—	—	Quick Open	—

## V4043 Line Voltage Zone Valves



**Two way on-off line voltage valves consist of an actuator motor and valve assembly for controlling the flow of hot or chilled water.**

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Motor may be replaced without removing the valve body or draining the system.
- Suitable for heating and cooling applications.

**Application:** Hydronic Control  
**Type:** 2 position  
**Body Pattern:** Two-way, Straight-through  
**Frequency:** 60 Hz  
**Power Consumption:** 9.6 VA  
**Nominal Timing (sec, min):** 15 sec  
**Electrical Connections:** 457 mm leads (18 in. leads)  
**Static Pressure:** 862 kPa (125 psi)  
**Fluid Temperature Range:** 5 C to 93 C (40 F to 200 F)  
**Maximum Ambient Temperature:** 52 C (125 F)

**Materials**  
**(Body):** Brass  
**(Stem):** Stainless Steel  
**(Seat):** Brass  
**(Packing O-Ring):** EPDM rubber  
**(Ball Plug):** Buna-N (NBR) Rubber Ball

**Comments:** Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.  
 Valve designed for cycling (not constantly powered on) applications.

**Approvals:**  
**Underwriters Laboratories, Inc.** UL Component Listed: File MH11826 Vol. 1

**Replacement Parts:**  
**272748AB** 124V Replacement motor (international)  
**802360MA** 208V, 60 Hz Replacement motor for V4043, V4044 Zone Valves  
**802360NA** 220V/50 Hz; 240V/60 Hz Replacement motor for V4043, V4044 Zone Valves

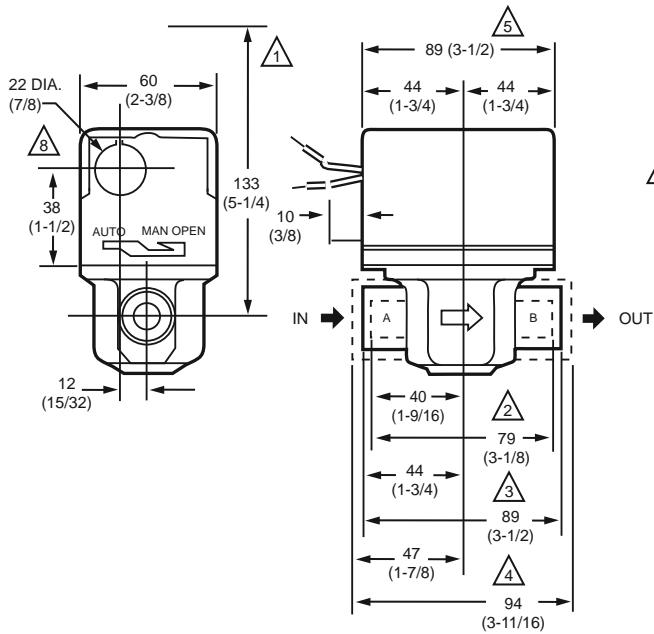
Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		De-energized Position	Valve Action	Voltage	Current Draw (A)	Manual Opener
	DN	inch	(Kv)	(Cv)		(kPa)	(psi)					
V4043A1002	DN15	1/2 in.	3 Kv	3.5 Cv	Flare**	138 kPa	20 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1010	DN15	1/2 in.	3 Kv	3.5 Cv	Sweat	138 kPa	20 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1051	DN15	1/2 in.	3 Kv	3.5 Cv	Sweat	138 kPa	20 psi	Normally Closed	Spring return to close	240 Vac	0.04A	Yes
V4043A1184	DN15	1/2 in.	0.9 Kv	1 Cv	Sweat	345 kPa	50 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1259	DN20	3/4 in.	6.9 Kv	8 Cv	Sweat	55 kPa	8 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1317	DN25	1 in.	6.9 Kv	8 Cv	Sweat	55 kPa	8 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1689	DN15	1/2 in.	3 Kv	3.5 Cv	NPT	138 kPa	20 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1697	DN25	1 in.	8.6 Kv	10 Cv	NPT	45 kPa	6.5 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043A1705	DN20	3/4 in.	3 Kv	3.5 Cv	NPT	138 kPa	20 psi	Normally Closed	Spring return to close	120 Vac	0.08A	Yes
V4043B1000	DN15	1/2 in.	3 Kv	3.5 Cv	Flare**	138 kPa	20 psi	Normally Open	Spring return to open	120 Vac	0.08A	No
V4043B1018	DN15	1/2 in.	3 Kv	3.5 Cv	Sweat	138 kPa	20 psi	Normally Open	Spring return to open	120 Vac	0.08A	No

\*\* The valve body is threaded for standard 5/8 in. O.D. copper, 45 degree SAE flare fitting nuts

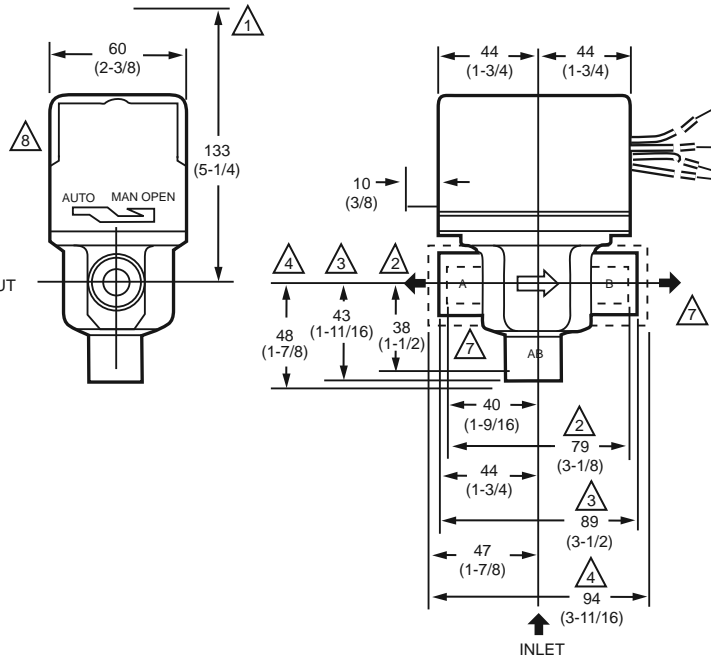
# Motorized Zone Valves

## Dimensions Diagram for V4043, V4044, V8043, V8044 Series 1000 Zone Valves

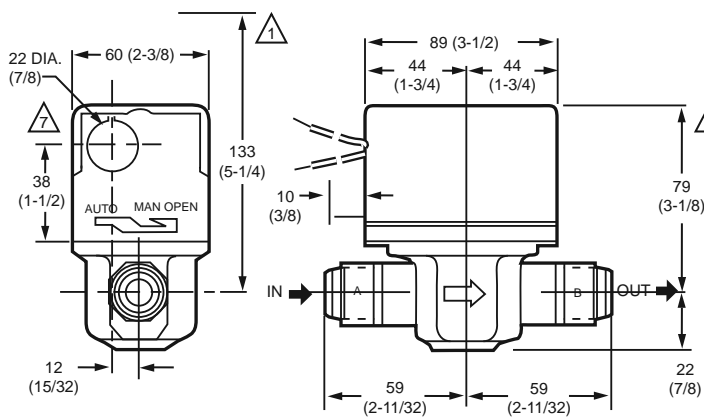
V4043, V8043 SWEAT COPPER CONNECTION MODELS <sup>6</sup>



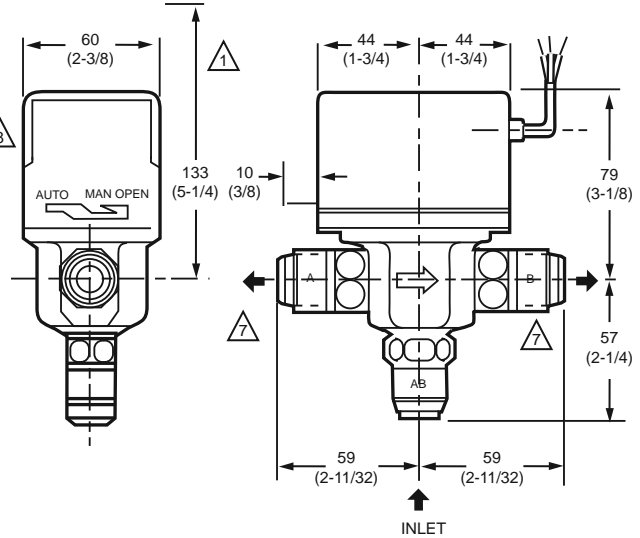
V4044, V8044 SWEAT COPPER CONNECTION MODELS



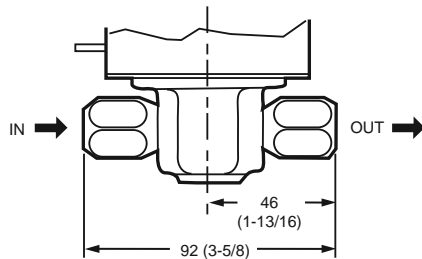
V4043, V8043 FLARE-FITTING MODELS <sup>6</sup>



V4044, V8044 FLARE-FITTING MODELS



V8043 INVERTED FLARE MODELS



- <sup>1</sup> HEIGHT NEEDED TO REMOVE COVER.
- <sup>2</sup> DIMENSIONS FOR 1/2 IN. COPPER TUBING.
- <sup>3</sup> DIMENSIONS FOR 3/4 IN COPPER TUBING.
- <sup>4</sup> DIMENSIONS FOR 1 IN. COPPER TUBING.
- <sup>5</sup> 124 MM (4-7/8 IN.) MAX ON V8034F WITH TERMINAL BOARD ENCLOSURE.
- <sup>6</sup> V4034B AND V8043B VALVES THAT ARE NORMALLY OPEN IN THE DE-ENERGIZED POSITION HAVE NO MANUAL LEVER. THE VALVES ALSO HAVE A REVERSED POWERHEAD WHERE THE LEADWIRES EXIT THE POWERHEAD ABOVE THE B (OUTLET) PORT RATHER THAN ABOVE THE A (INLET) PORT.
- <sup>7</sup> REFER TO MOUNTING INSTRUCTIONS.
- <sup>8</sup> OPENING FOR 1/2 IN. CONDUIT ON MANUAL LEVER SIDE FOR V4043, V8043; OPENING ON OPPOSITE SIDE FOR V4044, V8044.

MC10175

## V4044 Line Voltage Diverting Valves



On-off and diverting line voltage valves consist of an actuator motor and valve assembly for controlling the flow of hot or chilled water.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Motor may be replaced without removing the valve body or draining the system.
- Suitable for heating and cooling applications.

**Dimensions Diagram:** See diagram on page 224

**Application:** Hydronic Control

**Type:** 2 position

**Body Pattern:** 3-Way, Diverting

**Valve Action:** Spring Return to port A

**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Power Consumption:** 9.6 VA

**Nominal Timing (sec, min):** 30 sec

**De-energized Position:** Port A Normally Closed

**Electrical Connections:** 457 mm leads (18 in. leads)

**Static Pressure:** 862 kPa (125 psi)

**Fluid Temperature Range:** 5 C to 93 C (40 F to 200 F)

**Maximum Ambient Temperature:** 52 C (125 F)

### Materials

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Packing O-Ring):** EPDM rubber

**(Ball Plug):** Buna-N (NBR) Rubber Ball

**Comments:** Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

### Approvals:

**Underwriters Laboratories, Inc.** UL Component Listed: File MH11826 Vol. 1

### Replacement Parts:

**272748AB** 124V Replacement motor (international)

**802360MA** 208V, 60 Hz Replacement motor for V4043, V4044 Zone Valves

**802360NA** 220V/50 Hz; 240V/60 Hz Replacement motor for V4043, V4044 Zone Valves

**802360QA** 277V, 50/60 Hz Replacement motor for V4043, V4044 Zone Valves

Product Number	Pipe Size		Capacity		Connection Type	Maximum Close-off Pressure		Manual Opener
	DN	inch	(Kv)	(Cv)		(kPa)	(psi)	
V4044A1001	DN15	1/2 in.	3.4 Kv	4 Cv	Flare**	138 kPa	20 psi	Yes
V4044A1019	DN15	1/2 in.	3.4 Kv	4 Cv	Sweat	138 kPa	20 psi	Yes
V4044A1191	DN20	3/4 in.	6 Kv	7.0 Cv	Sweat	69 kPa	10 psi	Yes

\*\* The valve body is threaded for standard 5/8 in. O.D. copper, 45 degree SAE flare fitting nuts

# Motorized Zone Valves

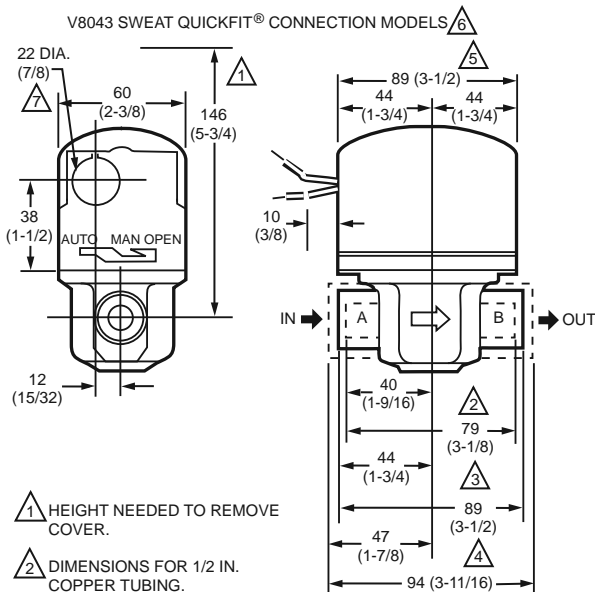
## V8043 5000 Series QuickFit® Zone Valves



**Two-way on-off low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.**

- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- "Quick Fit" push button powerhead makes it easy to remove for service.
- Series 5000 replacement powerhead is backward compatible with series 1000 zone valves.
- Innovative motor technology offers silent operation, water hammer resist and longer life.

### Dimensions in millimeters (inches)



**Application:** Hydronic Control

**Type:** 2 position

**Body Pattern:** Two-way, Straight-through

**Valve Action:** Spring return to close

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 7.2 VA

**De-energized Position:** Normally Closed

**Electrical Connections:** 457 mm leads (18 in. leads)

**Static Pressure:** 2068 kPa (300 psi)

**Fluid Temperature Range:** 5 C to 93 C (40 F to 200 F)

**Maximum Ambient Temperature:** 52 C (125 F)

### Materials

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Packing O-Ring):** EPDM rubber

**(Ball Plug):** Buna-N (NBR) Rubber Ball

**Comments:** With 2 straight 3/4 in. sweat adapters.

Valve designed for cycling (not constantly powered on) applications.

### Approvals:

**Canadian Standards Association:** CSA Certified



# Motorized Zone Valves

Product Number	Pipe Size		Connection Type	Capacity		Auxiliary End Switch	Maximum Close-off Pressure		De-energized Position	Valve Action	Manual Opener	Includes
	DN	inch		(Kv)	(Cv)		(kPa)	(psi)				
V8043C5033	—	3/8 in.	Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	With 2 straight 3/4 in. sweat adapters.
V8043C5058	DN20	3/4 in.	Sweat	3 Kv	3.5 Cv	—	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	—
V8043C5124	DN15	1/2 in.	Inverted Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	Less Adapters
V8043D5080	—	3/8 in.	Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	Normally Open	Spring return to open	No	With 2 straight 3/4 in. sweat adapters.
V8043D5197	—	3/8 in.	Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	Normally Open	Spring return to open	No	Less Adapters
V8043G5000	DN15	1/2 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	—
V8043G5018	DN20	3/4 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	—
V8043G5034	—	3/8 in.	Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	With 2 straight 3/4 in. sweat adapters.
V8043G5125	DN15	1/2 in.	Inverted Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	Normally Closed	Spring return to close	Yes	Less Adapters

# Motorized Zone Valves

## V8043 Low Voltage Normally Closed Zone Valves



**Two-way on-off low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.**

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.

- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.

**Dimensions Diagram:** See diagram on page 224

**Application:** Hydronic Control

**Type:** 2 position

**Body Pattern:** Two-way, Straight-through

**Valve Action:** Spring return to close

**Voltage:** 24 Vac

**Power Consumption:** 7.7 VA

**Nominal Timing (sec, min):** 15 sec

**De-energized Position:** Normally Closed

**Manual Opener:** Yes

**Static Pressure:** 862 kPa (125 psi)

**Fluid Temperature Range:** 10 C to 93 C (50 F to 200 F)

**Maximum Ambient Temperature:** 52 C (125 F)

**Materials**

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Packing O-Ring):** EPDM rubber

**(Ball Plug):** Buna-N (NBR) Rubber Ball

**Comments:** Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

**Approvals:**

**Canadian Standards Association:** CSA Certified

**Replacement Parts:**

**272748AB** 124V Replacement motor (international)

Product Number	Pipe Size		Connection Type	Capacity		Auxiliary End Switch	Maximum Close-off Pressure		Frequency	Includes	Electrical Connections
	DN	inch		(Kv)	(Cv)		(kPa)	(psi)			
V8043C1033	—	3/8 in.	Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	With 2 straight 3/4 in. sweat adapters.	457 mm leads (18 in. leads)
V8043C1041	DN15	1/2 in.	Sweat	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043C1058	DN20	3/4 in.	Sweat	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043C1066	DN25	1 in.	Sweat	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043C1074	DN20	3/4 in.	Sweat	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	With 1/16 in. bypass hole	457 mm leads (18 in. leads)
V8043C1116	—	3/8 in.	Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	Less Adapters	457 mm leads (18 in. leads)

\* TRADELINE models • SUPER TRADELINE models

# Motorized Zone Valves

Product Number	Pipe Size		Connection Type	Capacity		Auxiliary End Switch	Maximum Close-off Pressure		Frequency	Includes	Electrical Connections
	DN	inch		(Kv)	(Cv)		(kPa)	(psi)			
V8043C1124	DN15	1/2 in.	Inverted Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	Less Adapters	457 mm leads (18 in. leads)
V8043C3302	—	3/8 in.	Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	50 Hz; 60 Hz	With 2 straight 3/4 in. sweat adapters.	457 mm leads (18 in. leads)
V8043C3310	DN15	1/2 in.	Inverted Flare	3 Kv	3.5 Cv	—	138 kPa	20 psi	60 Hz	Less Adapters	457 mm leads (18 in. leads)
V8043E1137	DN25	1 in.	NPT	8.6 Kv	10 Cv	SPST	45 kPa	6.5 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043E1145	DN20	3/4 in.	NPT	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
* V8043F1119	DN25	1 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	End Switch enclosure.	screw terminal block
* V8043F1127	DN15	1/2 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	End Switch enclosure.	screw terminal block
* V8043F1135	DN20	3/4 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	End Switch enclosure.	screw terminal block
V8043G1000	DN15	1/2 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043G1018	DN20	3/4 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043G1026	DN25	1 in.	Sweat	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043G1034	—	3/8 in.	Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	With 2 straight 3/4 in. sweat adapters.	457 mm leads (18 in. leads)
V8043G1109	DN20	3/4 in.	NPT	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043G1125	DN15	1/2 in.	Inverted Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	Less Adapters	457 mm leads (18 in. leads)
V8043G1133	—	3/8 in.	Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	Less Adapters	457 mm leads (18 in. leads)
V8043G1158	DN25	1 in.	Sweat	6.9 Kv	8 Cv	SPST	55 kPa	8 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043G1182	DN25	1 in.	NPT	8.5 Kv	10 Cv	SPST	45 kPa	6.5 psi	50 Hz; 60 Hz	—	457 mm leads (18 in. leads)
V8043G3303	—	3/8 in.	Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	50 Hz; 60 Hz	With 2 straight 3/4 in. sweat adapters.	457 mm leads (18 in. leads)
V8043G3311	DN15	1/2 in.	Inverted Flare	3 Kv	3.5 Cv	SPST	138 kPa	20 psi	60 Hz	Less Adapters	457 mm leads (18 in. leads)

\* TRADELINE models • SUPER TRADELINE models

# Motorized Zone Valves

## V8043 Low Voltage Normally Open Valves For Steam



On-off and two way low voltage valves consist of an actuator and valve assembly for controlling the flow low pressure steam.

- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.
- Suitable for use 15 psi low pressure steam application.

**Dimensions Diagram:** See diagram on page 224

**Application:** Steam (low pressure) Control

**Type:** 2 position

**Body Pattern:** Two-way, Straight-through

**Valve Action:** Spring return to open

**Voltage:** 24 Vac

**Power Consumption:** 7.7 VA

**Nominal Timing (sec, min):** 15 sec

**De-energized Position:** Normally Open

**Electrical Connections:** 457 mm leads (18 in. leads)

**Static Pressure:** 862 kPa (125 psi)

**Fluid Temperature Range:** 10 C to 116 C (50 F to 240 F)

**Maximum Ambient Temperature:** 52 C (125 F)

**Materials**

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Packing O-Ring):** EPDM rubber

**(Ball Plug):** EPDM Rubber Ball

**Comments:** For low pressure (15 psi) steam application

**Approvals:**

**Underwriters Laboratories, Inc.** UL Component Listed: File MH11826 Vol. 1

**Replacement Parts:**

**802360UA** 24V, 50/60 Hz Replacement motor for steam and heating Zone Valves

Product Number	Pipe Size		Connection Type	Capacity		Maximum Close-off Pressure		Frequency	Manual Opener
	DN	inch		(Kv)	(Cv)	(kPa)	(psi)		
V8043J1003	DN15	1/2 in.	Sweat	3 Kv	3.5 Cv	138 kPa	20 psi	50 Hz; 60 Hz	No
V8043J1029	DN15	1/2 in.	NPT	3 Kv	3.5 Cv	138 kPa	20 psi	50 Hz; 60 Hz	No
V8043J1037	DN20	3/4 in.	NPT	3 Kv	3.5 Cv	138 kPa	20 psi	50 Hz; 60 Hz	No

\* TRADELINE models • SUPER TRADELINE models

# Motorized Zone Valves

## V8043 Low Voltage Normally Open Zone Valves



**Dimensions Diagram:** See diagram on page 224

**Application:** Hydronic Control

**Type:** 2 position

**Body Pattern:** Two-way, Straight-through

**Valve Action:** Spring return to open

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 7.7 VA

**Nominal Timing (sec, min):** 15 sec

**De-energized Position:** Normally Open

**Electrical Connections:** 457 mm leads (18 in. leads)

**Static Pressure:** 862 kPa (125 psi)

**Fluid Temperature Range:** 5 C to 93 C (40 F to 200 F)

**Maximum Ambient Temperature:** 52 C (125 F)

**Materials**

**Two-way on-off low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.**

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Packing O-Ring):** EPDM rubber

**(Ball Plug):** Buna-N (NBR) Rubber Ball

**Comments:** Valve designed for cycling (not constantly powered on) applications.

Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

**Approvals:**

**Canadian Standards Association:** CSA Certified

**Replacement Parts:**

**272748ABP** 24V, 50/60 Hz Replacement motor for V8043, V8044 Zone Valves

Hydronic Controls

Product Number	Pipe Size		Capacity		Connection Type	Auxiliary End Switch	Maximum Close-off Pressure		Frequency	Includes	Manual Opener
	DN	inch	(Kv)	(Cv)			(kPa)	(psi)			
V8043D1023	DN20	3/4 in.	3 Kv	3.5 Cv	NPT	—	138 kPa	20 psi	50 Hz; 60 Hz	With 1/16 in. bypass hole	No
V8043D1031	DN20	3/4 in.	3 Kv	3.5 Cv	NPT	—	138 kPa	20 psi	50 Hz; 60 Hz	—	No
V8043D1049	DN20	3/4 in.	3 Kv	3.5 Cv	Sweat	—	138 kPa	20 psi	50 Hz; 60 Hz	With 1/16 in. bypass hole	No
V8043D1064	DN20	3/4 in.	3 Kv	3.5 Cv	Sweat	—	138 kPa	20 psi	50 Hz; 60 Hz	—	No
V8043D1072	DN20	3/4 in.	0.9 Kv	1 Cv	Sweat	—	345 kPa	50 psi	50 Hz; 60 Hz	—	No
V8043D1080	—	3/8 in.	3 Kv	3.5 Cv	Flare	—	138 kPa	20 psi	50 Hz; 60 Hz	With 2 straight 3/4 in. sweat adapters.	No
V8043D1156	DN15	1/2 in.	3 Kv	3.5 Cv	Sweat	—	138 kPa	20 psi	50 Hz; 60 Hz	—	No
V8043D1189	DN25	1 in.	3 Kv	3.5 Cv	Sweat	N.C. SPST	138 kPa	20 psi	50 Hz; 60 Hz	—	No
V8043D1197	—	3/8 in.	3 Kv	3.5 Cv	Flare	—	138 kPa	20 psi	50 Hz; 60 Hz	—	No
V8043D1205	DN15	1/2 in.	3 Kv	3.5 Cv	Inverted Flare	—	138 kPa	20 psi	50 Hz; 60 Hz	Less Adapters	No
V8043D1239	DN15	1/2 in.	3 Kv	3.5 Cv	Inverted Flare	N.C. SPST	138 kPa	20 psi	50 Hz; 60 Hz	Less Adapters	No
V8043D3300	—	3/8 in.	3 Kv	3.5 Cv	Flare	—	138 kPa	20 psi	50 Hz; 60 Hz	With 2 straight 3/4 in. sweat adapters.	No
V8043D3318	DN15	1/2 in.	3 Kv	3.5 Cv	Inverted Flare	—	138 kPa	20 psi	60 Hz	Less Adapters	No

\* TRADELINE models • SUPER TRADELINE models

# Motorized Zone Valves

## V8044 Low Voltage Diverting Valves



**On-off and diverting low voltage valves consist of an actuator and valve assembly for controlling the flow of hot water.**

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored.
- All models may be installed without disassembling the valve.
- Compact construction for easy installation.
- Complete powerhead may be removed or replaced without breaking plumbing line connections or draining the system.
- Actuator motor may be replaced without removing the valve body or draining the system.

**Dimensions Diagram:** See diagram on page 224

**Application:** Hydronic Control

**Type:** 2 position

**Body Pattern:** 3-Way, Diverting

**Valve Action:** Spring Return

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 7.7 VA

**Nominal Timing (sec, min):** 30 sec

**De-energized Position:** Port A Normally Closed

**Electrical Connections:** 457 mm leads (18 in. leads)

**Static Pressure:** 862 kPa (125 psi)

**Fluid Temperature Range:** 5 C to 93 C (40 F to 200 F)

**Maximum Ambient Temperature:** 52 C (125 F)

**Materials**

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Packing O-Ring):** EPDM rubber

**(Ball Plug):** Buna-N (NBR) Rubber Ball

**Comments:** Use this valve in closed loop hydronic systems that do not contain dissolved oxygen in system water, such as fresh water from frequent source of makeup water.

Valve designed for cycling (not constantly powered on) applications.

**Approvals:**

**Underwriters Laboratories, Inc.** UL Component Listed: File MH11826 Vol. 1

**Replacement Parts:**

**272748ABP** 24V, 50/60 Hz Replacement motor for V8043, V8044 Zone Valves



Product Number	Pipe Size		Connection Type	Capacity		Auxiliary End Switch	Maximum Close-off Pressure		Manual Opener
	DN	inch		(Kv)	(Cv)		(kPa)	(psi)	
V8044A1002	DN15	1/2 in.	Flare	3.4 Kv	4 Cv	—	138 kPa	20 psi	Yes
V8044A1010	DN15	1/2 in.	Sweat	3.4 Kv	4 Cv	—	138 kPa	20 psi	Yes
V8044A1044	DN20	3/4 in.	Sweat	6 Kv	7 Cv	—	69 kPa	10 psi	Yes
V8044A1135	DN15	1/2 in.	NPT	3.4 Kv	4 Cv	—	138 kPa	20 psi	Yes
V8044A1143	DN20	3/4 in.	NPT	3.4 Kv	4 Cv	—	138 kPa	20 psi	Yes
V8044E1003	DN15	1/2 in.	Sweat	3.4 Kv	4 Cv	SPST	138 kPa	20 psi	Yes
V8044E1011	DN20	3/4 in.	Sweat	6 Kv	7 Cv	SPST	69 kPa	10 psi	Yes

\* TRADELINE models • SUPER TRADELINE models

## Zone Valve Replacement Parts



Product Number	Description	Voltage	Frequency	Used With Valve	Includes
272704A	Two 3/8 in. flare to 1/2 in. sweat adapters	—	—	—	—
272704B	Two 3/8 in. flare to 3/4 in. sweat adapters	—	—	—	—

# Motorized Zone Valves

Product Number	Description	Voltage	Frequency	Used With Valve	Includes	
272708A	Two 1/2 in. inverted flare to 1/2 in. sweat adapters	—	—	—	—	
272708B	Two 1/2 in. inverted flare to 3/4 in. sweat adapters	—	—	—	—	
272708C	Two 1/2 in. inverted flare to 1 in. sweat adapters	—	—	—	—	
272748ABP	24V, 50/60Hz replacement motor for V8043 zone valves	24V	50 Hz; 60 Hz	V8043	Motor mounting screw and lead connectors	
272752DBP	120V, 60Hz replacement motor for V4043, V4044 zone valves	120V	60 Hz	V4043, V4044	Motor mounting screw and lead connectors	
40003918-001	Adaptor kit for converting three-way non-removable head style zone valves to removable head style			Three-way Zone Valves	Adapter plate, ball and shaft assembly, large O-ring and four mounting screws.	
40003918-002	Adaptor kit for converting straight-through (two-way) non-removable head style zone valves to removable head style			Straight-through (two-way) Zone Valves	Adapter plate, ball and shaft assembly, large O-ring and four mounting screws.	
40004622-001	Ball and O-ring Bag Assembly for Zone Valves			—	—	
802360NA	220V/50Hz; 240V/60Hz replacement motor for V4043, V4044 zone valves.	220V/50 Hz; 240V/60 Hz		V4043, V4044	Motor mounting screw and lead connectors	
802360UA	24V, 50/60 Hz Replacement motor for steam and heating Zone Valves	24V	50 Hz; 60 Hz	V8043J	Motor mounting screw and lead connectors	

Hydronic Controls

## Zone Valves Replacement Heads

Product Number	Description	Electrical Connection Location	Voltage	Frequency	Maximum Ambient Temperature		Used With Valve Action	
					(C)	(F)		
40003916-011	24V, 60 Hz Replacement actuator for V8043C	Same side of manual lever	24V	60 Hz	52 C	125 F	—	
40003916-012	24V, 60 Hz Replacement actuator for V8043G	Same side of manual lever	24V	60 Hz	52 C	125 F	—	
40003916-013	24V, 60 Hz Replacement actuator for V8043F	Same side of manual lever	24V	60 Hz	52 C	125 F	—	
40003916-014	24V, 60 Hz Replacement actuator for V8043D	Same side of manual lever	24V	60 Hz	52 C	125 F	Spring return to open	
40003916-016	24V, 50 Hz Replacement actuator for V8044F1001	Same side of manual lever	24V	50 Hz	52 C	125 F	Spring return to close	
40003916-511	24V, 60 Hz Replacement actuator for V8043C "5000" series	—	24V	60 Hz	—	—	—	
40003916-512	24V, 60 Hz Replacement actuator for V8043G "5000" series	—	24V	60 Hz	—	—	—	
40003916-514	24V, 60 Hz Replacement actuator for V8043D "5000" series	—	24V	60 Hz	—	—	—	

# Motorized Zone Valves

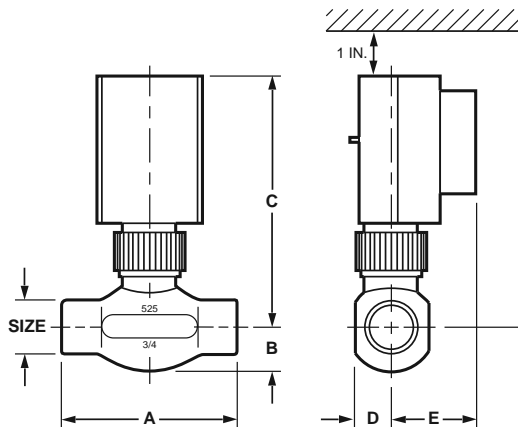
## MZV Series Motorized Zone valves



**Honeywell MZV Series is the first linear zone valve with a built-in balancing plug that permits pre-balancing for each zone.**

- Rack and pinion linear design.
- Fast acting, 15 seconds to open, 5 seconds to close.
- Two piece rack design to extend service life.
- Low power consumption, 8 valves, 40 VA transformer.
- External valve position indicator.
- Quiet operation, no water hammer.
- Built-in tamper resistant balancing valve for pre-balancing.
- High torque, constant speed synchronous motor.
- Cooler running, longer life motor.
- Operator can be replaced without draining system.
- Manual opening feature.
- Replaceable valve cartridge.
- Large adjustable flow, 1/2 in., 3/4 in. Cv 5.8; 1 in., 1-1/4 in. Cv 7.0.
- Motor CSA recognized.
- 4 wire operator with auxiliary switch.
- 2 wire without switch, 24 in. leads.
- Compatible with programmable thermostats.
- Bronze casting; brass/stainless trim.
- USA Patent Nos. 5,529,282; D369,650; 5,941,500; 6,032,924.
- UK Patent No. 2,052,382. 24 VAC, 60 Hz, 0.25 ampere.
- 30 mm collar (valve/actuator interface)

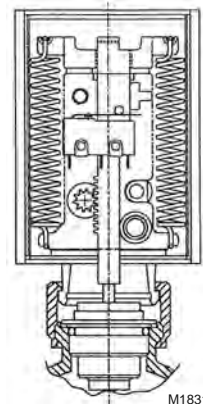
Dimensions in millimeters (inches)



MZV SERIES	VALVE SIZE	DIMENSIONS IN INCHES (MM)				
		A	B	C	D	E
524	1/2 IN.	3-5/16 (84)	1 (25)	4-13/16 (122)	11/16 (17)	1-5/8 (41)
525	3/4 IN.	3-5/16 (84)	13/16 (21)	4-13/16 (122)	11/16 (17)	1-5/8 (41)
526	1 IN.	3-13/16 (97)	1 (25)	4-13/16 (122)	13/16 (21)	1-5/8 (41)
527	1-1/4 IN.	3-13/16 (97)	1 (25)	4-13/16 (122)	13/16 (21)	1-5/8 (41)

M23259B

**Patented long life rack and pinion design with built-in balancing valve**



M18311

**Application:** Residential or Commercial Zoning for hot water heating or chilled water air conditioning systems, fan coil units or indirect water heater service.

**Body Pattern:** Two-way

**Voltage:** 24 Vac

**Frequency:** 60 Hz


**Maximum Ambient Temperature:** 52 C (125 F)

**Maximum Water Pressure:** 862 kPa (125 psi)

Product Number	Pipe Size		Connection Type	Auxiliary End Switch	Capacity (Cv)	Maximum Close-off Pressure	
	DN	inch				(kPa)	(psi)
MZV524-T	DN15	1/2 in.	NPT	—	5.8 Cv	138 kPa	20 psi
MZV524E-T	DN15	1/2 in.	NPT	SPST	5.8 Cv	138 kPa	20 psi
MZV525	DN20	3/4 in.	Sweat	—	5.8 Cv	138 kPa	20 psi
MZV525-T	DN20	3/4 in.	NPT	—	5.8 Cv	138 kPa	20 psi
MZV525E	DN20	3/4 in.	Sweat	SPST	5.8 Cv	138 kPa	20 psi
MZV525E-T	DN20	3/4 in.	NPT	SPST	5.8 Cv	138 kPa	20 psi
MZV526	DN25	1 in.	Sweat	—	7.0 Cv	121 kPa	17.5 psi
MZV526-T	DN25	1 in.	NPT	—	7.0 Cv	121 kPa	17.5 psi
MZV526E	DN25	1 in.	Sweat	SPST	7.0 Cv	121 kPa	17.5 psi
MZV526E-T	DN25	1 in.	NPT	SPST	7.0 Cv	121 kPa	17.5 psi
MZV527	DN32	1 1/4 in.	Sweat	—	7.0 Cv	121 kPa	17.5 psi
MZV527E	DN32	1 1/4 in.	Sweat	SPST	7.0 Cv	121 kPa	17.5 psi



## MZV Series Replacement Parts

Product Number	Description	Voltage	Fre- quency	Maximum Close-off Pressure	Maximum Water Pressure		Maximum Ambient Temperature		
				(psi)	(kPa)	(psi)	(C)	(F)	
<b>MZV520-RP</b>	Replacement operator for MZV 524/525/526/527 with end switch	24 Vac	60 Hz	—	—	—	115 C	240 F	
<b>MZV521-RP</b>	Replacement operator for MZV 524/525/526/527 without end switch	24 Vac	60 Hz	—	—	—	115 C	240 F	
<b>MZV525-RP</b>	Replacement valve cartridge for 1/2 in. (MZV524, MZV524E) and 3/4 in. (MZV525, MZV525E) valves	24 Vac	60 Hz	20 psi	862 kPa	125 psi	115 C	240 F	
<b>MZV526-RP</b>	Replacement valve cartridge for 1 in. (MZV526, MZV526E) and 1 1/4 in. (MZV527, MZV527E) valves	24 Vac	60 Hz	17.5 psi	862 kPa	125 psi	115 C	240 F	
<b>SZ07-070</b>	Conversion kit, telestat to Powertrack (MZV). Order with MZV520-RP. Includes adapter ring and shaft extension.	—	—	—	—	—	—	—	

# Manifold Zone Valves

## RM Series Radiant Manifold



2, 3, and 4 port Radiant Manifolds without valves (WOV models)



2, 3, and 4 port Radiant Manifolds with valves (WV models)



2, 3, and 4 port Radiant Manifolds with flow meters (WFM models)

Manifolds are used to control individual heating loop flow and temperature controls through both Supply and Return configurations. Individual tubing loops are connected to the manifolds through connection adapters. Manifolds can be easily grouped together in configurations of 2 Port, 3 Port and 4 Port by using built-in union nut adapters allowing different zoning configurations to meet job needs. Supply Manifolds-Without Valves are used in combination with Return manifolds that contain valves for individual loop flow and temperature control. Return

Manifolds-With Valves incorporate built-in balancing valves to allow flow adjustment and balancing of individual heating loops.

**Materials (Body):** Bronze  
**Flow Rate:** 3.5 gpm  
**Maximum Differential Pressure:** (40 ft., 17.5 psi)  
**Maximum Operating Pressure:** 125 psi  
**Maximum Temperature:** 104 C (220 F)  
**Comments:** Without Operators

Product Number	Number of Zones	Connection Type	Connection Size	Description
RM200WFM	2 Zones	Threaded	3/4 in.	2 Port Return Manifold With Flow Meters
RM200WOV	2 Zones	Threaded	3/4 in.	2 Port Supply Radiant Manifold Without Valves
RM200WV	2 Zones	Threaded	3/4 in.	2 Port Return Radiant Manifold With Valves
RM300WFM	3 Zones	Threaded	3/4 in.	3 Port Return Manifold With Flow Meters
RM300WOV	3 Zones	Threaded	3/4 in.	3 Port Supply Radiant Manifold Without Valves
RM300WV	3 Zones	Threaded	3/4 in.	3 Port Return Radiant Manifold With Valves
RM400WFM	4 Zones	Threaded	3/4 in.	4 Port Return Manifold With Flow Meters
RM400WOV	4 Zones	Threaded	3/4 in.	4 Port Supply Radiant Manifold Without Valves
RM400WV	4 Zones	Threaded	3/4 in.	4 Port Return Radiant Manifold With Valves

## RAM Series Pre Assembled Radiant Manifold



Manifolds are used to control individual heating loop flow and temperature controls through both Supply and Return configurations. Individual tubing loops are connected to the manifolds through connection adapters. Manifolds can be easily grouped together in configurations of 2 Port, 3 Port and 4 Port by using built-in union nut adapters allowing different zoning configurations to meet job needs. Supply Manifolds-Without Valves are used in combination with Return manifolds that contain valves for individual loop flow and temperature control. Return Manifolds-With Valves incorporate built-in balancing valves to allow flow adjustment and balancing of individual heating loops.

**Materials (Body):** Bronze  
**Flow Rate:** 3.5 gpm  
**Maximum Differential Pressure:** (40 ft., 17.5 psi)  
**Maximum Operating Pressure:** 125 psi  
**Maximum Temperature:** 104 C (220 F)  
**Comments:** Without Operators

Product Number	Number of Zones	Connection Type	Connection Size	Description	Used With
RAM200	2 Zones	Threaded	3/4 in.	Pre Assembled 2 Port Supply & Return Radiant Manifold With Valves	AQ2000 Controls
RAM200FM	2 Zones	Threaded	3/4 in.	Pre Assembled 2 Port Supply & Return Manifold with Flow Meters	AQ2000 Controls
RAM300	3 Zones	Threaded	3/4 in.	Pre Assembled 3 Port Supply & Return Radiant Manifold With Valves	AQ2000 Controls
RAM300FM	3 Zones	Threaded	3/4 in.	Pre Assembled 3 Port Supply & Return Manifold with Flow Meters	AQ2000 Controls
RAM400	4 Zones	Threaded	3/4 in.	Pre Assembled 4 Port Supply & Return Radiant Manifold With Valves	AQ2000 Controls
RAM400FM	4 Zones	Threaded	3/4 in.	Pre Assembled 4 Port Supply & Return Manifold with Flow Meters	AQ2000 Controls

## RM Series Manifold Accessories

Product Number	Connection Type	Size	Description	Used With
FM100	Threaded	—	RM Series Manifold Flow Meter Replacement Top	RM Series Manifolds
MA206-018	PEX	R32 x 3/4 in.	R32 x 3/4 in. Pex Adapter	RM Series Manifolds
MA206-019	PEX	R32 x 1 in.	R32 x 1 in. PEX Adapter	RM Series Manifolds
MA206-020	NPT	R32 x 1 in.	R32 x 1 in. NPT Adapter	RM Series Manifolds
MA206-021	Sweat	R32 x 1 in.	R32 x 1 in. Sweat Adapter	RM Series Manifolds
MA206-022	Sweat	R32 x 1 1/4 in.	R32 x 1 1/4 in. Sweat Adpater	RM Series Manifolds
MBKT204	—	—	RM Series Manifold Bracket	RM Series Manifolds
MC206-002	Threaded	30mm	RM & SZ Series Manifold Valve Cap	RM Series Manifolds
MC206-010	—	—	RM Series Union Coupling Gasket	RM Series Manifolds
MC206-011	Threaded	1 in	RM Series Manifold End Cap	RM Series Manifolds
MPP203-023	Threaded	3/4 in	RM Series Manifold Branch Cap	RM Series Manifolds
MTK202	Threaded	1 in	RM Series Manifold Union End Fitting with Thermometer	RM Series Manifolds
YWM03-066	Threaded	—	RM Series Manifold Replacement Cartridge with Pre-balancing feature	RM Series Manifolds

## MT4 Series Smart-T Thermal Electric Actuator



- No mounting tools required. Mounts easily to manifold with valve adapter (included)
- Waterproof housing

- Auxiliary switch models for driving pumps or fans
- Low power consumption
- Normally closed action
- Compact design - installs in tight spaces
- Visual indicator shows valve position
- Silent operation
- Reliable long-term operation

**Materials (Body):** Plastic  
**Dimensions, Approximate:** 2.24 high x 1.77 long x 1.65 deep  
**Current Draw:** < 0.1A while operating; 0.7A during first 500 milliseconds  
**Maximum Fluid Temperature:** 120 C (248 F)

Product Number	Connection Type	Collar Diameter		Description	Used With
		(mm)	(inch)		
MT4-024S-NC	Threaded	30 mm	1 3/16 in.	MT4 Thermal Electric Actuator	RM Series Manifolds

# Differential Pressure Regulators

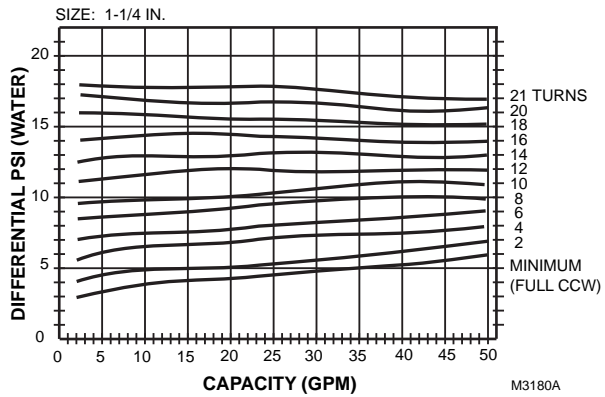
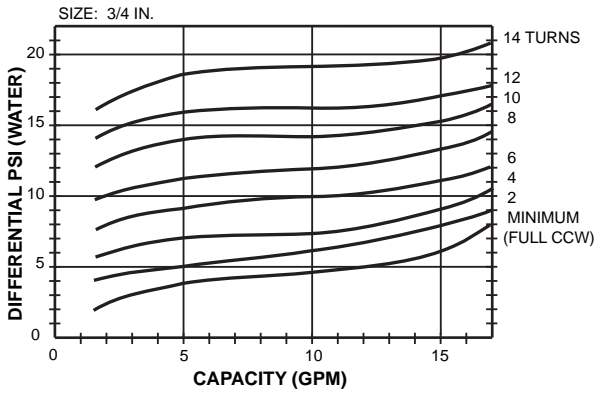
## D146 Differential Pressure Regulators



Used to eliminate excessive pump head pressure when most radiator valves are closed due to reduced demand.

- Install between supply and return sides of a hydronic system to stabilize pressure differential and reduce the effects of demand changes.
- Control maintains a constant differential between the two sides by opening a bypass whenever the difference between supply and return reaches the setpoint.
- Provides silent, trouble-free service.
- Easy installation; requires no electrical hookup.
- Easy adjustment of pressure by turning regulating cap.
- Built-in differential pressure indicator.
- Brass valve body with thermoplastic and stainless steel parts.
- Diaphragm of EPDM.

### D146 Capacities



M3180A

**Maximum Inlet Pressure Rating (psi):** 85 Psi  
**Outlet Pressure Adjustment Range (psi):** 0-17 psi  
**Temperature Range:** 110 C (230 F)

**Materials:** Brass (body), Stainless steel and engineered thermoplastics.  
 EPDM diaphragm.

Product Number	Pipe Size		Pipe Connection	Capacity	Dimensions, Approximate		Includes
	DN	inch			(mm)	(inch)	
D146M1032	DN20	3/4 in.	Angle type, female threaded NPT	18 gpm 120,000 Btu/hr	160 mm high x 86 mm wide	6 1/4 in. high x 3 3/8 in. wide	Built-in differential pressure indicator
D146M1040	DN32	1 1/4 in.	Angle type, female threaded NPT	50 gpm 395,000 Btu/hr	213 mm high x 109 mm wide	8 1/2 in. high x 4 1/4 in. wide	Built-in differential pressure indicator

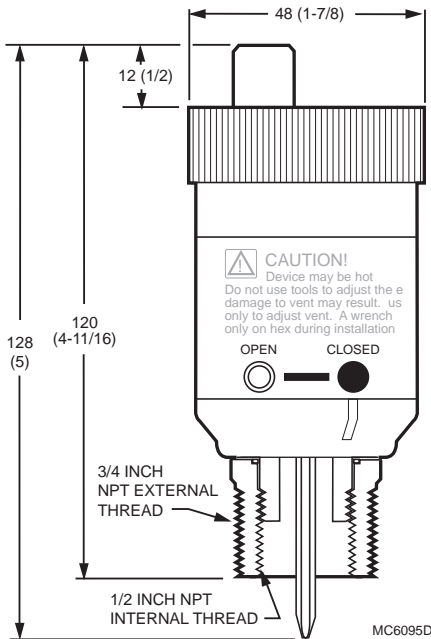
## EA79 Industrial Air Vents



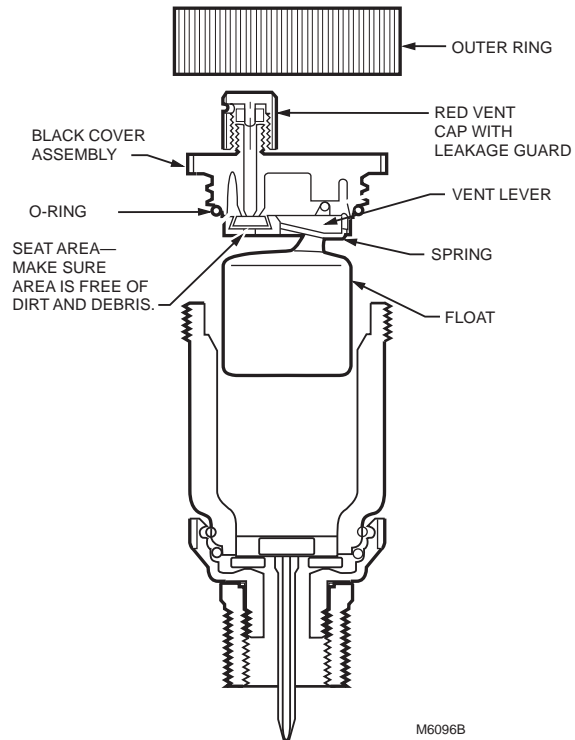
The Honeywell EA79 Industrial Air Vent purges air from high pressure mains and equipment in hot or cold closed water systems.

- Built-in shutoff valve for servicing without system shutdown.
- Built-in vacuum breaker.
- Removable float/valve assembly for easy servicing.
- Safety drain connection and vent cap with leakage guard.
- Brass shell construction.
- Internal parts made of corrosion-resistant and chemical-resistant materials for use with water systems containing propylene glycol, mineral oils, or petroleum-based oils. Replaces Hoffman # 79 or Dole # 75 Vents.
- Maintains quiet and efficient operation.

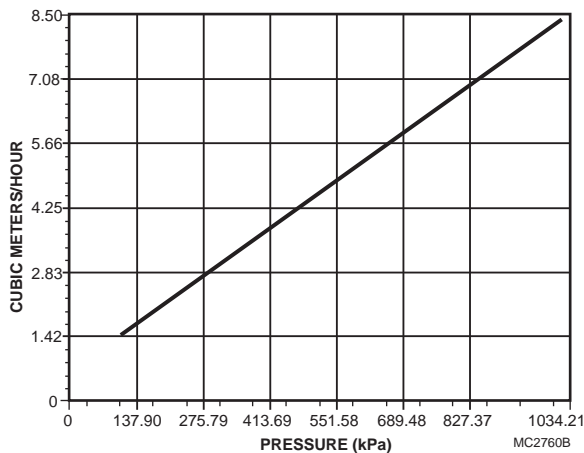
### Dimensions in millimeters (inches)



### EA79 construction



### EA79 capabilities



**Application:** Hydronics

**Corrosion Resistant:** Internal parts made of corrosion-resistant and chemical-resistant materials for use with hydronic systems that may contain concentrations of propylene or ethylene glycol.

**Maximum Operating Temperature:** 120C (250 F)

**Maximum Operating Pressure:** 1034 kPa (150 psi)

**Accessories:**

**Q122A1001** Safe waste connector (M20 thread connection)

**Replacement Parts:**

**P79B1003** Replacement O-ring, cover and internals for EA79A1004

Product Number	Connection Type	Connection Size	Description
EA79A1004	3/4 in. male NPT pipe thread with 1/2 in. female NPT pipe thread	3/4 in.	Industrial automatic air vent

# Air Vents and Eliminators

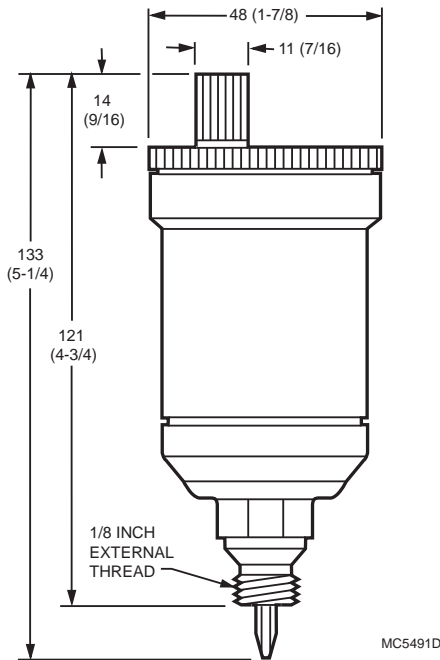
## EA122A Automatic Air Vent for Heating System Applications



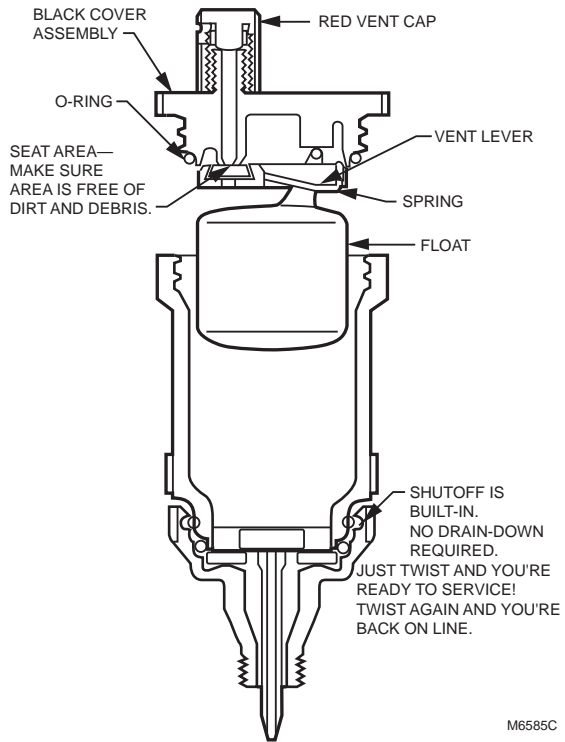
The Honeywell EA122A Automatic Air Vent purges air from high pressure mains and equipment in hot or cold closed water systems.

- Includes removable float/valve assembly for easy servicing.
- Not for use in steam systems.
- Body, cover and float assembly made of thermoplastics.
- Internal parts made of corrosion-resistant and chemical-resistant materials for use with water systems containing light concentrations of propylene glycol, mineral oils, or petroleum-based oils.
- Oil resistant seal.
- NBR seat disc and O-ring.

### Dimensions in millimeters (inches)



### EA122A construction



**Application:** Hydronic heating and cooling

**Corrosion Resistant:** Internal parts made of corrosion-resistant and chemical-resistant materials for use with hydronic systems that may contain concentrations of propylene or ethylene glycol.

**Maximum Operating Temperature:** 100 C (212 F)

**Maximum Operating Pressure:** 620 kPa (90 psi)

### Accessories:

**Q122A1001** Safe waste connector (M20 thread connection)

### Replacement Parts:

**P122B1002** Cover assembly including cover, float assembly and vent cap

Product Number	Connection Type	Connection Size	Description
EA122A1002	Male NPT	1/8 in.	Automatic air vent with built-in shutoff valve and leakage guard, oil resistant

# Air Vents and Eliminators

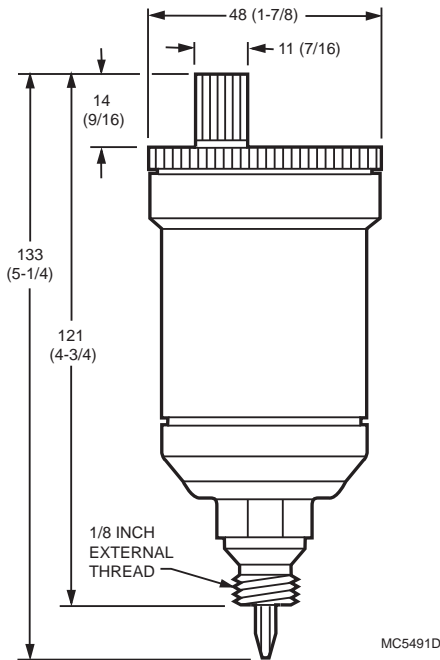
## EA122A Automatic Air Vent for Non-Heating System Applications



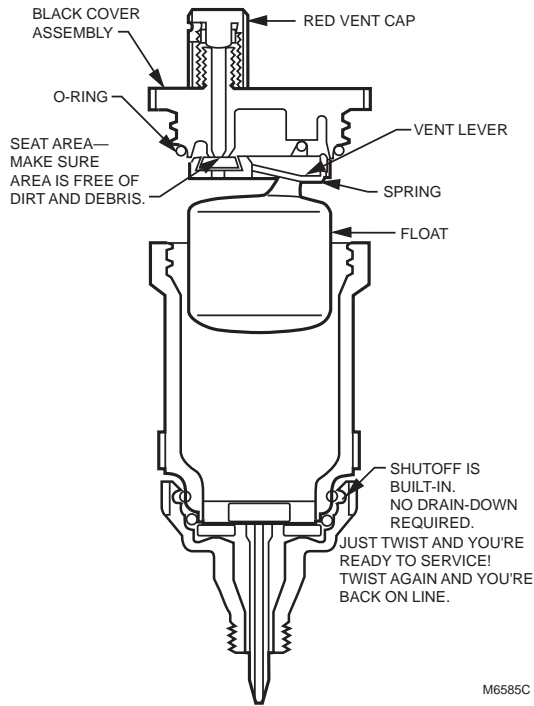
The Honeywell EA122A Automatic Air Vent purges air from high pressure mains and equipment in hot or cold potable water systems.

- Includes removable float/valve assembly for easy servicing.
- Not for use in steam systems.
- Body, cover and float assembly made of thermoplastics.
- Internal parts made of corrosion-resistant and chemical-resistant materials for use with water systems containing light concentrations of propylene glycol, mineral oils, or petroleum-based oils.
- Oil resistant seal.
- EPDM seat disc and O-ring.

### Dimensions in millimeters (inches)



### EA122A construction



**Application:** Potable water installations

**Corrosion Resistant:** Internal parts made of corrosion-resistant and chemical-resistant materials for use with hydronic systems that may contain concentrations of propylene or ethylene glycol.

**Maximum Operating Temperature:** 100 C (212 F)

**Maximum Operating Pressure:** 620 kPa (90 psi)

### Accessories:

**Q122A1001** Safe waste connector (M20 thread connection)

### Replacement Parts:

**P122B1002** Cover assembly including cover, float assembly and vent cap

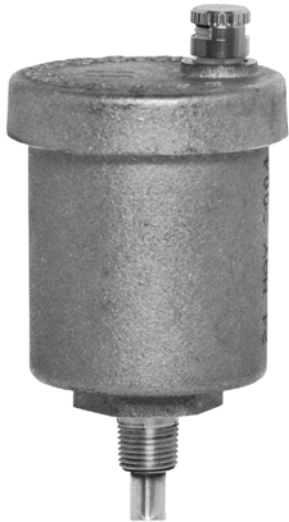
Product Number	Connection Type	Connection Size	Description
EA122A1028	Male NPT	1/8 in.	Automatic air vent with built-in shut off valve; includes EPDM seat disc and O-ring.
EA122B117	Male NPT	1/8 in.	Automatic Air vent without build-in shutoff valve or leakage guard; includes EPDM seat disc and O-ring.

## Air Vent Accessories and Replacement Parts

Product Number	Description	Used With
P79B1003	Replacement O-ring, cover and internals for EA79A1004	EA79A1004
P122B1002	Cover assembly including cover, float assembly and vent cap	EA122A1002
P122B1010	Cover assembly including cover, float assembly and vent cap	EA122A1028
Q122A1001	Safe waste connector (M20 thread connection)	EA79; EA122A

# Air Vents and Eliminators

## GoldTop™—Universal Air Vent for Residential and Commercial Heating and Cooling Systems.



Installers, wholesalers and OEMs can now stock one vent for all their venting needs between 1 and 150 psi systems and obtain the highest venting performance. Honeywell has reinvented the vent! Air vents have been removing air from heating and cooling systems for decades. Some were better than others. Many stopped venting after initial filling. No one has, up to now, been able to design a low cost vent that performs at both low and high pressures. It was always one or the other. Honeywell's revolutionary patented fulcrum design offers a venting rate of 3-4 times that of other products. It works when others stop venting at higher pressures. The GoldTop offers convenient, one-fits-all concept and is competitively priced.

- Patent No. 5,988,201.

**Application:** Residential or commercial heating and cooling systems

**Materials (Body):** Brass

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 1034 kPa (150 psi)

**Dimensions, Approximate:** 24 mm diameter x 83 mm long  
(1 27/32 in. diameter x 3 1/4 in. long)

Product Number	Connection Type	Connection Size	Weight		Description
			(kg)	(lb)	
FV180	Male NPT	1/8 in.	0.18 kg	0.4 lb	1/8 in. NPT Goldtop Universal Air Vent for heating and cooling systems
FV180A	Male NPT	1/4 in.	0.18 kg	0.4 lb	1/4 in. NPT Goldtop Universal Air Vent for heating and cooling systems
FV183	Male NPT	3/4 in.	0.18 kg	0.4 lb	3/4 in. NPT Goldtop Universal Air Vent for heating and cooling systems

## Hygrovent—Automatic Vent for Hot Water or Steam



The Honeywell Hygrovent is an automatic air vent for hot water and steam systems. Install in baseboards, radiators, convectors and high points in piping systems to remove air. The nickel-plated valve has a quick venting design and a positive shut-off ball check.

**Application:** Hot water or steam

**Materials (Body):** Nickel Plated

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** Water: 125 psi; Steam: 10 psi

**Dimensions, Approximate:** 24 mm diameter x 83 mm long  
(1 27/32 in. diameter x 3 1/4 in. long)

Product Number	Connection Type	Connection Size	Weight		Description
			(kg)	(lb)	
HV190	Male NPT	1/8 in.	0.3 kg	0.6 lb	1/8 in. NPT Automatic Air Vent for hot water or steam



# Air Vents and Eliminators

## MaxiVent™—Air Vent for heating and cooling systems



The MaxiVent features a low profile, fit anywhere solid brass body and cover, and a high temperature polypropylene float.

**Application:** Residential or commercial heating and cooling systems

**Materials (Body):** Brass

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 1034 kPa (150 psi)

**Dimensions, Approximate:** 51 mm high x 29 mm diameter  
(2 in. high x 1 5/32 in. diameter)

Product Number	Connection Type	Connection Size	Weight		Description
			(kg)	(lb)	
FV147	Male NPT	1/8 in.	0.06 kg	0.12 lb	1/8 in. NPT Air Vent for heating and cooling systems
FV147A	Male NPT	1/4 in.	0.06 kg	0.12 lb	1/4 in. NPT Air Vent for heating and cooling systems

## AP400 Air Purger



Air Purgers provide efficient separation of air and water in hydronic heating systems. Heavy duty cast bronze construction with tappings for expansion tank and automatic air vent mountings. Removes entrapped air with internal baffle design through continuous recirculation of heating system water with use of air vent. Improves system efficiency, reduces noise and helps extend component life.

- Heavy Duty cast iron construction
- 1 inch, 1 1/4 and 1 1/2 inch models (inlet and outlet)
- 1/2 inch bottom tapping for expansion tank mount
- 1/8 inch top tapping for air vent mount
- Directional flow arrow for correct installation

**Application:** Closed heating systems

**Materials (Body):** Cast Iron

**Maximum Operating Temperature:** 135 C (275 F)

**Maximum Operating Pressure:** 862 kPa (125 psi)

**Dimensions, Approximate:** 152 mm long x 95 mm high x 60 mm wide  
(6 in. long x 3-3/4 in. high x 2-3/8 in. wide)

Product Number	Pipe Size	Connection Type	Connection Size	Weight		Description
				(kg)	(lb)	
AP400	1 in.	Female NPT	Bottom: 1/2 in.; Top: 1/8 in.	1.9 kg	4.2 lb	1 in. NPT Air Purger for closed heating systems
AP401	1 1/4 in.	Female NPT	Bottom: 1/2 in.; Top: 1/8 in.	1.7 kg	3.8 lb	1 1/4 in. NPT Air Purger for closed heating systems
AP402	1 1/2 in.	Female NPT	Bottom: 1/2 in.; Top: 1/8 in.	3.9 kg	8.6 lb	1 1/2 in. NPT Air Purger for closed heating systems

# Air Vents and Eliminators

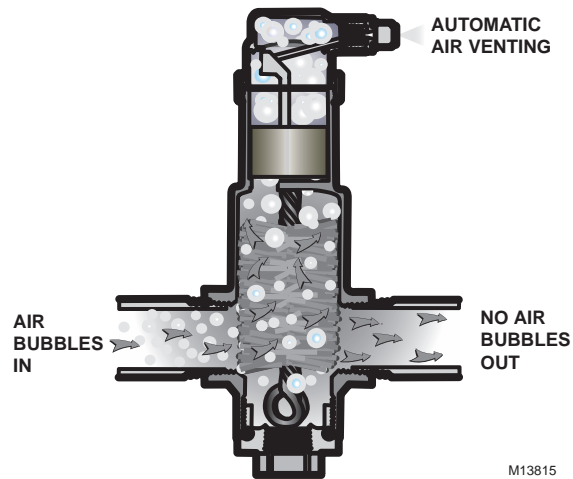
## SuperVent® Air Eliminator- Eliminates Air from Hydronic Heating Systems without Bleeding



Conventional automatic air vents installed in Hydronic heating systems can leak and cause inefficient system operation. To effectively eliminate air from the system without bleeding, air bubbles need to be vented. The NEW Honeywell SuperVent purges air through a no clog vent assembly that controls dirt and debris to minimize air vent fouling.

- No clog vent.
- Dirt and Debris resistant.
- 360 degree adjustable collar ring for installation flexibility.
- Stainless steel concentrator which eliminates gurgling noise.
- Bronze body for rigid construction.
- Threaded connections.

### How it works



M13815

**Application:** Residential or Commercial closed loop hydronic heating or chilled water systems

**Materials (Body):** Bronze

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 862 kPa (125 psi)

Product Number	Pipe Size	Connection Type	Connection Size	Maximum Diameter		Dimensions, Approximate		Capacity (Cv)	Weight	
				(mm)	(inch)	(mm)	(inch)		(kg)	(lb)
PV075	3/4 in.	Female NPT	3/4 in. bottom inlet	46 mm	1 13/16 in.	176 mm high x 68 mm wide	6 29/32 in. high x 2 11/16 in. wide	13 Cv	0.9 kg	2 lb
PV075S	3/4 in.	Sweat	3/4 in. bottom inlet	46 mm	1 13/16 in.	176 mm high x 81 mm long	6 29/32 in. long x 3 3/16 in. wide	13 Cv	0.9 kg	2 lb
PV100	1 in.	Female NPT	1 in. bottom inlet	53 mm	2 3/32 in.	192 mm high x 79 mm long	6 1/2 in. high x 3 3/32 in. wide	22 Cv	1.2 kg	2.75 lb
PV100S	1 in.	Sweat	1 in. bottom inlet	53 mm	2 3/32 in.	192 mm long x 94 mm wide	6 1/2 in. high x 3 11/16 in. wide	22 Cv	1.2 kg	2.75 lb
PV125	1 1/4 in.	Female NPT	1 1/4 in. bottom inlet	64 mm	2 1/2 in.	199 mm high x 94 mm wide	7 27/32 in. high x 3 11/16 in. wide	38 Cv	1.6 kg	3.5 lb
PV125S	1 1/4 in.	Sweat	1 1/4 in. bottom inlet	64 mm	2 1/2 in.	199 mm high x 112 mm wide	7 27/32 in. high x 4 13/32 in. wide	38 Cv	1.6 kg	3.5 lb
PV150	1 1/2 in.	Female NPT	1 1/2 in. bottom inlet	79 mm	3 3/32 in.	233 mm high x 110 mm long	9 5/32 in. high x 4 5/16 in. long	50 Cv	2.4 kg	5.2 lb
PV200	2 in.	Female NPT	2 in. bottom inlet	102 mm	4 in.	261 mm high x 132 mm long	10 9/32 in. high x 5 3/16 in. long	95 Cv	3.6 kg	8 lb

## SuperVent® Air Eliminator Universal Models - Eliminate Air from Hydronic Heating Systems without Bleeding



Conventional automatic air vents installed in Hydronic heating systems can leak and cause inefficient system operation. To effectively eliminate air from the system without bleeding, air bubbles need to be vented. The NEW Honeywell SuperVent purges air through a no clog vent assembly that controls dirt and debris to minimize air vent fouling.

- No clog vent.
- Dirt and Debris resistant.
- 360 degree adjustable collar ring for installation flexibility.
- Stainless steel concentrator which eliminates gurgling noise.
- Bronze body for rigid construction.
- Threaded connections.

**Application:** Residential or Commercial closed loop hydronic heating or chilled water systems.

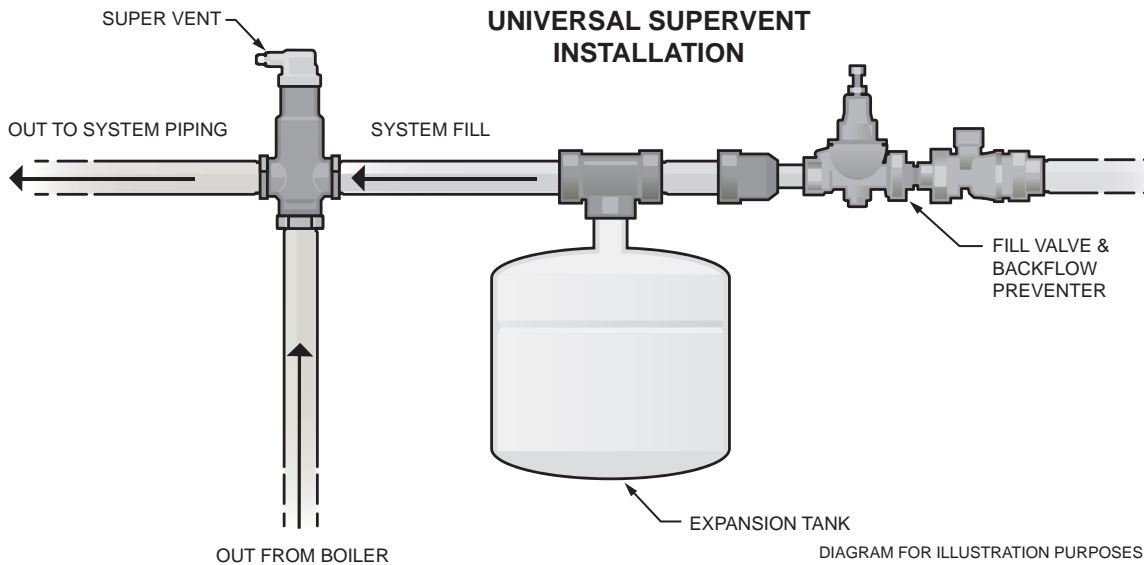
**Materials (Body):** Bronze

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 862 kPa (125 psi)

Product Number	Pipe Size	Connection Size	Maximum Diameter		Connection Type	Dimensions, Approximate		Capacity (Cv)	Weight	
			(mm)	(inch)		(mm)	(inch)		(kg)	(lb)
PVU075	3/4 in.	3/4 in. bottom inlet	46 mm	1 13/16 in.	Female NPT	185 mm long x 68 mm wide	7 9/32 in. long x 2 11/16 in. wide	3.6 Cv	0.9 kg	2.1 lb
PVU100	1 in.	1 in. bottom inlet	53 mm	2 3/32 in.	Female NPT	199 mm high x 112 mm wide	7 27/32 in. high x 4 13/32 in. wide	6.2 CV	1.3 kg	2.8 lb
PVU125	1 1/4 in.	1 1/4 in. bottom inlet	64 mm	2 1/2 in.	Female NPT	212 mm high x 94 mm long	8 1/4 in. high x 3 11/16 in. wide	10.5 Cv	1.6 kg	3.6 lb
PVU150	1 1/2 in.	1 1/2 in. bottom inlet	79 mm	3 3/32 in.	Female NPT	239 mm high x 110 mm long	9 13/32 in. high x 4 5/16 in. wide	14.3 Cv	2.4 kg	5.2 lb

### Typical Installation



M13834

# Air Vents and Eliminators

## SuperVent® Vent Top for Heating and Cooling Systems



The Supervent has high venting capacity and incorporates a check valve. Use with SuperVent PV Series products.

**Application:** Residential or commercial heating and cooling systems

**Materials (Body):** Brass

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 1034 kPa (150 psi)

**Dimensions, Approximate:** 76 mm high x 51 mm diameter  
(3 in. high x 2 in. diameter)

Product Number	Pipe Size	Connection Size	Maximum Diameter		Connection Type	Weight	
			(mm)	(inch)		(kg)	(lb)
SV173	3/8 in.	3/8 in.	51 mm	2 in.	NPT	0.19 kg	0.43 lb
SV175	1/2 in.	1/2 in.	51 mm	2 in.	NPT	0.19 kg	0.43 lb

## SuperVent Replacement Parts

Product Number	Description
PV-001RP	Replacement Air Vent Assembly for PowerVent (pre 2004) size 3/4 in., 1 in., 1 1/4 in., 1 1/2 in. and 2 in.
PV-020RP	PV SuperVent Vent Top Replacement (New Style 90 Degree)

## FlowCheck—Gravity Check Valves



Honeywell FlowChecks prevent the flow of water to any part of a system when the pump is shut off. They permit summer/winter operation of indirect water heaters. Honeywell FlowChecks are easy to clean. Just unscrew the top of the valve for inspection and cleaning. Bronze and brass construction. To allow gravity flow, the FlowCheck can be changed to manual operation by turning the hand wheel counterclockwise (open position).

**Type:** Horizontal

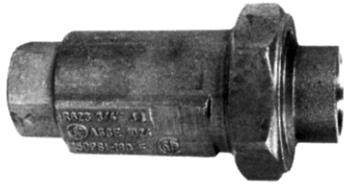
**Dimensions, Approximate:**

3 11/16 in. high x 3 5/16 in. long x 1 1/2 in. wide

**Materials (Body):** Brass

Product Number	Size (inch)	Connection Type	Weight	
FC200SB	3/4 in.	Sweat	0.5 kg	1.1 lb
FC201SB	1 in.	Sweat	0.68 kg	1.5 lb

## Backflow Preventers with Dual Check for Domestic Water



1024

### Backflow Preventers-Dual Check for Domestic water

- Dual Check Valves may be installed in either a vertical or horizontal position and should be installed immediately down stream of the water meter.

### Dimensions, Approximate:

111 mm long x 54 mm wide (4 3/8 in. long x 2 1/8 in. wide)

### Connection Type: NPT

Maximum Ambient Temperature: 82 C (180 F)

Maximum Operating Pressure: 1034 kPa (150 psi)

### Approvals:

Canadian Standards Association: Certified

Other: ASSE Certified

Product Number	Connection Size		Weight		Description
	DN	inch	(kg)	(lb)	
BP700	DN20	3/4 in.	0.45 kg	1.0 lb	Dual check 3/4 in. NPT
BP701	DN25	1 in.	0.64 kg	1.4 lb	Dual Check 1 in. NPT

## Backflow Preventers with Intermediate Atmospheric Vent for Heating Systems



1012

### use on small supply lines, it protects against both backflow and back siphonage for continuous pressure applications.

- It is ideal for boiler feed lines, livestock drinking fountains, trailer park water hook-ups, laboratory equipment and numerous other applications.
- Suitable for either hot or cold water service, the BP900 is designed for non-continuous backflow temperatures up to 250 F and working supply pressures up to 175 psi.

### Dimensions, Approximate:

124 mm long x 63 mm wide (4 7/8 in. long x 2 1/2 in. wide)

### Connection Type: NPT

Maximum Ambient Temperature: 121 C (250 F)

Maximum Operating Pressure: 1207 kPa (175 psi)

### Approvals:

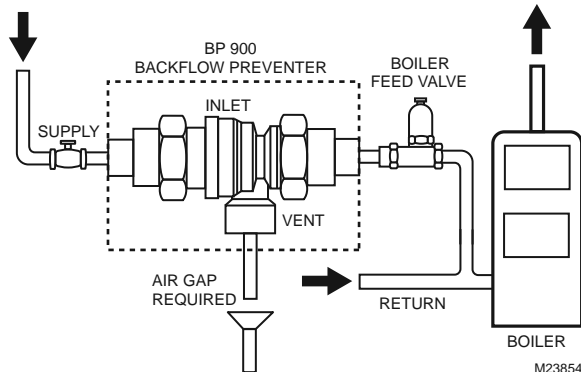
Canadian Standards Association: Certified

Other: ASSE Certified

The BP900 is a double check backflow preventer with an intermediate vacuum breaker designed to prevent the backflow of contaminated water into the potable water supply. Designed for the

Product Number	Connection Size		Weight		Description
	DN	inch	(kg)	(lb)	
BP900	DN15	1/2 in.	0.54 kg	1.2 lb	Double check intermediate vacuum breaker - 1/2 in. NPT
BP901	DN20	3/4 in.	0.54 kg	1.2 lb	Double check intermediate vacuum breaker - 3/4 in. NPT

### Typical Installation



# Boiler Fill Valves

## FM Boiler Fill Valves



Pressure regulating valve for automatic control of boiler feed water and other pressure reducing applications. Especially constructed for expansion tank mounting.

- Fast fill feature.
- Built in check valve.

**Application:** Fast fill pressure regulating boiler feed valve with check valve.

**Inlet Connection Type:** Sweat or Threaded

**Inlet Connection Size:** 1/2 in.

**Pipe Size:** 1/2 in.

**Materials (Body):** Brass

**Maximum Ambient Temperature:** 100 C (212 F)

Product Number	Maximum Operating Pressure		Regulating Pressure Range	Dimensions, Approximate	Weight	Description
	(kPa)	(psi)	(psi)			
FM450	1034 kPa	150 psi	4 psi to 60 psi	4 1/8 in. high x 5 5/16 in. long	1.8 lb	1/2 in. sweat union pressure reducing valve, includes union nut and both sweat and NPT tailpiece
FM911	1034 kPa	150 psi	4 psi to 60 psi	4 1/8 in. high x 5 5/16 in. long plus PB900	4 lb	1/2 in. NPT Backflow preventer and boiler fill valve assembly, includes union nut and both sweat and NPT tailpiece

# Thermometers and Temperature/Pressure Gauges

## Thermometers with Thermowells



### Thermometer with Sweat or Threaded Connection.

- Brass thermowell is included to allow the thermometer to be removed without draining the system.
- 2 inch or 2 1/2 inch Dial.

**Materials:** Case: steel; Well: brass

**Temperature Range:** 0 C to 121 C (32 F to 250 F)

**Connection Size:** 1/2 in.

**Comments:** Brass thermowell is included to allow the thermometer to be removed without draining the system.

Product Number	Connection Type	Dial Size		Length		Weight	
		(mm)	(inch)	(mm)	(inch)	(kg)	(lb)
GT161	NPT	51 mm	2 in.	51 mm	1 1/2 in.	0.095 kg	0.21 lb
GT162	NPT	63.5 mm	2 1/2 in.	51 mm	1 1/2 in.	0.114 kg	0.25 lb
GS200	Sweat	51 mm	2 in.	51 mm	1 1/4 in.	0.095 kg	0.21 lb
GS250	Sweat	63.5 mm	2 1/2 in.	51 mm	1 1/4 in.	0.114 kg	0.25 lb

## Tridicators



**Pressure/temperature gauge with relief set point indicator for boilers and shut off valve.**

**Temperature Range:** 15 C to 160 C (60 F to 320 F)

**Connection Type:** NPT

**Connection Size:** 1/4 in.

**Maximum Operating Pressure:** 75 psi

Product Number	Dial Size		Length		Weight		Comments
	(mm)	(inch)	(mm)	(inch)	(kg)	(lb)	
TD-090	79.4 mm	3 1/8 in.	23.0 mm	1 21/32 in.	0.14 kg	0.3 lb	Pressure/temperature gauge with relief set point indicator
TD-165	79.4 mm	3 1/8 in.	42.1 mm	2 in.	0.14 kg	0.3 lb	Pressure/temperature gauge with relief set point indicator
TDV-040	79.38 mm	3 1/8 in.	23.02 mm	29/32 in.	0.18 kg	0.4 lb	Pressure/temperature gauge with relief set point indicator and shut off valve

# Expansion Tanks

## TX Series Expansion Tanks- Domestic Hot Water



The Honeywell Thermal Expansion Absorber is a welded, pressurized expansion tank with a butyl diaphragm to control excess pressure in potable hot water systems. The Thermal Expansion Tank controls pressure build-up in the system, eliminates relief valve spillage, protects fixtures and extends water heater life.

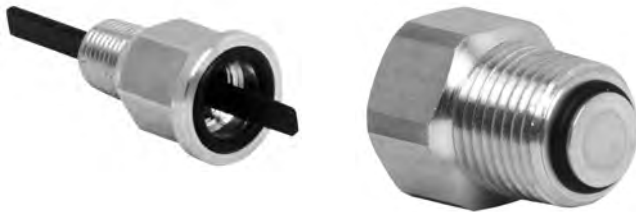
- Heavy duty butyl rubber diaphragm (FDA approved) isolates water from air.
- Polypropylene liner, 100% non-metallic, non-corrosive water reservoir.
- Full size range: 2-528 gals., for all water heating volumes (ASME available).
- Prevents water hammer.
- Maintenance free.
- Protects water heater from harmful pressure cycling.
- Allows storage of expanded water with no increase in system pressures.

**Maximum Operating Temperature:** 93 C (200 F)  
**Maximum Operating Pressure:** 1034 kPa (150 psi)  
**Precharge:** 40 psi  
**Comments:** Potable

**Materials**  
**Shell:** Steel  
**Connection:** Brass  
**Liner:** Polypropylene  
**Diaphragm:** Butyl

Product Number	Connection		Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	Size (inch)	Type	(mm)	(inch)	(mm)	(inch)	(L)	(gal)	(L)	(gal)	(kg)	(lb)
TX-5	3/4 in.	Male NPT	203.2 mm	8 in.	321 mm	12 5/8 in.	7.6 L	2.0 gal	3.41 L	0.9 gal	2.27 kg	5 lb
TX-12	3/4 in.	Male NPT	279 mm	11 in.	321 mm	12 5/8 in.	16.7 L	4.4 gal	12.1 L	3.2 gal	2.27 kg	5 lb
TX-25V	3/4 in.	Female NPT	390.5 mm	15 3/8 in.	489 mm	19 1/4 in.	39 L	10.3 gal	39 L	10.3 gal	10.43 kg	23 lb
TX-30V	3/4 in.	Female NPT	390.5 mm	15 3/8 in.	606 mm	23 7/8 in.	53.1 L	14.0 gal	42.8 L	11.3 gal	11.34 kg	25 lb
TX-42V	3/4 in.	Female NPT	390.5 mm	15 3/8 in.	803 mm	31 5/8 in.	75.7 L	20.0 gal	43.2 L	11.4 gal	14.97 kg	33 lb
TX-80V	1 1/4 in.	Female NPT	558.8 mm	22 in.	914 mm	40 1/2 in.	166.5 L	44.0 gal	128.3 L	33.9 gal	28.58 kg	63 lb
TX-210V	1 1/4 in.	Female NPT	660.4 mm	26 in.	1200 mm	47 1/4 in.	325.5 L	86.0 gal	175.6 L	46.4 gal	55.79 kg	123 lb

## Service Check Valves



Service Check Valves for air vents and expansion tanks allow easy field service without draining system.

**⚠ CAUTION**  
 Reduce system temperature to ambient and pressure to 0 psi before servicing component. Failure to do so may result in injuries

Product Number	Connection Size (inch)	Connection Type	Maximum Operating Temperature		Maximum Operating Pressure	
			(C)	(F)	(kPa)	(psi)
SCV-0125	1/8 in.	Inlet FNPT, Outlet MNPT	115 C	240 F	689 kPa	100 psi
SCV-050	1/2 in.	Inlet FNPT, Outlet MNPT	115 C	240 F	689 kPa	100 psi



## TK300 Series Expansion Tanks- Heating



Honeywell Expansion Tanks are designed to absorb hot water expansion in closed heating systems. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, loss of BTUs and reduce circulator running time. Use the super efficient Honeywell PowerVent or air vents to remove air and micro-bubbles from the system for maximum performance.

- Butyl/EPDM diaphragm- 9 times better than natural rubber
- Deep-drawn steel tank
- Controls system pressure
- Air-tight cushion-factory pre-charged to 12 psig and 100% tested

**Maximum Operating Temperature:** 115 C (240 F)  
**Maximum Operating Pressure:** 689 kPa (100 psi)  
**Materials:** steel shell, heavy duty butyl diaphragm  
**Comments:** Heating

Product Number	Connection		Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
	Size (inch)	Type	(mm)	(inch)	(mm)	(inch)	(L)	(gal)	(L)	(gal)	(kg)	(lb)
TK300-15	1/2 in.	Male NPT	203.2 mm	8 in.	321 mm	12 5/8 in.	7.6 L	2.0 gal	3.8 L	1 gal	2.3 kg	5 lb
TK300-30	1/2 in.	Male NPT	279.4 mm	11 in.	394 mm	15 1/2 in.	16.7 L	4.4 gal	9.5 L	2.5 gal	4.1 kg	9 lb
TK300-60	1/2 in.	Male NPT	279.4 mm	11 in.	584 mm	23 in.	28.8 L	7.6 gal	9.5 L	2.5 gal	6.4 kg	14 lb
TK300-90	1/2 in.	Male NPT	390.5 mm	15 3/8 in.	533 mm	21 in.	53.1 L	14.0 gal	40.1 L	11.5 gal	10.4 kg	23 lb

Hydronic Controls

## Expansion Tank Sizing based on BTU's

Boiler	Type of Radiation				
	Net Output in 1000's of BTU/Hr	Finned Tube Baseboard or Radiant Panel	Convectors or Unit Heaters	Radiators Cast Iron	Baseboard Cast Iron
		Use Model	Use Model	Use Model	Use Model
25	TK300-15	TK300-15	TK300-15	TK300-15	
50	TK300-15	TK300-15	TK300-30	TK300-30	
75	TK300-30	TK300-30	TK300-30	TK300-60	
100	TK300-30	TK300-30	TK300-60	TK300-60	
125	TK300-30	TK300-60	TK300-60	TK300-90	
150	TK300-30	TK300-60	TK300-90	TK300-90	
175	TK300-60	TK300-60	XPS-030V	XPS-030V	
200	TK300-60	TK300-60	XPS-030V	XPS-030V	
250	TK300-60	TK300-90	XPS-030V	XPS-040V	
300	TK300-90	XPS-030V	XPS-030V	XPS-040V	
350	XPS-030V	XPS-030V	XPS-040V	XPS-060V	
400	XPS-030V	XPS-040V	XPS-040V	XPS-060V	

# Boiler Trim Kits

## Boiler Trim Kit with SuperVent



Honeywell TK Series Combo Boiler Trim kits are a quick and convenient way to purchase the key "boiler trim" used by installers when performing a boiler change out. All Combo Trim Kits with SuperVent include expansion tank and SuperVent high performance air eliminator; selected models also include FM911 combination boiler fill valve / backflow preventer and/or service check valves for in-line servicing of the expansion tank.

**Maximum Operating Temperature:** 115 C (240 F)  
**Maximum Operating Pressure:** 689 kPa (100 psi)  
**Diameter:** 279 mm (11 in.)  
**Maximum Acceptance Volume:** 9.5 L (2.5 gal)

Product Number	Connection		Height		Volume		Weight		Includes
	Size (inch)	Type	(mm)	(inch)	(L)	(gal)	(kg)	(lb)	
TK30PV100FM	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.3 kg	16 lb	TK300-30, PV100, SCV-050, FM911
TK30PV100FMNC	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.3 kg	16 lb	TK300-30, PV100, FM911
TK30PV100SFM	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.3 kg	16 lb	TK300-30, PV100S, SCV-050, FM911
TK30PV125	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	5.8 kg	12.8 lb	TK300-30, PV125, SCV-050
TK30PV125FM	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.6 kg	16.8 lb	TK300-30, PV125, SCV-050, FM911
TK30PV125FMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.6 kg	16.8 lb	TK300-30, PV125, FM911
TK30PV125SFM	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.6 kg	16.8 lb	TK300-30, PV125S, SCV-050, FM911
TK60PV100SFMNC	SuperVent: 1 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	584 mm	23 in.	28.8 L	7.6 gal	6.9 kg	15.3 lb	TK300-60, PV100S, FM911
TK60PV125FMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Female NPT Tank: Male NPT	584 mm	23 in.	28.8 L	7.6 gal	7.95 kg	17.5 lb	TK300-60, PV125, FM911
TK60PV125SFMNC	SuperVent: 1 1/4 in. Tank: 1/2 in.	SuperVent: Sweat Tank: Male NPT	584 mm	23 in.	28.8 L	7.6 gal	7.95 kg	17.5 lb	TK300-60, PV125S, FM911

## Boiler Trim Kit with Air Purger



Honeywell TK Series Combo Boiler Trim kits are a quick and convenient way to purchase the key "boiler trim" used by installers when performing a boiler change out. All Combo Trim Kits with Purgers include expansion tank, air purger and air vent; selected models also include FM911 combination boiler fill valve / backflow preventer and/or service check valves for in-line servicing of the expansion tank and air vent.

**Maximum Operating Temperature:** 115 C (240 F)  
**Maximum Operating Pressure:** 689 kPa (100 psi)  
**Diameter:** 279 mm (11 in.)  
**Maximum Acceptance Volume:** 9.5 L (2.5 gal)

Product Number	Connection		Height		Volume		Weight		Includes
	Size (inch)	Type	(mm)	(inch)	(L)	(gal)	(kg)	(lb)	
TK300-30A-1	Tank: 1/2 in. Air Purger: 1 in.	Tank: Male NPT Air Purger: Female NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	5.9 kg	13 lb	TK300-30, AP400, FV180, SCV-0125, SCV-050
TK300-30A-1FM	Tank: 1/2 in. Air Purger: 1 in.	Tank: Male NPT Air Purger: Female NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.5 kg	16.6 lb	TK300-30, AP400, FV180, SCV-0125, SCV-050, FM911
TK300-30A-1FMNC	Tank: 1/2 in. Air Purger: 1 in.	Tank: Male NPT Air Purger: Female NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.5 kg	16.6 lb	TK300-30, AP400, FV180, FM911
TK300-30A-2	Tank: 1/2 in. Air Purger: 1 1/4 in.	Tank: Male NPT Air Purger: Female NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	5.9 kg	13 lb	TK300-30, AP401, FV180, SCV-0125, SCV-050
TK300-30A-2FM	Tank: 1/2 in. Air Purger: 1 1/4 in.	Tank: Male NPT Air Purger: Female NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.5 kg	16.6 lb	TK300-30, AP401, FV180, SCV-0125, SCV-050, FM911
TK300-30A-2FMNC	Tank: 1/2 in. Air Purger: 1 1/4 in.	Tank: Male NPT Air Purger: Female NPT	394 mm	15 1/2 in.	16.7 L	4.4 gal	7.5 kg	16.6 lb	TK300-30, AP401, FV180, FM911

# Thermostatic Radiator Valves and Actuators

## V135 Thermostatic Mixing or Diverting Valves



**Thermostatic Mixing or Diverting Valves for use in hydronic heating systems as a three-way mixing or diverting valve; controls loop temperature in radiant heating systems.**

- Includes plastic handle for manual operation.
- Knurled ring on T100R control head for easy attachment to V135.

**Application:** Thermostatic mixing/diverting valve for use in hydronic heating systems. Controls loop temperature in radiant heating systems.

**Capacity:** Standard

**Materials (Body):** Bronze

**Differential Pressure Rating:** 17 psi maximum

**Pressure Ratings (Steam):** 1601 kPa (232 psi maximum)

**Temperature Rating:** 120 C Maximum (248 F Maximum)

**Collar Diameter:** 30 mm (1 3/16 in.)

**Used With:** T100R

**Replacement Parts:**

**0900661** Replacement cartridge for V135A 1 in. and 1 1/4 in. models

Product Number	Pipe Size		Body Pattern	Capacity (Cv)	Connection Type	Dimensions, Approximate	
	DN	inch				(mm)	(inch)
V135A1006	DN20	3/4 in.	Three-way	3.7 Cv	Sweat	64 mm x 128 mm	2 9/16 in. x 5 1/8 in.
V135A1014	DN25	1 in.	Three-way	5.8 Cv	Sweat	74 mm x 148 mm	2 15/16 in. x 5 13/16 in.
V135A1022	DN32	1 1/4 in.	Three-way	5.8 Cv	NPT	95 mm x 180 mm	3 3/4 in. x 7 1/8 in.
V135A1048	DN40	1 1/2 in.	Three-way	11.7 Cv	NPT	95 mm x 188 mm	3 3/4 in. x 7 3/8 in.
V135A1063	DN32	1 1/4 in.	Three-way	5.8 Cv	Sweat	86 mm x 162 mm	3 3/8 in. x 6 3/8 in.

## T100R Thermostatic Mixing or Diverting Valve Actuators



**For use in hydronic heating systems with V135 Valves in a three-way mixing or diverting application. Controls loop temperature in radiant heating systems.**

- T100R Thermostatic Actuator includes strap-on-pipe sensor.
- Knurled ring on T100R control head for easy attachment to V135.

**Application:** Three-way mixing and diverting applications in hydronic heating systems requiring remote sensing

**Used With Valve:** V135

**Collar Diameter:** 30 mm (1 3/16 in.)

**Replacement Parts:**

**0900661** Replacement cartridge for V135A 1 in. and 1 1/4 in. models

Product Number	Capillary Length		Temperature Range		Sensor	Setpoint
	(m)	(ft)	(C)	(F)	(Integral or Remote)	
T100R1004	2 m	6 ft. 8 in.	10 C to 50 C	50 F to 122 F	Remote	Remote
T100R1012	2 m	6 ft. 8 in.	30 C to 70 C	86 F to 158 F	Remote	Remote

## V135 Thermostatic Mixing or Diverting Valves Replacement Cartridges

Product Number	Description	Used With
V135A-12VE	Replacement cartridge for V135A 1/2 in. and 3/4 in. models	V135
V135A-1VE	Replacement cartridge for V135A 1 in. and 1 1/4 in. models	V135
V135A-11/2VE	Replacement cartridge for V135A 1 1/2 in. and 2 in. models	V135

# Thermostatic Radiator Valves and Actuators

## V110 High Capacity Thermostatic Radiator Valves



V110D



V110E



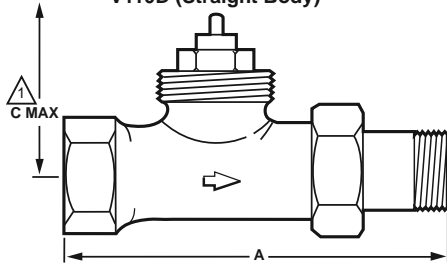
V110F

High Capacity Thermostatic Radiator Valves with T104 Thermostatic Actuators provide precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through free-standing radiators, convectors and other heating units with high capacity requirements.

- Designed with the higher capacity normally required by North American heating systems.
- Valve seat disc, which is made of resilient material (EPDM), ensures tight shutoff on steam or hot water systems.
- Nickel-plated bronze casted body with working parts in cartridge insert for ease of service.
- All working parts are replaceable using service tool (MT100C1011) while valve remains in service, in-line, under pressure.
- Valves normally open without control mounted.
- Valves may be used with T104 Thermostatic Actuators.
- Meet ASHRAE Standard 102-1989.

### Dimensions in millimeters (inches)

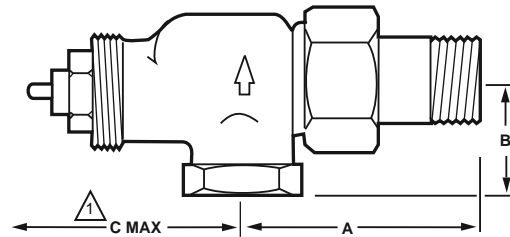
V110D (Straight Body)



PIPE SIZE	A MM (IN.)	$\Delta$ C MAX MM (IN.)
1/2 INCH	95 (3-3/4)	121 (4-3/4)
3/4 INCH	105 (4-1/8)	121 (4-3/4)
1 INCH	125 (4-15/16)	121 (4-3/4)
1-1/4 INCH	149 (5-7/8)	127 (5)

$\Delta$  C MAX DIMENSION IS WITH T104 CONTROL INSTALLED. MC18959A

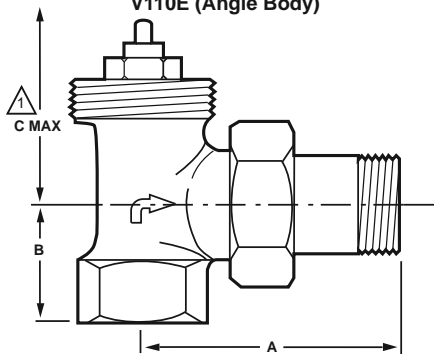
V110F (Horizontal Angle Body)



PIPE SIZE	A MM (IN.)	B MM (IN.)	$\Delta$ C MAX MM (IN.)
1/2 INCH	57 (2-1/4)	25 (1)	130 (5-1/8)
3/4 INCH	65 (2-9/16)	29 (1-1/8)	133 (5-1/4)
1 INCH	74 (2-15/16)	30 (1-3/16)	133 (5-1/4)
1-1/4 INCH	89 (3-1/2)	56 (2-3/16)	133 (5-1/4)

$\Delta$  C MAX DIMENSION IS WITH T104 CONTROL INSTALLED. MC18961A

V110E (Angle Body)



PIPE SIZE	A MM (IN.)	B MM (IN.)	$\Delta$ C MAX MM (IN.)
1/2 INCH	65 (2-9/16)	25 (1)	121 (4-3/4)
3/4 INCH	67 (2-5/8)	29 (1-1/8)	121 (4-3/4)
1 INCH	76 (3)	33 (1-5/16)	121 (4-3/4)
1-1/4 INCH	90 (3-5/8)	43 (1-11/16)	127 (5)

$\Delta$  C MAX DIMENSION IS WITH T104 CONTROL INSTALLED. MC18960A

**Capacity:** high

**Materials (Body):** Nickel Plated Bronze

**Differential Pressure Rating:** (17 psi maximum)

**Pressure Ratings (Hot Water):** 1034 kPa maximum (150 psi maximum)

**Pressure Ratings (Steam):** 103 kPa (15 psi maximum)

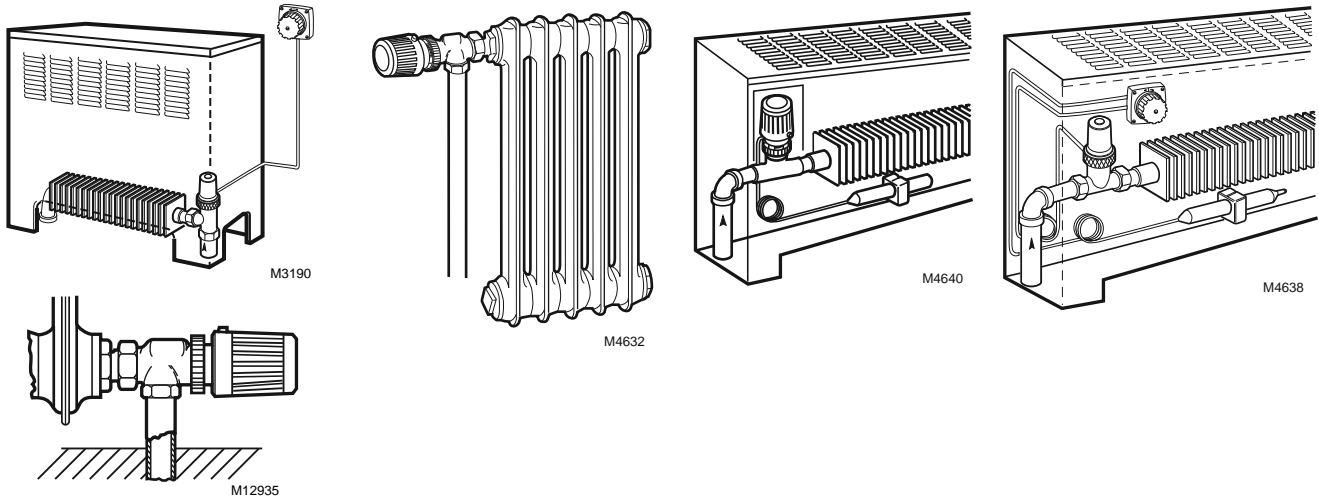
**Temperature Rating:** 120 C Maximum (248 F Maximum)

**Cartridge Change Tool:** Yes - Use MT110C1011

**Used With:** T104

# Thermostatic Radiator Valves and Actuators

## Typical Installations



Product Number	Application	Pipe Size		Body Pattern	Capacity		Connection Type
		DN	inch		(Cv)	(Btu/hr-steam)	
V110D1000	Precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through high capacity heating units.	DN15	1/2 in.	Straight	4.6 Cv	127,000 Btu/hr	Threaded
V110D1008		DN20	3/4 in.	Straight	5.8 Cv	162,000 Btu/hr	Threaded
V110D1016		DN25	1 in.	Straight	7.0 Cv	193,000 Btu/hr	Threaded
V110D1024		DN32	1 1/4 in.	Straight	8 Cv	193,000 Btu/hr	Threaded
V110D5001		DN15	1/2 in.	Straight	4.6 Cv	127,000 Btu/hr	Sweat
V110D5009		DN20	3/4 in.	Straight	5.8 Cv	162,000 Btu/hr	Sweat
V110D5017		DN25	1 in.	Straight	7.0 Cv	193,000 Btu/hr	Sweat
V110E1004	Precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through high capacity heating units when used with T104 Thermostatic Actuators	DN15	1/2 in.	Angle	4.6 Cv	127,000 Btu/hr	Threaded
V110E1012		DN20	3/4 in.	Angle	5.8 Cv	162,000 Btu/hr	Threaded
V110E1020		DN25	1 in.	Angle	7.0 Cv	193,000 Btu/hr	Threaded
V110E1028		DN32	1 1/4 in.	Angle	8 Cv	193,000 Btu/hr	Threaded
V110E5005		DN15	1/2 in.	Angle	4.6 Cv	127,000 Btu/hr	Sweat
V110E5013		DN20	3/4 in.	Angle	5.8 Cv	162,000 Btu/hr	Sweat
V110F1002		DN15	1/2 in.	Horizontal Angle	4.6 Cv	127,000 Btu/hr	Threaded
V110F1010	DN20	3/4 in.	Horizontal Angle	5.8 Cv	162,000 Btu/hr	Threaded	
V110F1018	DN25	1 in.	Horizontal Angle	7.0 Cv	193,000 Btu/hr	Threaded	
V110F1026	DN32	1 1/4 in.	Horizontal Angle	8 Cv	193,000 Btu/hr	Threaded	
V110F5003	DN15	1/2 in.	Horizontal Angle	4.6 Cv	127,000 Btu/hr	Sweat	
V110F5011	DN20	3/4 in.	Horizontal Angle	5.8 Cv	162,000 Btu/hr	Sweat	

# Thermostatic Radiator Valves and Actuators

## V2000 Series Standard Capacity Thermostatic Radiator Valve Body



V200LD



V2040A, V2040E



V2040D



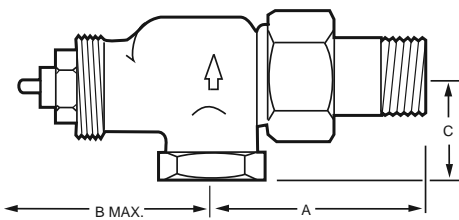
V2040E

**One-Pipe Steam Thermostatic Radiator Valves - Allow automatic temperature control in one-pipe steam or hot water systems for free standing radiators, convectors and other heating units with standard capacity requirements. Provide comfort and energy savings.**

- Continually monitors and adjusts room temperature for consistent comfort and relief from under-heating and overheating.
- Adjustable balancing cartridge design made from resilient material (EPDM), ensures tight shut-off on steam and hot water systems.
- Nickel plated brass casted body.
- Replaceable cartridge for easy service with service tool.
- Controls include valve body, steam air vent.
- Used with T100 set point and capillary actuators.
- No electrical connection required for non-electric actuators.
- Normally open without control mounted.

### Dimensions in millimeters (inches)

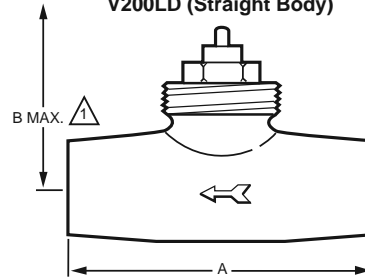
V2040A (Horizontal Angle Body)



PIPE SIZE	A MM (IN.)	$\triangle$ B MAX MM (IN.)	C MM (IN.)
1/2 INCH	54 (2-1/8)	115 (4-1/2)	29 (1-1/8)
3/4 INCH	64 (2-1/2)	132 (5-3/16)	31 (1-3/16)
1 INCH	74 (2-15/16)	132 (5-3/16)	37 (1-7/16)

$\triangle$  B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. MC12932C

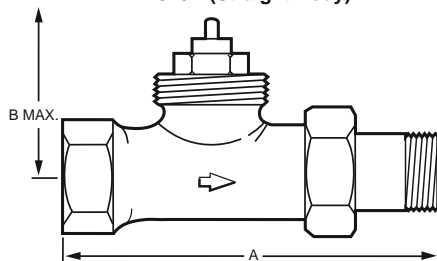
V200LD (Straight Body)



PIPE SIZE	A MM (IN.)	$\triangle$ B MAX MM (IN.)
1/2 INCH	66 (2-5/8)	104 (4-1/16)
3/4 INCH	74 (2-15/16)	104 (4-1/16)

$\triangle$  B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. MC12933C

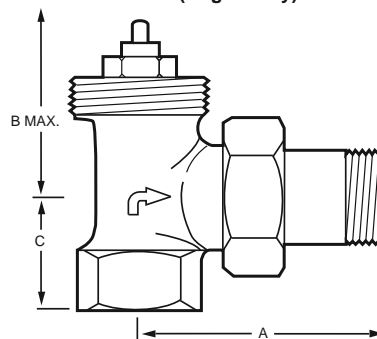
V2040D (Straight Body)



PIPE SIZE	A MM (IN.)	$\triangle$ B MAX MM (IN.)
1/2 INCH	95 (3-3/4)	104 (4-1/6)
3/4 INCH	106 (4-3/16)	104 (4-1/6)
1 INCH	114 (4-1/2)	114 (4-1/2)

$\triangle$  B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. M12930D

V2040E (Angle Body)

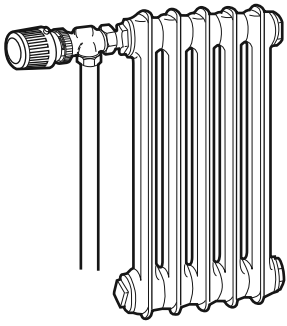


PIPE SIZE	A MM (IN.)	$\triangle$ B MAX MM (IN.)	C MM (IN.)
1/2 INCH	58 (2-5/16)	97 (3-13/16)	25 (1)
3/4 INCH	66 (2-5/8)	97 (3-13/16)	29 (1-1/8)
1 INCH	74 (2-15/16)	110 (4-5/16)	34 (1-5/16)

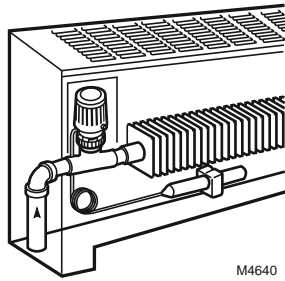
$\triangle$  B MAX DIMENSION IS WITH T100A CONTROL INSTALLED. MC12931D

# Thermostatic Radiator Valves and Actuators

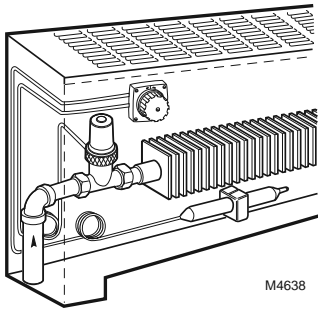
## Typical Installations



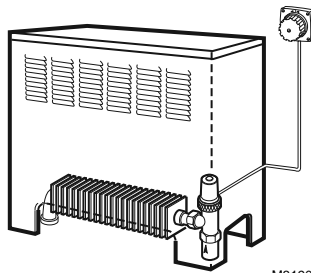
M4632



M4640



M4638



M3190

**Capacity:** Standard

**Materials (Body):** Nickel Plated Bronze

**Differential Pressure Rating:**

With T100 or T200: 103 kPa (15 psi)

With MV100: 248 kPa (36 psi)

For low noise: 20 kPa (3 psi)

**Pressure Ratings (Hot Water):** 1034 kPa maximum (150 psi)

**Pressure Ratings (Steam):** 103 kPa maximum (15 psi)

**Temperature Rating:** 120 C Maximum (248 F)

**Cartridge Change Tool:** Yes - Use VA8200A001

Product Number	Application	Body Pattern	Pipe Size		Outlet Connection Type	Capacity		Used With
			DN	inch		(Cv)	(Btu/hr-steam)	
V200LDL15	For baseboards and other installations with copper tubing.	Straight	DN15	1/2 in.	Sweat both ends, no union	2.5 Cv	59,100 Btu/hr	T100
V200LDL20		Straight	DN20	3/4 in.	Sweat both ends, no union	2.7 Cv	63,800 Btu/hr	T100
V2040ASL15	Replaces most manual valves with minimum piping changes.	Horizontal Angle	DN15	1/2 in.	Threaded	2.5 Cv	59,100 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2040ASL20		Horizontal Angle	DN20	3/4 in.	Threaded	2.7 Cv	63,800 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2040ASL25		Horizontal Angle	DN25	1 in.	Threaded	2.7 Cv	70,500 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2040DSL15	Especially suited for base boards and straight runs where manual valves were not originally installed.	Straight	DN15	1/2 in.	Threaded	2.5 Cv	59,100 Btu/hr	—
V2040DSL20		Straight	DN20	3/4 in.	Threaded	2.7 Cv	63,800 Btu/hr	—
V2040DSL25		Straight	DN25	1 in.	Threaded	2.7 Cv	70,500 Btu/hr	—
V2040ESL15	Use where installation space is limited	Angle	DN15	1/2 in.	Threaded	2.5 Cv	59,100 Btu/hr	T100B; T100C; T100F
V2040ESL20		Angle	DN20	3/4 in.	Threaded	2.7 Cv	63,800 Btu/hr	T100B; T100C; T100F
V2040ESL25		Angle	DN25	1 in.	Threaded	2.7 Cv	70,500 Btu/hr	T100B; T100C; T100F
V2043ASL15	Replaces most manual valves with minimum piping changes.	Horizontal Angle	DN15	1/2 in.	Sweat	2.5 Cv	59,100 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2043ASL20		Horizontal Angle	DN20	3/4 in.	Sweat	2.7 Cv	63,800 Btu/hr	T100A, M and V controls to conform to horizontal mounting requirements
V2043DSL15	For baseboards and other installations with copper tubing.	Straight	DN15	1/2 in.	Sweat both ends, no union	2.5 Cv	59,100 Btu/hr	T100
V2043DSL20	Especially suited for base boards and straight runs where manual valves were not originally installed.	Straight	DN20	3/4 in.	Sweat	2.7 Cv	63,800 Btu/hr	—
V2043ESL15	Use where installation space is limited	Angle	DN15	1/2 in.	Sweat	2.5 Cv	59,100 Btu/hr	T100B; T100C; T100F
V2043ESL20		Angle	DN20	3/4 in.	Sweat	2.7 Cv	63,800 Btu/hr	T100B; T100C; T100F

# Thermostatic Radiator Valves and Actuators

## V2000 Series Valve Bodies Cross Reference to V100 Series

Use T100 Actuators With New V2000 Series Valve Bodies

V2000 Series Replacement	V100 Series Product	Product Description
V2040DSL15	V100D 1056	1/2 in. TRV Straight Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040DSL20	V100D 1064	3/4 in. TRV Straight Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040DSL25	V100D 1072	1 in. TRV Straight Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2043DSL15	V100D 5057	1/2 in. TRV Straight Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2043DSL20	V100D 5065	3/4 in. TRV Straight Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2040ESL15	V100E 1055	1/2 in. TRV Vertical Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ESL20	V100E 1063	3/4 in. TRV Vertical Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ESL25	V100E 1071	1 in. TRV Vertical Body, Female NPT Inlet, Male NPT Tailpiece Outlet
V2043ESL15	V100E 5056	1/2 in. TRV Vertical Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2043ESL20	V100E 5064	3/4 in. TRV Vertical Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2040ASL15	V100F 1054	1/2 in. TRV Horizontal, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ASL20	V100F 1062	3/4 in. TRV Horizontal, Female NPT Inlet, Male NPT Tailpiece Outlet
V2040ASL25	V100F 1070	1" TRV Horizontal, Female NPT Inlet, Male NPT Tailpiece Outlet
V2043ASL15	V100F 5055	1/2 in. TRV Horizontal Body, Female NPT Inlet, Sweat Tailpiece Outlet
V2043ASL20	V100F 5063	3/4 in. TRV Horizontal Body, Female NPT Inlet, Sweat Tailpiece Outlet
V200LDSL15	V100G 5054	1/2 in. TRV Straight Body, Sweat Inlet, Sweat Outlet No Tailpiece
V200LDSL20	V100G 5062	3/4 in. TRV Straight Body, Sweat Inlet, Sweat Outlet No Tailpiece
V2042HSL10	V100P 1046	1/8 in. TRV (1/2 in. Body With 1/8 in. Adapter) Male NPT Inlet, Female NPT Outlet. One Pipe Steam
V2043HSL10	Y100P 1001	1/8 in. TRV (1/2 in. Body With 1/8 in. Adapter) Male NPT Inlet, Female NPT Outlet. One Pipe Steam Includes SA123A1003
VS1200SL01		Replacement Cartridge New V2000 Series
VA8200A001		Cartridge Service Tool V2000 Series Bodies



# Thermostatic Radiator Valves and Actuators

## V2042H; V2043H One-pipe Steam Thermostatic Radiator Valves

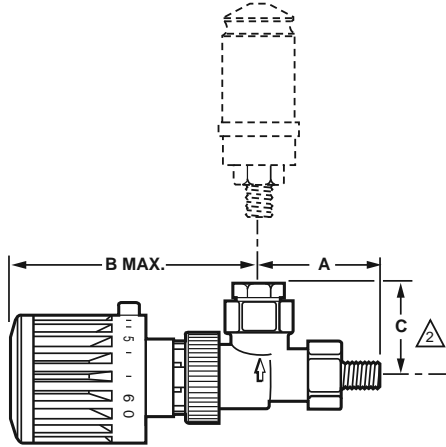


**One-Pipe Steam Thermostatic Radiator Valves - Allow automatic temperature control in one-pipe steam or hot water systems for free standing radiators, convectors and other heating units with standard capacity requirements. Provide comfort and energy savings.**

- Continually monitors and adjusts room temperature for consistent comfort and relief from under-heating and overheating.
- Adjustable balancing cartridge design made from resilient material (EPDM), ensures tight shut-off on steam and hot water systems.
- Nickel plated brass casted body.
- Replaceable cartridge for easy service with service tool.
- Controls include valve body, steam air vent.
- Used with T100 set point and capillary actuators.
- No electrical connection required for non-electric actuators.
- Normally open without control mounted.

Dimensions in millimeters (inches)

V2042H (Body)/V2043H (Body with Vent)



PIPE SIZE	A MM (IN.)	B MAX MM (IN.)	C MM (IN.)
3/8 INCH	43 (1-11/16)	97 (3-13/16)	31 (1-3/16)

B MAX DIMENSION IS WITH T100A CONTROL INSTALLED.

C DIMENSION IS WITHOUT THE STEAM/AIR VENT INSTALLED.

MC17016B

**Capacity:** Standard

**Materials (Body):** Nickel Plated Bronze

**Differential Pressure Rating:**

With T100 or T200: 103 kPa (15 psi)

With MV100: 248 kPa (36 psi)

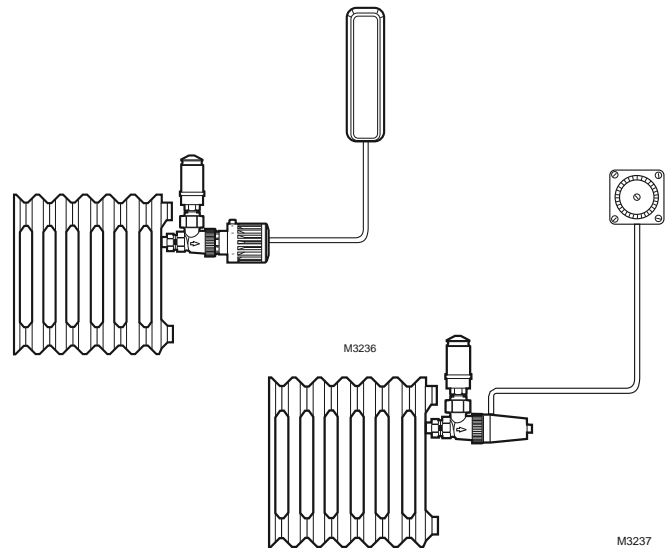
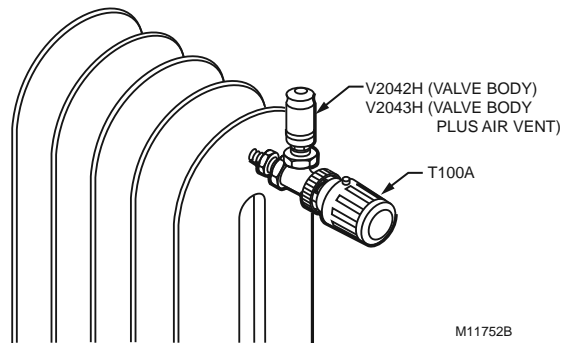
For low noise: 20 kPa (3 psi)

**Pressure Ratings (Steam):** 103 kPa maximum (15 psi)

**Temperature Rating:** 120 C Maximum (248 F)

**Cartridge Change Tool:** Yes - Use VA8200A001

Typical Installation



Product Number	Application	Pipe Size (inch)	Connection Type	Description	Includes	Used With
V2042HSL10	Angle pattern valve body for one pipe steam systems	1/8 in.	Threaded	One-pipe Steam 1/8 in. Radiator valve	—	T100
V2043HSL10	Thermostatic Radiator Valve Pack. Includes V2042HSL10 body plus steam/air vent. Use for one pipe steam applications.	1/8 in.	NPT	One Pipe Steam Thermostatic Radiator valve and air vent pack	V2042HSL10 plus steam/air vent	—

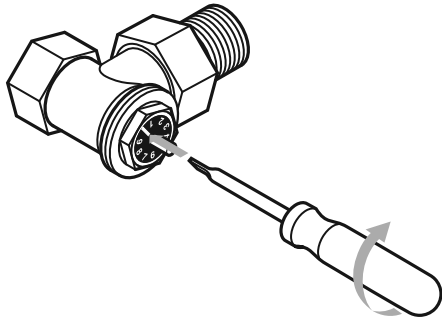
# Thermostatic Radiator Valves and Actuators

## V2000 Series Thermostatic Radiator Valve Accessories

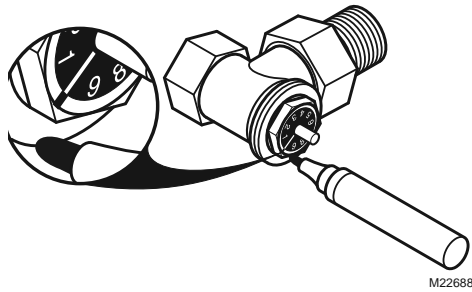
Materials (Body): Bronze  
 Cartridge Change Tool: VA8200A001



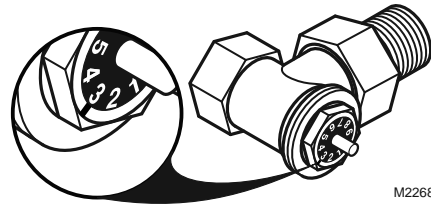
V2000 Series Cartridge Balancing Procedure Step 1



V2000 Series Cartridge Balancing Procedure Step 2

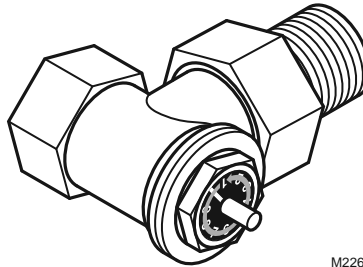


V2000 Series Cartridge Balancing Procedure Step 3



M22689

V2000 Series Cartridge Balancing Procedure Step 4



M22690

Product Number	Application	Description	Used With
VS1200SL01	Accessory or Replacement Part	Replacement cartridge for NEW V2000 (adjustable cartridge)	T100

# Thermostatic Radiator Valves and Actuators

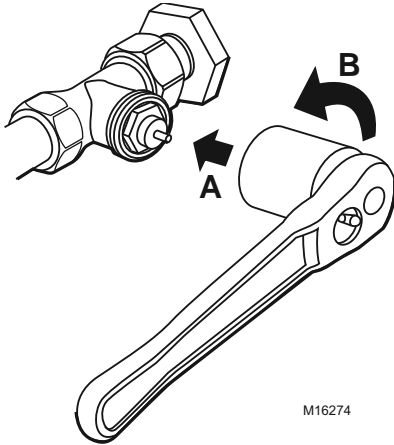
## MT100; MT110 Cartridge Changing Tool



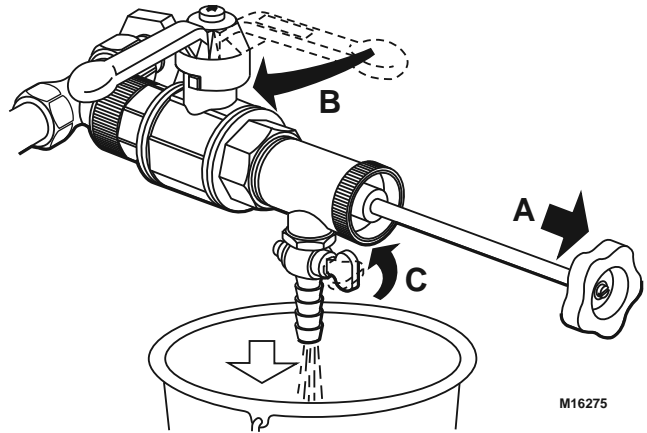
The MT110 Valve Cartridge Changing Tool enables the user to remove, and clean or replace the valve cartridge while the valve remains pressurized. Boiler shutdown is not required.

- MT110 for V110 Series valves.

Remove control and loosen valve cartridge slightly.

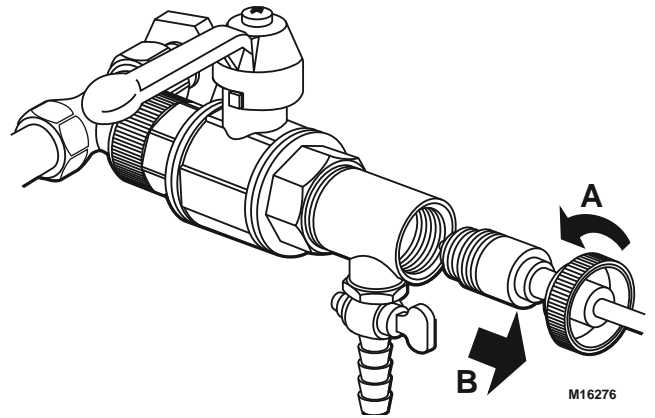
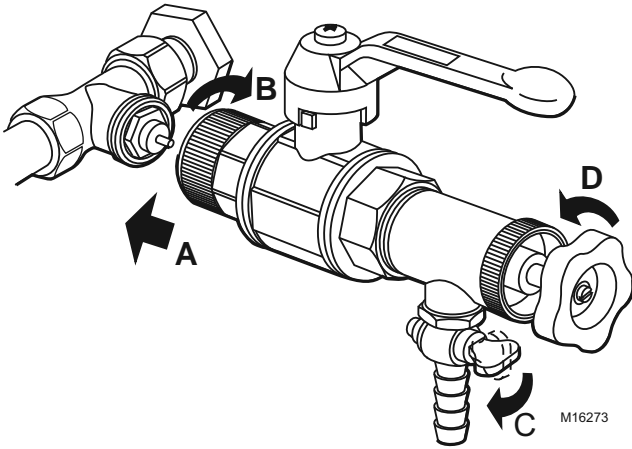


Open shut-off on drain cock, removing excess water and steam from chamber.



Tighten Cartridge Changer to valve body and close off drain cock.

Unscrew end cap and remove cartridge from chamber. Clean or replace cartridge.



Hydronic Controls

Product Number	Application Type	Description	Comments	Used With
MT100L1023	Tool to remove T100M tamper resistant direct mount control from valve body.	Actuator Removal Tool	—	V100
MT110C1011	Cartridge changing tool, in service, in line, under pressure for V110 series valve.	Cartridge Changing Tool for in-line service of V110 valves	—	V100
MT110D1019	Socket to remove or replace cartridges on V110D, E, F series valves; use in combination with MT110C1011 for pre-loosening and final tightening of cartridge. Fits 3/8 in. socket driver.	Cartridge Changing tool	For CA110C Cartridge	—

## Thermostatic Valve Accessories

Product Number	Description	Used With
CA100B1008	Replacement cartridge for old style V100 (metal cartridge body)	V100 Series
CA110C1007	Replacement Cartridge for V110	V110 Series

# Thermostatic Radiator Valves and Actuators

## T100 Standard Capacity Thermostatic Radiator Actuators



T1002



T100B



T100C



T100F



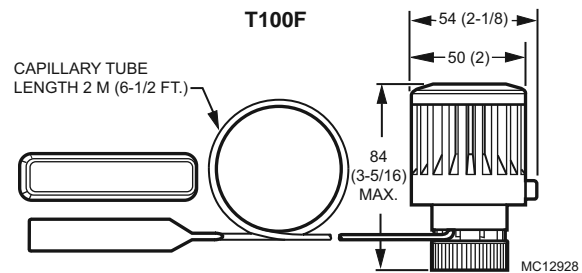
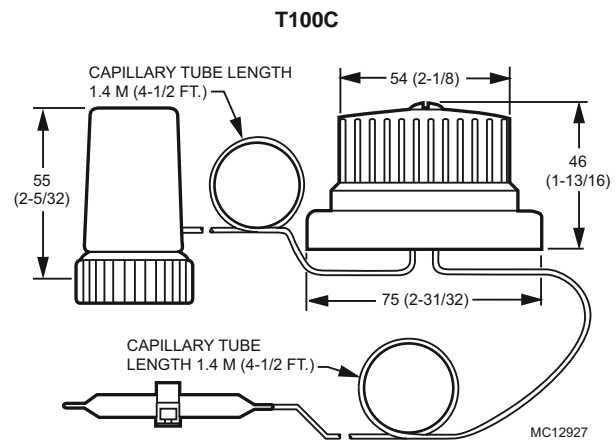
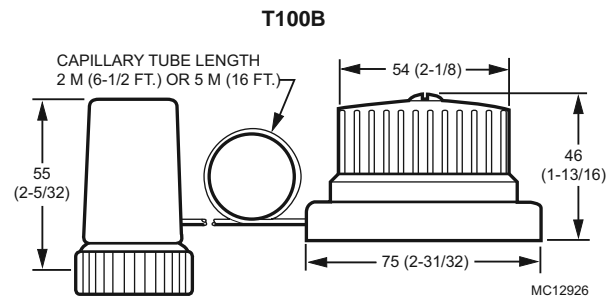
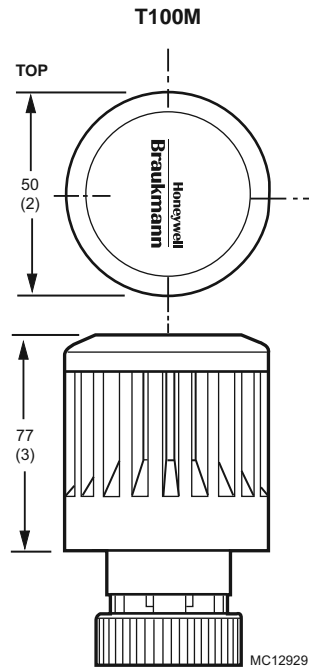
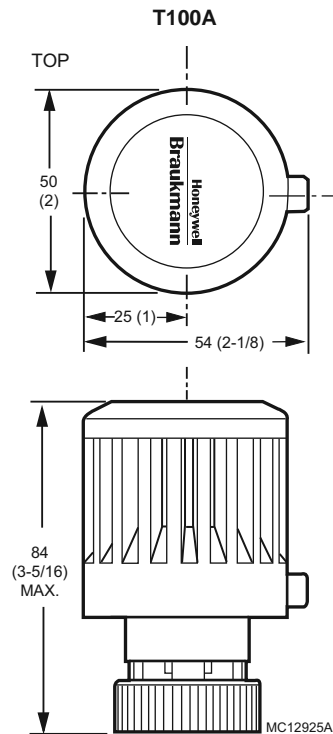
T100M

Allow automatic temperature control in two-pipe steam or hot water systems for free standing radiators, convectors, and other heating units with standard capacity requirements. Provide comfort and energy savings at affordable prices.

- Continually monitor and adjust room temperature for consistent comfort and relief from under-heating and overheating.
- Valve seat disc, which is made of resilient material (EPDM), ensures tight shutoff on steam or hot water systems.

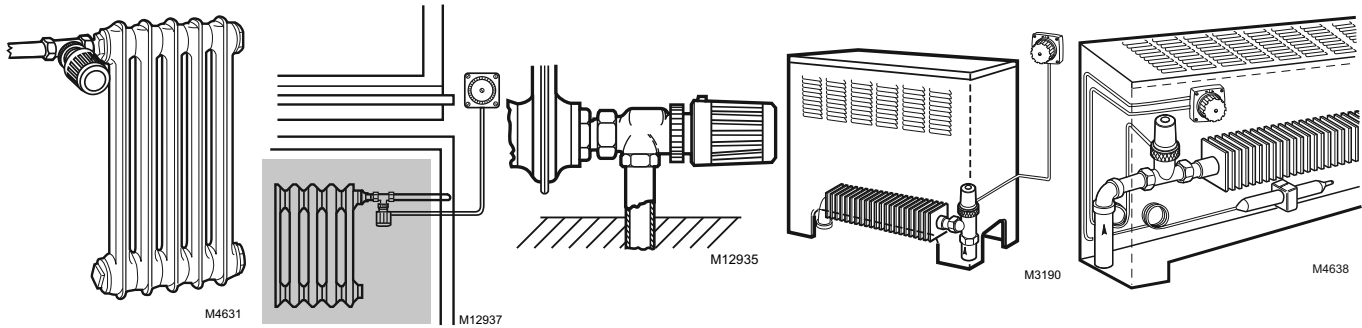
- Nickel-plated brass casted body with working parts in cartridge insert for ease of service.
- Controls include sensor, setpoint dial and valve actuator; components may be integral or connected by capillary tubes.
- Require no electrical connections.
- All working parts are replaceable using service tool (MT100C1016) while valve remains in service, in-line, under pressure.
- Valves normally open without control mounted.
- Valves may also be used with MV100 Electric Zone Valve Actuator.

### Dimensions in millimeters (inches)



# Thermostatic Radiator Valves and Actuators

## Typical Installations



**Application:** Standard Capacity Thermostatic Radiator Actuator  
**Collar Diameter:** 30 mm (1 3/16 in.)

Product Number	Application Type	Capillary Length		Temperature Range		Sensor (Integral or Remote)	Setpoint (Integral or Remote)	Comments	Used With
		(m)	(ft)	(C)	(F)				
T1002W0NA	A self-contained control with sensor, setpoint dial and valve actuator in one unit. Mounts horizontal. Not for use inside enclosures or where airflow around sensor is restricted. Adjustable limits.	—	—	6 C to 26 C	43 F to 79 F	Integral	Integral	Adjustable Limits	V100, V2000
T100B1035	A control with combined remote setpoint and sensor mounted on wall. Connected by a capillary tube to an actuator, which is mounted on the valve body.	2 m	6 1/2 ft	9 C to 26 C	48 F to 79 F	Remote	Remote	—	V100, V2000
T100B1043		5 m	16 ft.	9 C to 26 C	48 F to 79 F	Remote	Remote	—	V100, V2000
T100C1026	A control with remote setpoint and sensor mounted with setpoint dial on outside of heating cabinet; sensor mounted beneath heating coils in cold air return. Dual capillary.	Two 1.4 m	Two 4 1/2 ft.	9 C to 26 C	48 F to 79 F	Remote	Remote	—	V100, V2000
T100F1395	A control with remote temperature sensing and integral set point. Adjustable limits.	2 m	6 ft. 8 in.	6 C to 26 C	43 F to 79 F	Integral	Integral	Adjustable Limits	V100, V2000
T100M2056	A self-contained control with sensor, setpoint dial and actuator in one unit. Use where increased durability, tamper resistance and limited adjustment range are desired. Horizontal mount. Locks onto valve body. Not for enclosures.	—	—	6 C to 26 C	43 F to 79 F	Integral	Integral	Tamper Resistant, Adjustable Limits	V100, V2000

# Thermostatic Radiator Valves and Actuators

## T104 High Capacity Thermostatic Radiator Valve Actuators

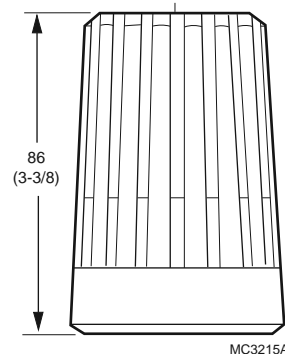
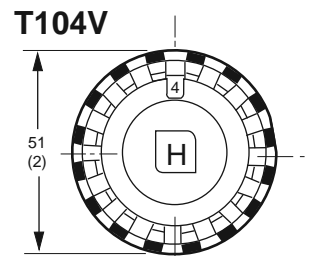
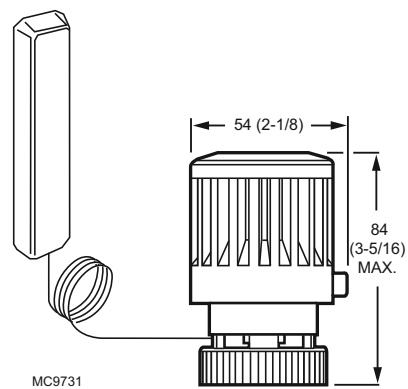
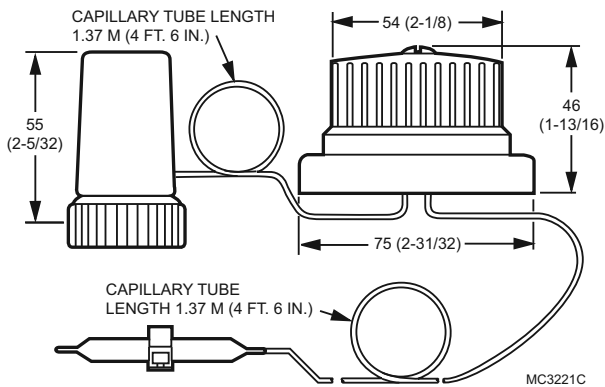
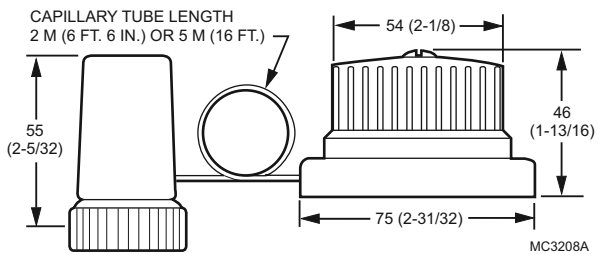
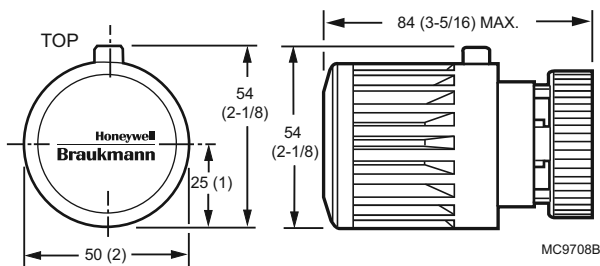


Provide precise and automatic control of room temperature in two-pipe systems by modulating the flow of hot water or steam through free-standing radiators, convectors and other heating units with high capacity requirements.

- Continually monitor and adjust room temperature for consistent comfort and relief from under-heating and overheating.
- Designed with the higher capacity normally required by North American heating systems.

- Valve seat disc, which is made of resilient material (EPDM), ensures tight shutoff on steam or hot water systems.
- Nickel-plated bronze casted body with working parts in cartridge insert for ease of service.
- Controls include sensor, setpoint dial and valve actuator; components may be integral or connected by capillary tubes.
- Require no electrical connections.
- Meet ASHRAE Standard 102-1989.
- 40 mm collar diameter.

### Dimensions in millimeters (inches)



# Thermostatic Radiator Valves and Actuators

**Application:** High Capacity Thermostatic Radiator Actuator  
**Collar Diameter:** 40 mm (1 19/32 in.)

Product Number	Application Type	Capillary Length		Temperature Range		Sensor (Integral or Remote)	Setpoint (Integral or Remote)	Comments	Used With
		(m)	(ft)	(C)	(F)				
T104A1040	Self-contained controller with sensor, setpoint dial and valve actuator in one unit. Adjustable limits. Mount horizontal. Not for use inside enclosures or in locations with restricted airflow around sensor. For V110 valves.	—	—	6 C to 26 C	43 F to 79 F	Integral	Integral	Adjustable Limits	V110
T104B1038	Controller with combined remote setpoint and sensor mounted on a wall.	2 m	6 ft. 8 in.	9 C to 26 C	48 F to 79 F	Remote	Remote	—	V110
T104B1046	Setpoint/sensor connect with a capillary tube to an actuator, which mounts on the valve body. For V110 valves.	4.9 m	16 ft.	9 C to 26 C	48 F to 79 F	Remote	Remote	—	V110
T104C1036	Controller with remote setpoint and sensor normally mounted with setpoint dial mounted on outside cabinet or enclosure; sensor mounted beneath heating coils in cold air return. Double capillaries. For V110 valves.	Two 1.4 m	Two 4 1/2 ft.	9 C to 26 C	48 F to 79 F	Remote	Remote	—	V110
T104F1512	Thermostatic radiator valve controller for use with V110 series valves. With remote temperature sensing and integral set point. Adjustable limits.	2 m	6 ft. 8 in.	6 C to 26 C	43 F to 79 F	Remote	Integral	Adjustable Limits	V110
T104V1422	Self-contained controller with sensor, setpoint dial and valve actuator in one unit. Locks to valve body. Rugged design. Adjustable setpoint under locking cap. Factory set at 68 F (20 C). Mounts horizontal. Not for use in enclosures. For V110 valves.	—	—	6 C to 26 C	43 F to 79 F	Integral	Integral	Vandal Proof	V110

Hydronic Controls

## T104 Thermostatic Radiator Valve Actuator Parts and Accessories

Product Number	Description	Used With
G111B1053	Bulb guard to protect remote temperature sensors on T104C and T104F controls only	T104C; T104F
P110V1003	Replacement Locking Ring for T104V1422 only (package of 5)	T104V1422

# Commercial Hydronic Products—Air Eliminator

## SuperVent®—The Best Commercial Air Eliminator. Removes All Trapped Air, Micro Bubbles and Dirt from Heating, Cooling and Domestic Water Systems.



Conventional automatic air vents installed in Hydronic heating systems can leak and cause inefficient system operation. To effectively eliminate air from the system without bleeding, air bubbles need to be vented. The NEW Honeywell SuperVent purges air through a no clog vent assembly that controls dirt and debris to minimize air vent fouling.

- No clog vent.
- Dirt and Debris resistant.
- 360 degree adjustable collar ring for installation flexibility.
- Stainless steel concentrator which eliminates gurgling noise.
- Bronze body for rigid construction.
- Threaded connections.

**Application:** Commercial Zoning for hot water heating or chilled water air conditioning systems, fan coil units or indirect water heater service.

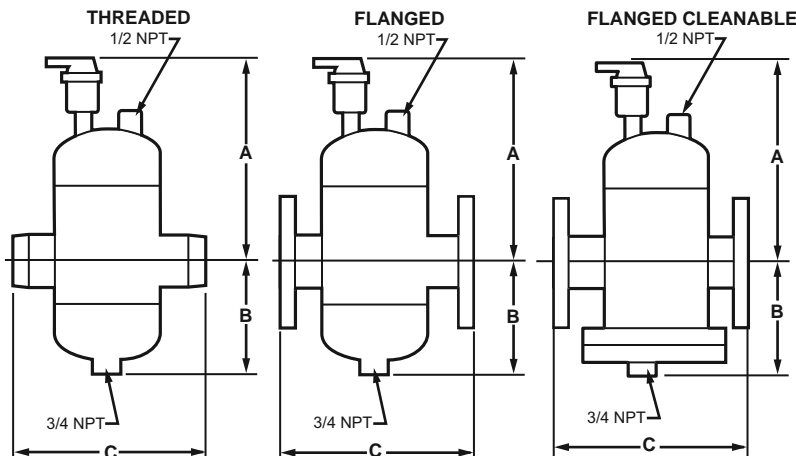
**Materials (Body):** Bronze

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 1034 kPa (150 psi)

Product Number	Pipe Size	Maximum Diameter		Connection Type	Connection Size	Capacity	Weight		Description
		(mm)	(inch)						
PV200T	2 in.	142.2 mm	5 5/8 in.	NPT	2 in.	95 Cv	9.98 kg	22 lb	2 in. NPT SuperVent with 95 Cv capacity
PV250T	2 1/2 in.	142.2 mm	5 5/8 in.	NPT	2 1/2 in.	140 Cv	10.43 kg	23 lb	2 1/2 in. NPT SuperVent with 140 Cv capacity
PV300F	3 in.	218.4 mm	8 5/8 in.	Flanged	3 in.	215 Cv	29.94 kg	66 lb	3 in. Flanged SuperVent with 215 Cv capacity
PV300T	3 in.	218.4 mm	8 5/8 in.	NPT	3 in.	215 Cv	22.68 kg	50 lb	3 in. NPT SuperVent with 215 Cv capacity
PV400F	4 in.	218.4 mm	8 5/8 in.	Flanged	4 in.	360 Cv	35.61 kg	78.5 lb	4 in. Flanged SuperVent with 360 Cv capacity
PV400FC	4 in.	342.9 mm	13 1/2 in.	Flanged Cleanable	4 in.	360 Cv	68.04 kg	150 lb	4 in. Flanged Cleanable SuperVent with 360 Cv capacity
PV400T	4 in.	218.4 mm	8 5/8 in.	NPT	4 in.	360 Cv	23.81 kg	52.5 lb	4 in. NPT SuperVent with 360 Cv capacity

Dimensions in millimeters (inches)



VALVE SIZE	DIMENSIONS (INCHES)		
	A	B	C
2 INCH	11-1/16	6-3/16	10-1/8
2-1/2 INCH	11-1/16	6-3/16	10-1/8
3 INCH	15-5/8	7-15/16	15-1/2
4 INCH	15-5/8	7-15/16	15-1/2
5 INCH	21	11-1/8	24
6 INCH	21	11-1/8	24
8 INCH	25-13/16	12-15/16	30

M23261B



# Commercial Hydronic Products—Expansion Tanks

## Expansion Tank Sizing based on BTU's

Boiler Net Output in 1000's of BTU/Hr	Type of Radiation			
	Finned Tube Baseboard or Radiant Panel	Convectors or Unit Heaters	Radiators Cast Iron	Baseboard Cast Iron
MBH	Use Model	Use Model	Use Model	Use Model
25	TK300-15	TK300-15	TK300-15	TK300-15
50	TK300-15	TK300-15	TK300-30	TK300-30
75	TK300-30	TK300-30	TK300-30	TK300-60
100	TK300-30	TK300-30	TK300-60	TK300-60
125	TK300-30	TK300-60	TK300-60	TK300-90
150	TK300-30	TK300-60	TK300-90	TK300-90
175	TK300-60	TK300-60	XPS-030V	XPS-030V
200	TK300-60	TK300-60	XPS-030V	XPS-030V
250	TK300-60	TK300-90	XPS-030V	XPS-040V
300	TK300-90	XPS-030V	XPS-030V	XPS-040V
350	XPS-030V	XPS-030V	XPS-040V	XPS-060V
400	XPS-030V	XPS-040V	XPS-040V	XPS-060V

## TAX Series Expansion Tanks - Commercial Usage



used in large installations. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped, design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, and loss of BTUs.

- ASME construction: Horizontal TAX Series tanks.

**Maximum Operating Temperature:** 115 C (240 F)

**Maximum Operating Pressure:** 862 kPa (125 psi)

**Precharge:** 12 psi

**Materials:** steel shell, heavy duty butyl diaphragm

**Comments:** ASME Construction

TAX Series (commercial) Expansion Tanks are designed to absorb hot water expansion in closed heating systems. TAX tanks are

Product Number	Connection Size	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
		(mm)	(inch)	(mm)	(inch)	(L)	(gal)	(L)	(gal)	(kg)	(lb)
TAX-60	1/2 in.	412.7 mm	16 1/4 in.	1079.5 mm	42 1/2 in.	127.3 L	33.6 gal	42.8 L	11.3 gal	63.2 kg	139 lb

# Commercial Hydronic Products—Expansion Tanks

## TL Series Expansion Tanks- Commercial Usage



Expansion Tanks are designed to absorb hot water expansion in closed heating systems. TL tanks are used in large installations. They are equipped with butyl diaphragms to separate the air from the system water (glycol). The tanks are a welded, not clamped, design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valve spills, loss of BTUs and reduce circulator running time. Use the super efficient Honeywell SuperVent or air vents to remove air and micro-bubbles from the system for maximum performance.

**Maximum Operating Temperature:** 115 C (240 F)  
**Maximum Operating Pressure:** 862 kPa (125 psi)  
**Precharge:** 12 psi  
**Materials:** steel shell, heavy duty butyl diaphragm  
**Comments:** Commercial

Product Number	Connection Size	Diameter		Height		Volume		Weight	
		(mm)	(inch)	(mm)	(inch)	(L)	(gal)	(kg)	(lb)
TL125-500-L	1 in.	609.6 mm	24 in.	2038 mm	80 1/4 in.	500.3 L	132.0 gal	149 kg	328 lb

## XPS Series Honeywell Expansion Tanks



XPS Series (commercial) Expansion Tanks are designed to absorb hot water expansion in closed heating systems in larger installations. They are equipped with butyl diaphragms to separate clamped design. Pre-pressurized at 12 psi, the tank keeps fluids circulating and maintains minimum system pressure. Honeywell tanks resist waterlogging, loss of pressure through relief valves spills, loss BTUs for improved system performance.

- For ASME construction consult factory.

**Connection Type:** NPT Female  
**Maximum Operating Temperature:** 115 C (240 F)  
**Maximum Operating Pressure:** 689 kPa (100 psi)  
**Materials:** steel shell, heavy duty butyl diaphragm  
**Comments:** Heating

Product Number	Connection Size	Diameter		Height		Volume		Maximum Acceptance Volume		Weight	
		(mm)	(inch)	(mm)	(inch)	(L)	(gal)	(L)	(gal)	(kg)	(lb)
XPS-030V	1 in.	390.5 mm	15 3/8 in.	606 mm	23 7/8 in.	53.1 L	14.0 gal	42.8 L	11.3 gal	11.4 kg	25 lb
XPS-040V	1 in.	390.5 mm	15 3/8 in.	803 mm	31 5/8 in.	75.8 L	20.0 gal	42.8 L	11.3 gal	15 kg	33 lb
XPS-060V	1 in.	390.5 mm	15 3/8 in.	584 mm	46 1/2 in.	121.3 L	32 gal	42.8 L	11.3 gal	19.5 kg	43 lb
XPS-090V	1 1/4 in.	558.8 mm	22 in.	914 mm	36 in.	166.8 L	44 gal	128.9 L	34 gal	31.4 kg	69 lb
XPS-110V	1 1/4 in.	558.8 mm	22 in.	876.3 mm	46 3/4 in.	235 L	62 gal	128.9 L	34 gal	41.8 kg	92 lb
XPS-160V	1 1/4 in.	660.4 mm	26 in.	1200 mm	47 1/4 in.	325.9 L	86.0 gal	174.3 L	46 gal	55.9 kg	123 lb

# Thermostatic Mixing Valves

## AM-1 Series Thermostatic Mixing Valve



The Honeywell AM-1 series accurately adjusts, maintains and limits the hot water temperature to a desired setting selected by the user. In domestic water applications it offers scalding protection and bacteria growth control. By installing a Honeywell AM-1 mixing valve and raising water heater storage temperature setting and limiting mixed outlet water temperature to safe temperature more usable hot water is available. In heating applications it provides comfort and protects the equipment.

- Dual purpose mixing or diverting valves
- Constant water temperature under changing operating conditions
- Reliable performance at minimum flow of 0.5 gpm
- Proportional valve (simultaneous control of hot and cold water)
- Temperature limit at any point
- Flow reduction in seconds if cold water supply is interrupted
- Nickel-plated brass construction, EPDM O-rings
- High performance thermoplastic proportioning shuttle
- Straight through design (hot and cold at the same level)
- Max. pressure 150 psi (1034 kPa)
- Max temperature 212 F (100 C)
- Designed for easy maintenance and element replacement. Teflon® coating of internal valve components to prevent mineral build-up and extend life.
- Tamper resistant design
- Valve trapping not required
- AM-1 Union STD & C and AM1070 Models include check valves on both hot and cold ports
- ASSE, CSA and IAPMO listed
- U.S. Patent No. 6,079,625

**Application:** Domestic water; Nursing homes; Public facilities; Automatic faucets; Radiant floor heating; Space heating; Combo systems; Solar hot water; Greenhouses; Industrial applications; Photo processing

### Replacement Parts:

**AM-1-020RP** Rebuild kit for AM-1 Series B (60 - 100F; 16-38C) or Series C (80 - 120F; 27 - 49C) range valves. Includes thermal element, spring, diffuser, spool and O-rings

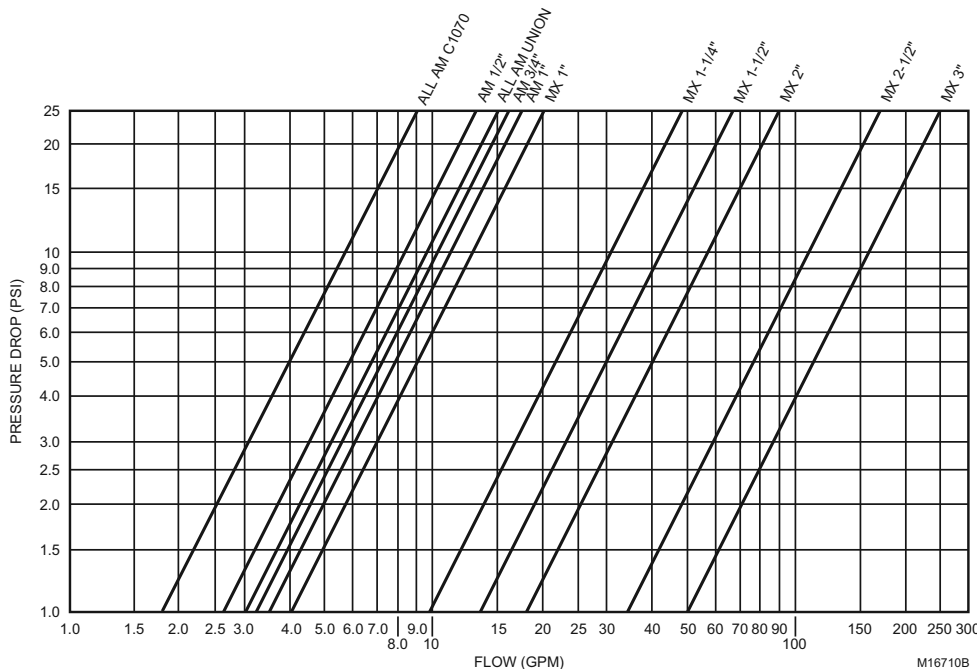
**AM-1-025RP** Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves

**AM-1-030RP** Rebuild kit for AM-1 Series 1070 valves; (70 - 120F; 21 - 49C). Includes thermal element, spring, diffuser, spool and O-rings

**AMCU100** Replacement Check Valve for all AM-1 Series union model valves

**AMU200-RP** Gasket kit for 1/2 inch, 3/4 inch and 1 inch AM and AM-1 Series valves; 3 gaskets per kit

### Pressure Drop Chart




# Thermostatic Mixing Valves

Product Number	Pipe Size		Connection Type	Capacity (Cv)	Operating Temperature Range		ASSE	Comments
	DN	inch			(C)	(F)		
AM100-1	DN15	1/2 in.	NPT	3.2 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM100-UCPVC-1	DN15	1/2 in.	Union CPVC	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM100-UPEX-1	DN15	1/2 in.	Union PEX	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM100-US-1	DN15	1/2 in.	Union Sweat	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM100-UT-1	DN15	1/2 in.	Union NPT	3.9 Cv	21 C to 49 C	70 F to 145 F	1017	—
AM100C-1	DN15	1/2 in.	NPT	3.2 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM100C-UCPVC-1	DN15	1/2 in.	Union CPVC	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM100C-UPEX-1	DN15	1/2 in.	Union PEX	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM100C-US-1	DN15	1/2 in.	Union Sweat	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM100C-UT-1	DN15	1/2 in.	Union NPT	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM100C1070-UCPVC-1	DN15	1/2 in.	Union CPVC	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM100C1070-UPEX-1	DN15	1/2 in.	Union PEX	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM100C1070-US-1	DN15	1/2 in.	Union Sweat	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM100C1070-UT-1	DN15	1/2 in.	Union NPT	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM100R-UPEX-1	DN15	1/2 in.	Union PEX	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM100R-US-1	DN15	1/2 in.	Union Sweat	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM100R-UT-1	DN15	1/2 in.	Union NPT	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM101-1	DN20	3/4 in.	NPT	3.8 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM101-UCPVC-1	DN20	3/4 in.	Union CPVC	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM101-UPEX-1	DN20	3/4 in.	Union PEX	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM101-US-1	DN20	3/4 in.	Union Sweat	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM101-UT-1	DN20	3/4 in.	Union NPT	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM101C-1	DN20	3/4 in.	NPT	3.8 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM101C-UCPVC-1	DN20	3/4 in.	Union CPVC	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM101C-UPEX-1	DN20	3/4 in.	Union PEX	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM101C-US-1	DN20	3/4 in.	Union Sweat	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM101C-UT-1	DN20	3/4 in.	Union NPT	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM101C1070-UCPVC-1	DN20	3/4 in.	Union CPVC	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM101C1070-UPEX-1	DN20	3/4 in.	Union PEX	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM101C1070-US-1	DN20	3/4 in.	Union Sweat	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM101C1070-UT-1	DN20	3/4 in.	Union NPT	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM101R-UPEX-1	DN20	3/4 in.	Union PEX	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM101R-US-1	DN20	3/4 in.	Union Sweat	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM101R-UT-1	DN20	3/4 in.	Union NPT	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM102-1	DN25	1 in.	NPT	4.3 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM102-US-1	DN25	1 in.	Union Sweat	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM102-UT-1	DN25	1 in.	Union NPT	3.9 Cv	21 C to 63 C	70 F to 145 F	1017	—
AM102C-1	DN25	1 in.	NPT	4.3 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM102C-US-1	DN25	1 in.	Union Sweat	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM102C-UT-1	DN25	1 in.	Union NPT	3.9 Cv	21 C to 49 C	70 F to 120 F	1017	—
AM102C1070-US-1	DN25	1 in.	Union Sweat	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM102C1070-UT-1	DN25	1 in.	Union NPT	1.8 Cv	21 C to 49 C	70 F to 120 F	1070	—
AM102R-US-1	DN25	1 in.	Union Sweat	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only
AM102R-UT-1	DN25	1 in.	Union NPT	3.9 Cv	21 C to 82 C	70 F to 180 F	No Approval	Heating Only

# Thermostatic Mixing Valves




## New Style AM-1 Series Valves Replacement Parts

Product Number	Description	
AM-1-020RP	Rebuild kit for AM-1 Series B (60 - 100F; 16-38C) or C (80 - 120F; 27 - 49C) range valves. Includes thermal element, spring, diffuser, spool and O-rings	
AM-1-025RP	Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves	
AM-1-030RP	Rebuild kit for AM-1 Series 1070 valves; (70 - 120F; 21 - 49C). Includes thermal element, spring, diffuser, spool and O-rings	
AMCU100	Replacement Check Valve for all AM-1 Series union model valves	
AMU200-RP	Gasket kit for 1/2 inch, 3/4 inch and 1 inch AM and AM-1 Series valves; 3 gaskets per kit	

## Old Style AM Series Valves (manufactured before 2001) Replacement Parts

Product Number	Description
AM100-001RP	Rebuild kit for AM C Series valves, 90-120 F (32 - 49C) range. Does not fit AM-1 Series
AM100-002RP	Rebuild kit for AM Standard Series valves, 110-145 F (43 - 63C) range. Does not fit AM-1 Series
AM100-010RP	Rebuild kit for AM R Series valves, 70 - 100F (21 - 38C) range. Does not fit AM-1 Series
AMU200-RP	Gasket kit for 1/2 inch, 3/4 inch and 1 inch AM and AM-1 Series valves; 3 gaskets per kit

## Mixing Valve Accessories

Product Number	Description	
AM08-038	1/2 inch Sweat union kit. Includes tailpiece, union nut and gasket	
AM08-039	3/4 inch Sweat union kit. Includes tailpiece, union nut and gasket	
AM08-040	1 inch Sweat union kit. Includes tailpiece, union nut, gasket and retaining ring	
AM08-041	1/2 inch NPT union kit. Includes tailpiece, union nut and gasket	
AM08-042	3/4 inch NPT union kit. Includes tailpiece, union nut and gasket	
AM08-043	1 inch NPT union kit. Includes tailpiece, union nut, gasket and retaining ring	
AM206-040	3/4 inch CPVC union kit. Includes tailpiece, union nut and gasket	
AM206-041	1/2 inch PEX union kit. Includes tailpiece, union nut and gasket	
AM206-042	3/4 inch PEX union kit. Includes tailpiece, union nut and gasket	
CVT-050	1/2 in. FNPT x 1/2 in. MNPT Check Adapter for use with AM-100 NPT valves	
CVT-075	3/4 in. FNPT x 3/4 in. MNPT Check Adapter for use with AM-101 NPT valves	
MX050-RP	1/2 inch Recirculation adapter kit. Includes 1/2 inch MNPT union nut and gasket	
TS205-064	Thermostrip temperature indicator for potable mixing valves, 110-140F (43 - 60C) range Strip	
TS206-080	Thermostrip temperature indicator for R Series radiant mixing valves, 105 - 180F (41 - 82C) range	

## Replacement Parts SM Series (Old Style)

Product Number	Description
SM100-004RP	SM Series Element, spring and shuttle assembly

# Thermostatic Mixing Valves

## AMX Series DirectConnect™ Thermostatic Mixing Valves



Patented DirectConnect™ design reduces installation time. Orientation of cold and hot ports eliminates need for elbows and tees on typical water heater installations. Added safety designed to prevent scalding. Increased user comfort for more available hot water. Designed to be directly installed on water heater hot outlet port.

- Designed to be directly installed on water heater hot outlet port.
- Constant water temperature under different operating conditions
- Proportional valve (control of hot and cold water)
- Flow reduction in seconds if cold water supply is interrupted
- Temperature adjustable using 3/16 allen wrench (supplied)
- Union nuts/tail pieces included
- Heat trapping not required
- Recirculation port option for fast response
- Integral check valve on cold port
- Brass/stainless construction
- Teflon coated wear surfaces for extended service
- ASSE 1017 certified, CSA & IAPMO listed
- U.S. Patent pending

**Application:** Heat Pump Systems; Domestic water; Nursing homes; Public facilities; Automatic faucets; Radiant floor heating; Space heating; Combo systems; Solar hot water; Greenhouses; Industrial applications; Photo processing

**Operating Temperature Range:** 32 C to 54 C (90 F to 130 F)

**Capacity:** 4 Cv

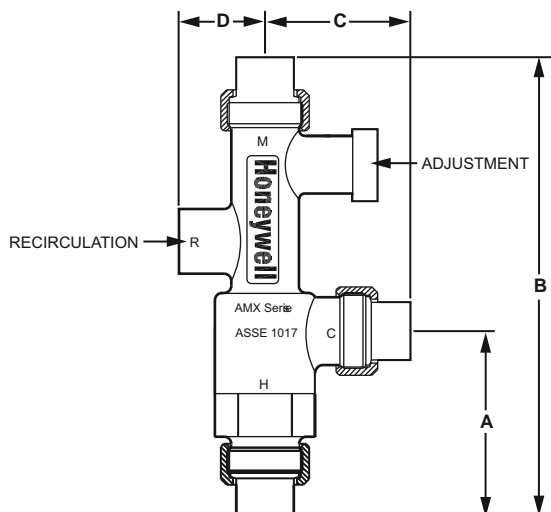
**ASSE:** 1017

### Replacement Parts:

**AMX-001RP** AMX element, spring, plug assembly.  
For AMX100 - AMX102 series valves only

Product Number	Pipe Size		Connection Type	Comments
	DN	inch		
AMX100-UCPVC-1	DN15	1/2 in.	Union CPVC, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX100-UPEX-1	DN15	1/2 in.	Union PEX, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX100-US-1	DN15	1/2 in.	Union Sweat, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX100-UT-1	DN15	1/2 in.	Union NPT, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-UCPVC-1	DN20	3/4 in.	Union CPVC, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-UPEX-1	DN20	3/4 in.	Union PEX, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-US-1	DN20	3/4 in.	Union Sweat, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX101-UT-1	DN20	3/4 in.	Union NPT, 3/4 in. Bottom	AMX100 and AMX101 Series valves include 3/4 in. NPT bottom connection
AMX102-US-1	DN25	1 in.	Union Sweat, 1 in. Bottom	AMX102 Series valves include 1 in. NPT bottom connection
AMX102-UT-1	DN25	1 in.	Union NPT, 1 in. Bottom	AMX102 Series valves include 1 in. NPT bottom connection

### Dimensions in millimeters



PRODUCT NUMBER	DIMENSIONS (INCHES)			
	A	B	C	D
AMX100-UCPVC-1	3-1/2	8-7/16	2-11/16	1-1/2
AMX100-UPEX-1	3-1/2	8-5/8	2-15/16	1-1/2
AMX100-US-1	3-1/2	8-3/16	2-1/2	1-1/2
AMX100-UT-1	3-1/2	8-1/2	2-13/16	1-1/2
AMX101-UCPVC-1	4-3/16	9	2-1/2	1-1/2
AMX101-UPEX-1	4-3/16	9-3/16	2-11/16	1-1/2
AMX101-US-1	4-3/16	9	2-1/2	1-1/2
AMX101-UT-1	4-3/16	9-11/16	3-1/2	1-1/2
AMX102-US-1	4-1/2	10	3-1/2	1-1/2
AMX102-UT-1	4-1/2	10.3	3-13/16	1-1/2

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# Thermostatic Mixing Valves

## AMX300 Series DirectConnect—Thermostatic Mixing Valve and Kits



AMX300T and AMX302T Kits

**New AMX300 kits reduce installation time to an minimum while still providing Honeywell's industry leading mixing valve technology**

- Excellent temperature stability and control
- Effectively minimizes scalding risk to building occupants

**Application:** Domestic Hot Water

**Valve Capacity:** 1 Cv

**Mixed Water Supply Temperature Range:**  
38 C to 63 C (100 F to 145 F)

**Operating Temperature Range:**

Cold Water Inlet: 0.5 C to 27 C (33 F to 80 F)

Hot Water Inlet: 38 C to 100 C (100 F to 212 F)



- Kit includes ASSE 1017 mixing valve, cold water tee fitting and flexible stainless steel connector
- For performance specifications of the kits, please refer to data provided for the AMX300 valve
- Mixing valve and cold water tee both connect directly to water heater; flexible stainless steel connector joins the cold water tee directly to the cold inlet port of the mixing valve
- Fits virtually all water heaters up to 1 in. (all necessary adapters included)
- Increased user comfort for more available hot water.
- Constant water temperature under different operating conditions
- Proportional valve (control of hot and cold water)
- Flow reduction in seconds if cold water supply is interrupted
- Temperature adjustable with easy "Push-Twist-Release" locking hand wheel design
- Union nuts/tail pieces/adapters (for certain models) included
- Recirculation port option for fast delivery of heated water to furthest fixtures
- Alternate hot port for bypass of hot water directly from tank to nonmixed temperature applications (dishwashers, clothes washers, etc.)
- Integral check valve on cold port
- Brass/stainless construction
- Teflon coated wear surfaces for extended service
- ASSE 1017 certified, IAPMO listed (cUPCus)

**Minimum Flow Rate:**

0.95 lpm Recirculation Port: 1/2 in. NPT; Alternate Hot Port: 1/2 in. NPT

(0.25 gpm Recirculation Port: 1/2 in. NPT; Alternate Hot Port: 1/2 in. NPT)

**Maximum Working Pressure:** 150 psi

**ASSE:** 1017 (AMX300 valve)

**Replacement Parts:**

**AM-1-025RP** Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves

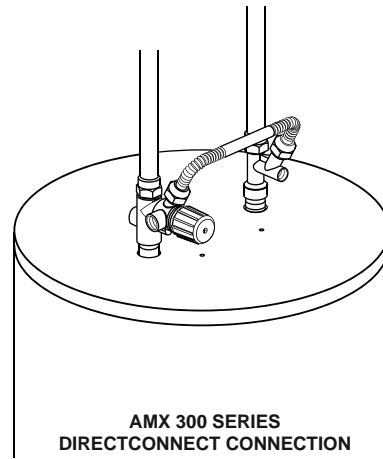
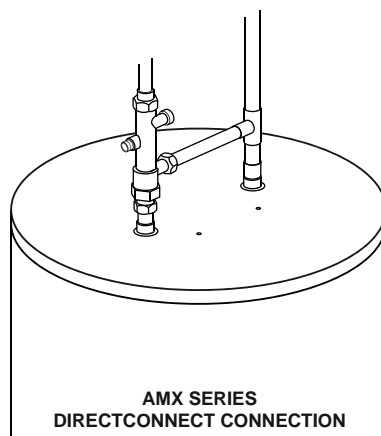
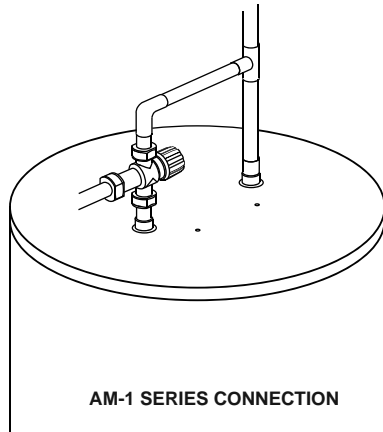
Product Number	Pipe Size		Connection Type	Description
	DN	inch		
AMX300	DN20	3/4 in.	Cold Inlet - 7/8 in.-14 SAE J513, 45 degree flare fitting; Mixed Outlet - Male NPT; Hot Inlet - Female NPT	3/4 in. ASSE 1017 mixing valve (Replacement valve for AMX300T and AMX302T DirectConnect mixing valve kits.)
AMX300T	DN15	1/2 in.	Mixed Outlet - Male NPT; Hot Inlet - Female NPT	DirectConnect water heater kit with 3/4 in. ASSE 1017 mixing valve, 3/4 in. cold water tee, and 8-in. SS flex connector
AMX302T	DN25	1 in.	Mixed Outlet - Male NPT; Hot Inlet - Female NPT	DirectConnect water heater kit with 3/4-in. ASSE 1017 mixing valve, 3/4-in. cold water tee, and 11-in. SS flex connector

## AMX Series DirectConnect Replacement Part

Product Number	Description
AM-1-025RP	Thermal element, spring, and plug assembly. Rebuild kit for AM-1 "Standard" series and AMX300 series valves

# Thermostatic Mixing Valves

## Thermostatic Mixing Valve Installation



M31168



# Thermostatic Mixing Valves

## UMV Series Undersink Mixing Valves

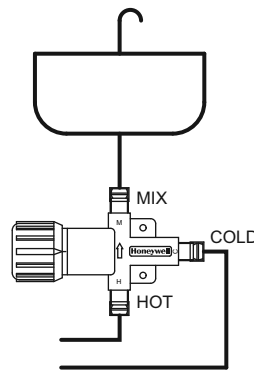


Universal 3 or 4 Port connection for 3/8 in. compression undersink applications. Includes internal check valves in hot and cold ports to prevent cross flow. Easy installation kit includes 3/8 compression nuts, ferrules and stand-offs for secure mounting. Forged brass body construction. Tamper resistant temperature control handwheel locks into desired temperature position.

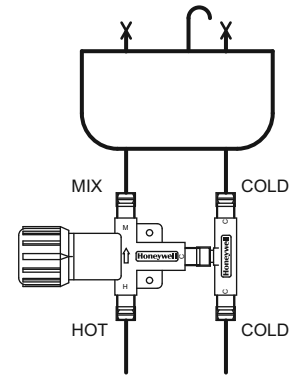
- Universal adapter for 3 Port connection
- 3/8 compression connections for easy installation
- Includes internal check valves in hot and cold ports to prevent cross flow.
- Tamper resistant hand wheel locks into desired temperature position
- Temperature adjustment range 80-120F
- Controls temperature with flow as low as 0.5 gpm
- Forged brass body with pilot holes for secure mounting
- ASSE 1016 and ASSE 1070 listed

**Application:** UMV Series 3/8 in. Compression

### Typical Installation



THREE PORT APPLICATION



FOUR PORT APPLICATION

M25022

Product Number	Pipe Size		Connection Type	Capacity (Cv)	Operating Temperature Range		ASSE	Description
	DN	inch			(C)	(F)		
UMV-304U	DN20	3/8 in.	Compression	0.55 Cv	21 C to 49 C	70 F to 120 F	1070; 1016	3/8" compression Universal 3 or 4 Port Connection

# Pressure Regulating Valves

## D05T Pressure Regulating Valve—Compact Design



**Compact Design pressure regulating valves for new residential and light commercial construction, drip irrigation and other applications requiring sensitive and accurate regulation.**

- Flow capacity and accuracy make D05T suitable for a variety of applications
- Bronze body construction with stainless steel and engineered thermoplastic internal parts
- One piece non-corroding unitized cartridge
- Fully balanced regulator mechanism with fabric reinforced diaphragm
- Includes balanced seat for accurate pressure output under varying inlet pressures up to 400psi
- Inlet and outlet internally and externally threaded (NPT) for union connection
- Built-in strainer and thermal by-pass
- ASSE 1003 and IAPMO listed

**Calibrated Adjustment Dial:** No

**Gauge Tap:** 1/4 in. NPT

**Reducing Ratio:** 10:1 maximum

**Pipe Connection:** Female NPT threaded inlet and outlet. Externally threaded for unions.

**Outlet Pressure Adjustment Range (psi):** 15-90 psi

**Maximum Inlet Pressure Rating (psi):** 400 psi

**Temperature Range:** 82 C (180 F)

**Materials:** Bronze (body), Fabric reinforced diaphragm, Stainless steel and engineered thermoplastics.

**Approvals:**

**Canadian Standards Association:** Certified (B356)

**ASSE:** Certified (1003)

**IAPMO:** Listed

Product Number	Pipe Size		Dimensions, Approximate		Union Fittings
	DN	inch	(mm)	(inch)	
D05T1011	DN20	3/4 in.	168 mm high x 89 mm long	6 5/8 in. high x 3 1/2 in. wide	Union body, no tailpieces
D05T1029	DN20	3/4 in.	168 mm high x 132 mm long	6 5/8 in. high x 5 3/16 in. long	Double-union sweat
D05T1045	DN25	1 in.	114 mm high x 142 mm wide	4 1/2 in high x 4 in. long	Union body, no tailpieces
D05T1052	DN25	1 in.	218 mm high x 166 mm long	8 5/8 in. high x 6 1/2 in. long	Double-union sweat
D05T1060	DN20	3/4 in.	168 mm high x 132 mm long	6 5/8 in. high x 5 3/16 in. long	Double-union threaded
D05T1078	DN25	1 in.	168 mm high x 132 mm long	6 5/8 in. high x 5 3/16 in. long	Double-union threaded
D05T1086	DN20	3/4 in.	168 mm high x 132 mm long	6 5/8 in. high x 5 3/16 in. long	Single-union sweat
D05T1094	DN20	3/4 in.	168 mm high x 110 mm long	6 5/8 in. high x 4 5/16 in. wide	Single-union threaded
D05T1102	DN25	1 in.	218 mm high x 127 mm long	8 5/8 in. high x 5 in. long	Single-union sweat
D05T1110	DN25	1 in.	218 mm high x 127 mm long	8 5/8 in. high x 5 in. long	Single-union threaded

# Pressure Regulating Valves

## DS05 "DialSet" Pressure Regulating Valves



Valves for new residential and light commercial construction, drip irrigation, and other applications requiring highly sensitive and accurate regulation. Easy DialSet® Adjustment (no gauge required)

- Dial is calibrated in 10 psi increments to allow quick and accurate adjustment of outlet pressure.
- Flow capacity and accuracy make the DS05 suitable for potable water service and most irrigation applications.
- High pressure (400 psi) inlet rating.
- Non-corroding unitized cartridge contains all working parts and is easily replaceable.
- Bronze body with stainless steel and engineered thermoplastic internal parts.
- Balanced single seat for accurate pressure output under varying inlet pressures.
- Inlet and outlet are internally threaded female NPT, and externally threaded for use with union assemblies.
- Built-in strainer and thermal bypass.
- One model can be used in low, standard or high pressure applications.

**Calibrated Adjustment Dial:** Yes

**Gauge Tap:** none

**Reducing Ratio:** 10:1 maximum

**Pipe Connection:** Female NPT threaded inlet and outlet. Externally threaded for unions.

**Maximum Inlet Pressure Rating (psi):** 400 psi

**Temperature Range:** 82 C (180 F)

**Pipe Connection:** Female NPT threaded inlet and outlet. Externally threaded for unions.

**Materials:** Bronze (body), Fabric reinforced diaphragm, Stainless steel and engineered thermoplastics.

**Approvals:**

**Canadian Standards Association:** Certified (B356)

**ASSE:** Certified (1003)

**IAPMO:** Listed

Product Number	Pipe Size		Dimensions, Approximate		Outlet Pressure Adjustment Range (psi)	Union Fittings
	DN	inch	(mm)	(inch)		
DS05C1006	DN15	1/2 in.	133 mm high x 86 mm long	5 1/4 in. high x 3 3/8 in. long	15-90 psi	Union body, no tailpieces
DS05C1014	DN15	1/2 in.	133 mm high x 98 mm wide	5 1/4 in. high x 3 7/8 in. long	15-90 psi	Single-union sweat
DS05C1022	DN15	1/2 in.	133 mm high x 103 mm wide	5 1/4 in. high x 4 1/16 in. long	15-90 psi	Single-union threaded
DS05C1030	DN20	3/4 in.	133 mm high x 86 mm long	5 1/4 in. high x 3 3/8 in. long	15-90 psi	Union body, no tailpieces
DS05C1048	DN20	3/4 in.	133 mm high x 110 mm wide	5 1/4 in. high x 4 5/16 in. long	15-90 psi	Single-union sweat
DS05C1055	DN20	3/4 in.	133 mm high x 110 mm wide	5 1/4 in. high x 4 5/16 in. long	15-90 psi	Single-union threaded
DS05C1063	DN25	1 in.	133 mm high x 100 mm wide	5 1/4 in. high x 3 15/16 in. long	15-90 psi	Union body, no tailpieces
DS05C1071	DN25	1 in.	133 mm high x 133 mm long	5 1/4 in. high x 5 1/4 in. long	15-90 psi	Single-union sweat
DS05C1089	DN25	1 in.	133 mm high x 127 mm long	5 1/4 in. high x 5 in. long	15-90 psi	Single-union threaded
DS05D1005	DN15	1/2 in.	133 mm high x 141 mm long	5 1/4 in. high x 5 9/16 in. long	15-90 psi	Double-union sweat
DS05D1013	DN15	1/2 in.	133 mm high x 125 mm long	5 1/4 in. high x 5 15/16 in. long	15-90 psi	Double-union threaded
DS05D1021	DN20	3/4 in.	133mm high x 154 mm long	5 1/4 in. high x 6 1/16 in. long	15-90 psi	Double-union sweat
DS05D1039	DN20	3/4 in.	133 mm high x 132 mm long	5 1/4 in. high x 5 3/16 in. long	15-90 psi	Double-union threaded
DS05D1047	DN25	1 in.	133 mm high x 166 mm long	5 1/4 in. high x 6 1/2 in. long	15-90 psi	Double-union sweat
DS05D1054	DN25	1 in.	133 mm high x 132 mm long	5 1/3 in. high x 5 3/16 in. long	15-90 psi	Double-union threaded
DS05D1062	DN32	1 1/4 in.	218 mm high x 195 mm long	8 5/8 in. high x 7 11/16 in. long	15-150 psi	Double-union sweat
DS05D1070	DN32	1 1/4 in.	218 mm high x 186 mm long	8 5/8 in. high x 7 5/16 in. long	15-150 psi	Double-union threaded
DS05G1085	DN32	1 1/4 in.	218 mm high x 152 mm long	8 5/8 in. high x 6 in. long	15-150 psi	Single-union threaded
DS05G1093	DN32	1 1/4 in.	218 mm high x 157 mm long	8 5/8 in. high x 6 3/16 in. long	15-150 psi	Single-union sweat
DS05G1127	DN32	1 1/4 in.	218 mm high x 119 mm long	8 5/8 in. high x 4 11/16 in. long	15-150 psi	Union body, no tailpieces

# Pressure Regulating Valves

## DS06 "DialSet" Pressure Regulating Valves



High quality pressure regulating valve that maintains a constant outlet pressure over a wide range of inlet supply pressures. Includes calibrated outlet pressure set dial that allows outlet pressure adjustments without the use of a gauge in most applications. Easy DialSet® Adjustment (no gauge required)

- Ideally suited for potable water and irrigation applications requiring accurate regulation.
- Wide outlet pressure range, high inlet pressure, and compact design allow flexibility in installation and application.
- Non-corroding unitized cartridge contains all working parts and is easily replaceable.
- Includes built-in strainer and thermal bypass.
- Balanced seat construction provides superior pressure regulation.
- Gauge tapped.

**Calibrated Adjustment Dial:** Yes  
**Gauge Tap:** 1/4 in. NPT (two, one on each side of body).  
**Reducing Ratio:** 10:1 maximum  
**Pipe Connection:** Female NPT threaded inlet and outlet.  
 Externally threaded for unions.  
**Maximum Inlet Pressure Rating (psi):** 400 psi  
**Outlet Pressure Adjustment Range (psi):** 15-130 psi  
**Temperature Range:** 82 C (180 F)

**Materials:** Bronze (body), Fabric reinforced diaphragm, Stainless steel and engineered thermoplastics.

**Approvals:**  
**Canadian Standards Association:** Certified (B356)  
**ASSE:** Certified (1003)  
**IAPMO:** Listed

Product Number	Pipe Size		Dimensions, Approximate		Outlet Pressure Adjustment Range (psi)	Union Fittings
	DN	inch	(mm)	(inch)		
DS06D1003	DN40	1 1/2 in.	299 mm high x 238 mm long	11 13/16 in. high x 9 3/8 in. long	15-130 psi	Double-union sweat
DS06D1011	DN40	1 1/2 in.	299 mm high x 233 mm long	11 13/16 in. high x 9 3/16 in. long	15-130 psi	Double-union threaded
DS06D1029	DN50	2 in.	299 mm high x 257 mm long	11 13/16 in. high x 10 3/16 in. long	15-130 psi	Double-union sweat
DS06D1037	DN50	2 in.	299 mm high x 237 mm long	11 13/16 in. high x 9 5/16 in. long	15-130 psi	Double-union threaded
DS06G1000	DN40	1 1/2 in.	299 mm high x 198 mm long	11 13/16 in. high x 7 13/16 in. long	15-130 psi	Single-union threaded
DS06G1018	DN40	1 1/2 in.	299 mm high x 201 mm long	11 13/16 in. high x 7 7/8 in. long	15-130 psi	Single-union sweat
DS06G1026	DN50	2 in.	299 mm high x 200 mm long	11 13/16 in. high x 7 7/8 in. long	15-130 psi	Single-union threaded
DS06G1034	DN50	2 in.	299 mm high x 211 mm long	11 13/16 in. high x 8 5/16 in. long	15-130 psi	Single-union sweat
DS06G1042	DN40	1 1/2 in.	299 mm high x 162 mm long	11 13/16 in. high x 6 3/8 in. long	15-130 psi	Union body, no tailpieces
DS06G1059	DN50	2 in.	299 mm high x 162 mm long	11 13/16 in. high x 6 3/8 in. long	15-130 psi	Union body, no tailpieces

# Pressure Regulating Valve Accessories and Repair Parts

## D05/DS05 Pressure Regulating Valves—Accessories

Product Number	Description	Used With
272840	Union gaskets for 1/2 in. D05/DS05 (package of 2)	D05; DS05
272841	Union gaskets for 3/4 in. D05/DS05 (package of 2)	D05; DS05
272842	Union gasket for 1 in. D05/DS05 (package of 2)	D05; DS05
K06U1069	Union kit for D05 for 1/2-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1077	Union kit for D05 for 3/4-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1085	Union kit for D05 for 1-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1093	Union kit for D05 for 1/2-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05
K06U1101	Union kit for D05 for 3/4-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05
K06U1119	Union kit for D05 for 1-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05
K06U1135	Union kit for D05 for 1-1/4-in. NPT valves. Includes union nut, threaded tail piece, and gasket	D05
K06U1143	Union kit for D05 for 1-1/4-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D05

## D05/DS05 Pressure Regulating Valves—Repair Parts

Product Number	Description	Used With
203223	Bonnet kit for 1/2 in. and 3/4 in. D05 valves. Consists of bonnet kit and threaded insert	D05
272838	Bonnet kit for 1/2 in. and 3/4 in. DS05 valves	DS05
272839	Bonnet kit for 1 in. and 1 1/4 in. DS05 valves	DS05
K05A1009	Repair Kit for old style D05A,G; DS05G series 1/2 in. and 3/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K05A1017	Repair Kit for old style D05A,G; DS05G 1 in. and 1-1/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K05A1025	Repair kit for new D05T, DC05C,D,G 1/2 in., 3/4 in., and 1-in. valves. Includes cartridge, screen and O-ring	D05T; DS05
K05B1007	Repair Kit for new D05T; DS05C,D,G 1/2-in. and 3/4-in. valves. Includes screen and O-rings	D05T; DS05
K05B1015	Repair Kit for new D05T and DS05C,D,G 1-in. valves. Includes screen and O-rings	D05T; DS05
K06A1003	Cartridge kit for D05G and DS05G 1/2 and 3/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K06A1011	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes cartridge, screen and O-rings	D05; DS05
K06A1019	Cartridge kit for D05G and DS05G 1/2 and 3/4 in. valves. Includes screen, plug and O-rings	D05; DS05
K06B1002	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes screen, plug and O-rings	D05; DS05
K06B1018	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes screen, plug and O-rings	D05; DS05
K06C1036	Spring kit for D05G and DS05G 1 and 1-1/4 in. valves. 21-85 psi. Includes spring and adjustment knob (grey)	D05; DS05
K06C1044	Spring kit for D05G and DS05G 1 and 1-1/4 in. valves. 85-170 psi. Includes spring and adjustment knob (red)	D05; DS05
K06D1001	Cartridge kit for D05G and DS05G 1/2 and 3/4 in. valves. Includes cartridge and O-rings	D05; DS05
K06D1009	Cartridge kit for D05G and DS05G 1 and 1-1/4 in. valves. Includes cartridge and O-rings	D05; DS05

## D06/DS06 Pressure Regulating Valves—Accessories

Product Number	Description	Used With
272858	Union Gasket for 1 1/2 in. D06 and DS06G valves	D06; DS06G
272859	Union gaskets for 2-in. D06 and DS06 valves	D06; DS06
K06U1037	Union kit for D06 for 1-1/2-in. NPT valves. Includes union nut, sweat tail piece, and gasket	D06
K06U1045	Union kit for D06 for 2-in. NPT valves. Includes union nut, sweat tail piece, and gasket	D06
K06U5034	Union kit for D06 for 1-1/2-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D06
K06U5042	Union kit for D06 for 2-in. sweat valves. Includes union nut, sweat tail piece, and gasket	D06

## D06/DS06 Pressure Regulating Valves—Repair Parts

Product Number	Description	Used With
272867	Bonnet kit for 1-1/2 in. and 2 in. DS06 valves	DS06
K06B1030	Cartridge kit for D06G and DS06G 1-1/2-in. and 2-in. valves. Includes strainer, support and 2 O-rings	D06; DS06
K06C1060	Spring kit for D06G and DS06G 1-1/2 and 2 in. valves. 21-85 psi. Includes spring and adjustment knob (grey)	D06; DS06
K06D1017	Cartridge kit for D06G and DS06G 1-1/2 and 2 in. valves. Includes cartridge and O-rings	D06; DS06
K06D1044	Cartridge kit for D06G,T,U and DS06G 1-1/2-in. and 2in. valves. Includes cartridge, screen and O-rings.	D06; DS06

# Water Sediment Filters

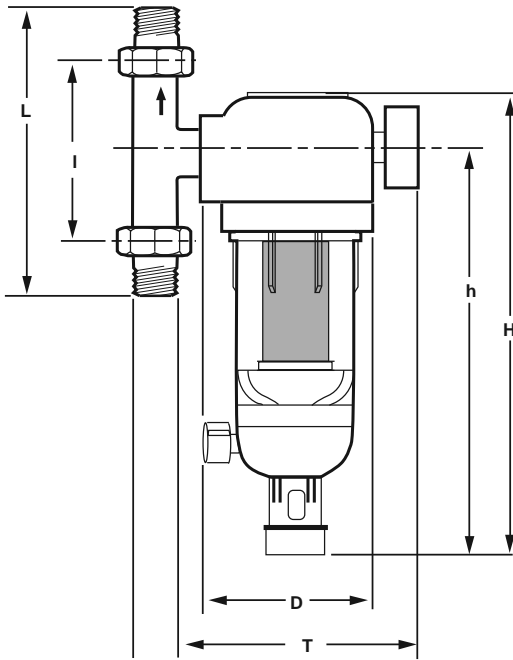
## F74C Reversing Rinsing Filter



F74C Reverse Rinsing Filters ensure a continuous supply of filtered water. The fine filter prevents the ingress of foreign bodies, such as rust particle and grains of sand. Both horizontal and vertical installations are possible.

- Whole House Protection
- Filtered water supplied even during reverse rinsing. Patented reverse rinsing system.
- Fast and thorough cleaning of the filter with a small amount of water.
- Bayonet connection enables simple retro-fitting of reverse rinsing actuator.
- Large filter surface.
- Shock resistant, clear synthetic material filter bowl enables easy inspection of filter contamination.
- Filter insert fully interchangeable.
- Simple operation.
- Tested for reliability.

Dimensions in millimeters (inches)



**Materials (Body):** Plastic with Brass Fittings

**Sump:** Clear Plastic

**Connection Type:** Sweat and threaded

**Temperature Rating:** 30 C Maximum (86 F Maximum)

**Weight:** 2.7 kg (6 lb)

DIMENSION	CONNECTION SIZE	
	19 (3/4)	25 (1)
H	324 (12-13/16)	324 (12-13/16)
h	285 (11-3/16)	285 (11-3/16)
L	162 (6-3/8)	184 (7-1/4)
I	90 (3-9/16)	100 (3-15/16)
D	105 (4-1/8)	105 (4-1/8)
T	150 (5-5/16)	150 (5-5/16)

MC18087A

Product Number	Pipe Size		Capacity (Cv)	Screen Size	Pressure Ratings	Includes
	DN	inch			(psi)	
F74C1015	DN20	3/4 in.	6.4 Cv	100 micron screen	230 psi maximum	gauge and wrench
F74C1023	DN25	1 in.	7.0 Cv	100 micron screen	230 psi maximum	gauge and wrench

## F76 Water Filters



**High flow capacity water filter used to remove sediment and debris from residential or commercial water systems.**

- Whole House Protection
- Ideally suited for sediment removal applications that would quickly plug and restrict the flow of normal filters.
- Used as a prefilter, the F76 protects elements of the water system, including specialized treatment devices or other common fixtures and appliances.
- The flow filtering capacity and ease of cleaning make the F76S ideal for the most demanding applications.
- Built-in secondary filter provides an uninterrupted supply of filtered water during backwashing.

**Materials (Body):** Brass

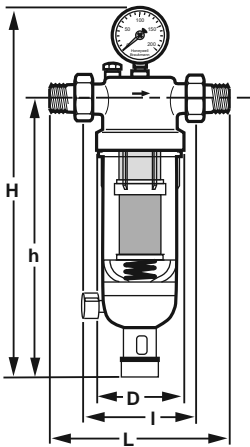
**Sump:** Clear Plastic

**Connection Type:** NPT External Threaded and Sweat

**Temperature Rating:** 40 C Maximum (104 F Maximum)

**Weight:** 2.9 kg (6.4 lb)

Dimensions in millimeters (inches)



SIZE	L <sup>1</sup>	I <sup>1</sup>	D <sup>1</sup>	H <sup>1</sup>	h <sup>1</sup>	WEIGHT <sup>2</sup>
1/2 INCH	170 (6-11/16)	110 (4-5/16)	97 (3-13/16)	449 (17-11/16)	350 (13-13/16)	2.9 (6.4)
3/4 INCH	178 (7)	110 (4-5/16)	97 (3-13/16)	449 (17-11/16)	350 (13-13/16)	2.9 (6.4)
1 INCH	209 (8-1/4)	130 (5-1/8)	97 (3-13/16)	453 (17-7/8)	350 (13-13/16)	3.1 (6.8)
1-1/4 INCH	222 (8-3/4)	130 (5-1/8)	97 (3-13/16)	453 (17-7/8)	350 (13-13/16)	3.3 (7.3)
1-1/2 INCH	246 (9-11/16)	150 (5-15/16)	119 (4-3/4)	532 (20-15/16)	417 (16-7/16)	4.0 (8.8)
2 INCH	267 (10-1/2)	150 (5-15/16)	119 (4-3/4)	532 (20-15/16)	417 (16-7/16)	4.8 (10.6)

<sup>1</sup> DIMENSIONS IN MILLIMETERS AND (INCHES).

<sup>2</sup> WEIGHT IN KILOGRAMS AND (POUNDS).

MC18084

Product Number	Pipe Size		Capacity (Cv)	Screen Size	Pressure Ratings	Includes
	DN	inch			(psi)	
F76S1007	DN15	1/2 in.	5.6 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1015	DN20	3/4 in.	8.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1023	DN25	1 in.	11.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1031	DN32	1 1/4 in.	12.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1049	DN40	1 1/2 in.	24.4 Cv	100 micron screen	230 psi maximum	gauge and service wrench
F76S1056	DN50	2 in.	25.5 Cv	100 micron screen	230 psi maximum	gauge and service wrench

# Water Sediment Filters

## FF06 Rinseable Fine Filter



The FF06 Rinseable Fine Filter ensures a continuous supply of filtered water. The fine filter stops the flow of particulates, such as rust particles and grains of sand. Sediment collected at the bottom of the bowl can simply be removed by flushing with the turn of a knob. This compact filter was designed to fit where the space is limited.

- Easy installation.
- Same installed dimensions as F74C for easy future upgrade to a backwashable filter.
- Continuous supply of filtered water, even during rinse cycle.
- Shock resistant clear synthetic material filter bowl enables easy inspection for filter contamination.
- Stainless steel filter element.
- Filter bowl and sleeve are easily exchanged.
- Shipped with threaded and sweat union connections and service wrench.

**Materials (Body):** Dezincification-resistant (DZR) forged Brass

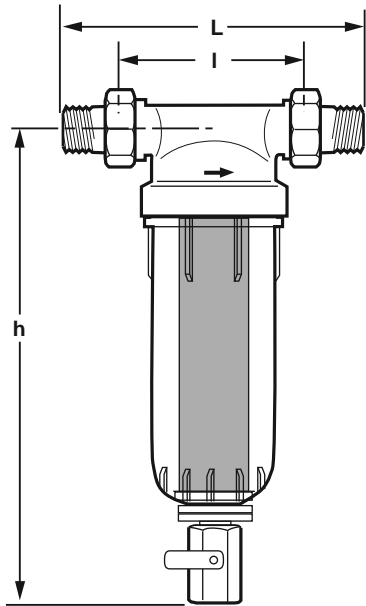
**Sump:** Clear Plastic

**Temperature Rating:** 40 C Maximum (104 F Maximum)

**Connection Type:** NPT External threaded and sweat

**Weight:** 1.0 kg (2.2 lb)

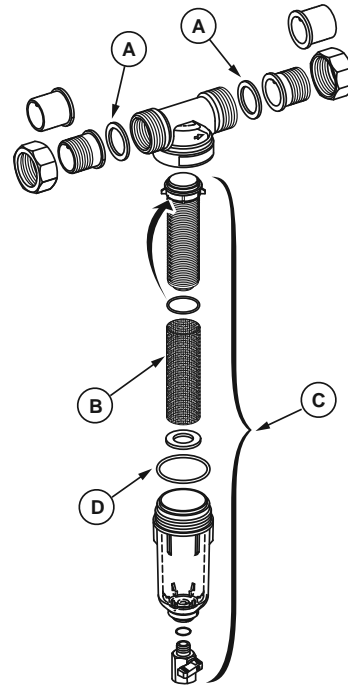
### Dimensions in millimeters (inches)



DIMENSION	CONNECTION SIZE	
	19 (3/4)	25 (1)
<b>L</b>	158 (6-1/4)	179 (7-1/16)
<b>I</b>	90 (3-9/16)	100 (3-15/16)
<b>h</b>	180 (7-1/16)	180 (7-1/16)

MC18086B

### FF06 Exploded View



	PART NUMBER	DESCRIPTION
A	0901444	GASKET 3/4 IN. (10 PCS)
	0901445	GASKET 1 IN. (10 PCS)
B and D	AS 06-1A	FILTER MESH AND SUMP O-RING (5 PCS)
C	KF 06-1A	CLEAR FILTER BOWL, COMPLETE WITH FILTER MESH AND CARRIER

M17536B

Product Number	Pipe Size		Capacity (Cv)	Screen Size	Pressure Ratings	Includes
	DN	inch			(psi)	
<b>FF06A1013</b>	DN20	3/4 in.	7.3 Cv	100 micron screen	230 psi maximum	service wrench
<b>FF06A1021</b>	DN25	1 in.	8.4 Cv	100 micron screen	230 psi maximum	service wrench



# Water Sediment Filter Parts and Accessories

## Water Sediment Filter Parts and Accessories

Product Number	Description	Used With
0901444	Union gasket for 1/2 in. or 3/4 in. connections	F76S, FF06; F74C
0901445	Union gasket for 1 in. connections	F76S, FF06, F74C
0901446	Union gasket for 1-1/4 in. connections	F76S
0901447	Union gasket for 1-1/2 in. connections	F76S
0901448	Union gasket for 2 in. connections	F76S
AF11S-112A	100 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-112B	20 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-112C	50 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-112D	200 Micron Screen kit for F76S Water Filter 1-1/2 in. to 2 in.	F76S
AF11S-1A	100 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF11S-1B	20 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF11S-1C	50 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF11S-1D	200 Micron Screen kit for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
AF74-1A	Insert Filter 100 Micron Screen	F74C
AS06-1A	Filter mesh and sump O-ring (5 pcs)	—
FT09RS-112A	Bronze Sump for F76S Water Filter 1-1/2 in. to 2 in.	F76S
FT09RS-1A	Bronze Sump for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S
KF11S-112A	Clear Plastic Sump for F76S Water Filter 1-1/2 in. to 2 in.	F76S
KF11S-1A	Clear Plastic Sump for F76S Water Filter 1/2 in. to 1-1/4 in.	F76S

## MV876 Automatic Backwash Control



The MV876B Automatic-Backwash Control is available as an accessory. This control is fitted to the drain valve and is programmed by the user to automatically perform the backwash function according to the desired interval.

- Bayonet fitting simplifies upgrade to automatic backwash.
- 16 field-selectable backwash intervals (from every four minutes to once every three months) eliminate need for external timer.
- Connections for external control on the MV876 provide for use in automated systems and differential pressure control.
- MV876 can be manually activated to initiate backwash.
- Battery (AA) backup to insure completion of backwash cycle in spite of power loss.

**Dimensions, Approximate:** 152 mm high, 70mm wide, 160 mm deep (6 in. high, 2-3/4 in wide, 6-5/16 in. deep)

**Electrical Ratings:** 24 Vac, 10 W

Product Number	Backwash Intervals	Interval Selection	Display	Electrical Connections	Cycle Time (sec)	Battery Back-up	Description
MV876B1018	16 Adjustable intervals from 4 min to 3 months.	16 field selectable via keypad	Digital	Remote Activation	20 sec	Yes, 4xAA	Automatic backwash control, fits 1/2 in. to 2 in. F76S models and F74C models.

# Float Valves

## VF270 Float Valves



Polystyrene Float



Stainless Steel Float

A ruggedly designed float valve for use in commercial and industrial applications.

**Application:** With polystyrene float: water and neutral liquids; with stainless steel float: higher temperature and corrosive liquids.

**Dimensions, Approximate:**

32 mm High x 610 mm long (1 1/4 in. High x 24 in. long)

**Connection Type:** NPT

**Fluid Temperature:** Polystyrene Float: 65 C, Stainless steel Float: 90 C (Polystyrene Float: 149 F, Stainless steel Float: 194 F)

**Maximum Operating Pressure:**

With Normal Float Size 621 kPa (90 psi);

With Next Larger Float: 827 kPa (120 psi)

Product Number	Pipe Size		Capacity (Cv)	Materials			Description
	DN	inch		(Body)	(Float)	(Rod)	
VF270C1003	DN15	1/2 in.	2.3 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1/2 inch Float Valve
VF270C1011	DN20	3/4 in.	4.2 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	3/4 inch Float Valve
VF270C1019	DN25	1 in.	6.4 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1 inch Float Valve
VF270C1027	DN32	1 1/4 in.	10.9 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1-1/4 inch Float Valve
VF270C1035	DN40	1 1/2 in.	15.1 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	1-1/2 inch Float Valve
VF270C1043	DN50	2 in.	20.3 Cv	Bronze and Brass	Polystyrene or Stainless Steel	Hot dip galvanized steel	2 inch Float Valve

## Polystyrene Float

A float for use with VF270 float valves. Made of stainless steel or styrofoam-filled polystyrene.

**Application:** For water and neutral liquids

**Dimensions, Approximate:** 203 mm diameter (8 in. diameter)

**Materials (Float):** Styrofoam-filled polystyrene

**Maximum Fluid Temperature:** 65 C (149 F)

Product Number	Diameter		Description	Used With
	(mm)	(inch)		
F170T1/2	130 mm	5 1/8 in.	Polystyrene Float For 1/2 in., 3/4 in., 1 in. VF270 Float valves	VF270
F170T1-1/4	200 mm	7 7/8 in.	Polystyrene Float For 1-1/4 in., 1-1/2 in. & 2 in. VF270 Float valves	VF270

## Stainless Steel Floats

A float for use with VF270 float valves. Made of stainless steel or styrofoam-filled polystyrene.

**Application:** For higher temperature or corrosive liquids

**Materials (Float):** Stainless steel

**Maximum Fluid Temperature:** 90 C (194 F)

Product Number	Diameter		Description	Used With
	(mm)	(inch)		
F170S104	153 mm	6 in.	Stainless Steel Float for VF270 1/2 in. Float Valves	VF270
F170S112	153 mm	6 in.	Stainless Steel Float for VF270 3/4 in. Float Valves	VF270
F170S120	183 mm	7 1/4 in.	Stainless Steel Float for VF270 1 in. Float Valves	VF270
F170S128	183 mm	7 1/4 in.	Stainless Steel Float for VF270 1 1/4 in. Float Valves	VF270
F170S136	233 mm	9 1/4 in.	Stainless Steel Float for VF270 1 1/2 in. Float Valves	VF270
F170S144	233 mm	9 1/4 in.	Stainless Steel Float for VF270 2 in. Float Valves	VF270

## Parts and Accessories for Float Valves

Product Number	Description
2228400	Replacement seat disc for 1/2 in. VF270C.
2228500	Replacement seat disc for 3/4 in. VF270C.
2228600	Replacement seat disc for 1 in. VF270C.

# Commercial Mixing Valves

## MX Series Large Flow Proportional Mixing or Diverting Valve. Protects People and Equipment, Saves Energy



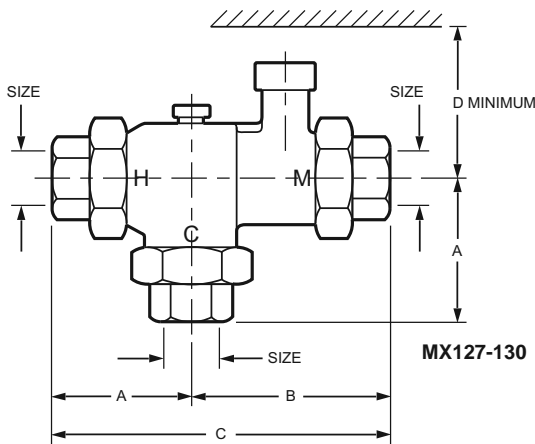
Threaded Valves

Flanged Valves

The MX Series is a state-of-the-art mixing valve with Teflon wear surfaces to prevent calcium buildup. Valve controls hot and cold supply based on control setting. If cold water is shut off, the valve will reduce the mixed flow rate in seconds (speed/residual flow rate varies by size). Accurate control of temperature provides energy savings, increased comfort and safety for the user.

- Dual purpose mixing or diverting valve.
- Constant water temperature under different operating conditions.
- Proportional valve (control of hot and cold water).
- Flow reduction in seconds if cold water supply is interrupted.
- Maintains temperature with extremely low minimum flows.
- Temperature adjustable, tamper evident.
- Install in any position, heat trapping not required.
- Recirculation connection for fast response.
- Bronze/stainless construction.
- Wear surfaces Teflon coated to prevent deposit build-up.
- Union/tailpiece connections included.
- Tapped flange connections 2-1/2 in. and 3 in.
- Allen wrench for temperature adjustment included.
- ASSE 1017 and CSA listed (Union Models)

Dimensions in millimeters (inches) for threaded valves

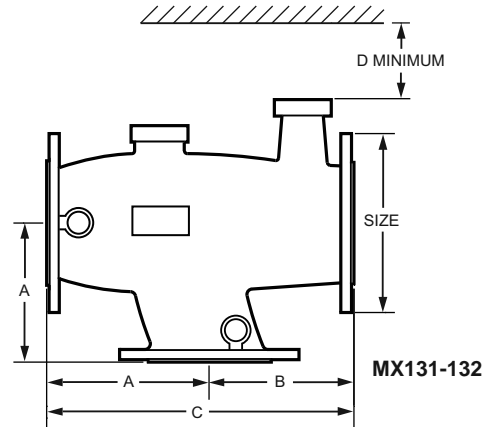


MX127-130

PRODUCT NUMBER	SIZE NPT	DIMENSIONS (IN.)			
		A	B	C	D
MX127	25.4	71 (2-51/64)	94 (3-45/64)	165 (6-1/2)	152 (6)
MX128	32	84 (3-19/64)	112 (4-13/32)	196 (7-45/64)	175 (6-29/32)
MX129	38	91 (3-19/32)	127 (5)	218 (8-19/32)	178 (7)
MX130	50.8	107 (4-13/64)	147 (5-51/64)	254 (10)	211 (7-19/64)
MX127C	25.4	71 (2-51/64)	94 (3-45/64)	165 (6-1/2)	152 (6)
MX128C	32	84 (3-19/64)	112 (4-13/32)	196 (7-45/64)	175 (6-29/32)
MX129C	38	91 (3-19/32)	127 (5)	218 (8-19/32)	178 (7)
MX130C	50.8	107 (4-13/64)	147 (5-51/64)	254 (10)	211 (7-19/64)

MC23243A

Dimensions in millimeters (inches) for flanged valves



MX131-132

Product Number	Size NPT	Recir Port Size	Dimensions in MM (IN.)			
			A	B	C	D
MX131	2-1/2" Flange	25 (1)	145 (5-45/64)	145 (5-45/64)	290 (11-13/32)	102 (4)
MX132	3" Flange	32 (1-1/4)	155 (6-7/64)	155 (6-7/64)	310 (12-13/64)	102 (4)

MC27479

**Application:** Any application requiring accurate control of hot water temperature based on the mixing of hot and cold water, such as: domestic water for homes, apartment, hotels, schools, nursing homes, offices, public facilities, space heating, radiant floor heating,  
**Weight:** 3.6 lb

Product Number	Pipe Size		Connection Type	Capacity (Cv)	Operating Temperature Range		ASSE
	DN	inch			(F)	(C)	
MX127	DN25	1 in.	NPT	4 Cv	110 F to 150 F	43 C to 66 C	1017
MX127C	DN25	1 in.	NPT	4 Cv	90 F to 120 F	32 C to 49 C	1017
MX128	DN32	1 1/4 in.	NPT	9.3 Cv	110 F to 150 F	43 C to 66 C	1017
MX128C	DN32	1 1/4 in.	NPT	9.3 Cv	90 F to 120 F	32 C to 49 C	1017
MX129	DN40	1 1/2 in.	NPT	13.5 Cv	110 F to 150 F	43 C to 66 C	1017
MX129C	DN40	1 1/2 in.	NPT	13.5 Cv	90 F to 120 F	32 C to 49 C	1017
MX130	DN50	2 in.	NPT	18 Cv	110 F to 150 F	43 C to 66 C	1017
MX130C	DN50	2 in.	NPT	18 Cv	90 F to 120 F	32 C to 49 C	1017
MX131	DN65	2 1/2 in.	Flanged	34 Cv	110 F to 150 F	43 C to 66 C	—
MX132	DN80	3 in.	Flanged	50 Cv	110 F to 150 F	43 C to 66 C	—

# Commercial Mixing Valves

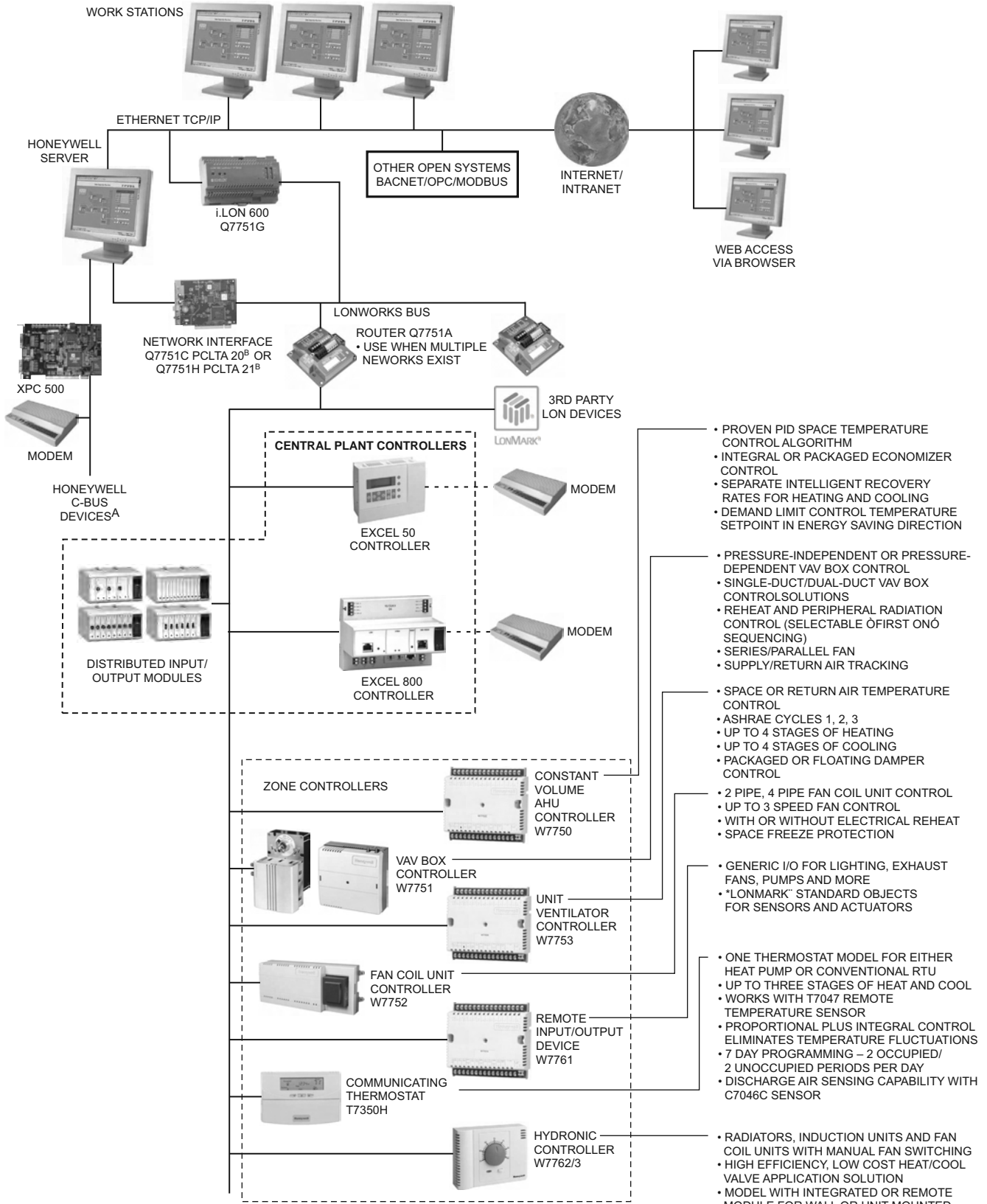
## Mixing Valve Accessories

Product Number	Pipe Size		Description
	DN	inch	
MX050-RP	DN15	1/2 in.	1/2 inch Recirculation adapter kit. Includes 1/2 inch MNPT union nut and gasket

## MX Series Valves Replacement Parts

Product Number	Pipe Size		Description
	DN	inch	
MX100-RP	DN25	1 in.	1 inch Gasket Kit for MX Series mixing valves
MX125-RP	DN32	1 1/4 in.	1 1/4 inch Gasket Kit for MX Series mixing valves
MX150-RP	DN40	1 1/2 in.	1 1/2 inch Gasket Kit for MX mixing valves
MX200-RP	DN50	2 in.	2 inch Gasket Kit for MX mixing valves
MX250-RP	DN65	2 1/2 in.	2 1/2 inch Gasket Kit for MX mixing valves
MX300-RP	DN80	3 in.	3 inch Gasket Kit for MX mixing valves

## EXCEL 5000 SYSTEM ARCHITECTURE



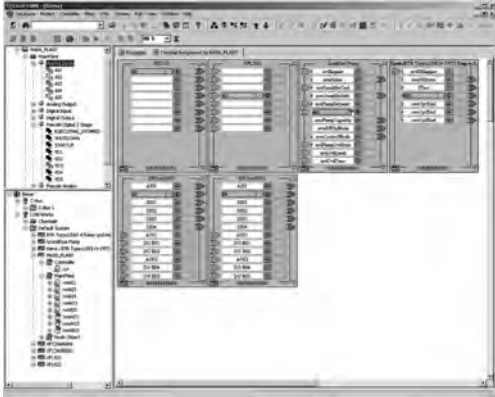
<sup>A</sup> PLANT CONTROLLERS MAY BE CONFIGURED TO COMMUNICATE ON THE LONWORKS BUS FOR OPEN SYSTEM JOBS OR THE HONEYWELL C-BUS.  
<sup>B</sup> THE SYSTEM ONLY REQUIRES THE i.LON 600 OR THE PCLTA FOR EACH APPLICATION, NOT BOTH.

M23221B

Building Automation

# Excel 5000

## Controller Tools



The Excel CARE and Live CARE software packages are graphic tools to easily and quickly create and simulate application programs that run controllers in EXCEL 5000® Systems. Users can perform these functions without extensive knowledge of a programming language. Users systematically select control

**Application:** Tool

**Application Size:** Small to Large

**Building Management Interface:** EBI; SymmetrE; XBS

system graphic elements such as lighting and Heating, Ventilating, and Air Conditioning (HVAC) equipment and create control sequences in a Microsoft® Windows® environment. CARE software validates as the designer works, thus keeping the process free of errors. Work is completed quickly and efficiently. As part of the design process, CARE automatically creates comprehensive documentation and materials listings.

**NOTE:** All CARE products require a signed SOFTWARE LICENSE AGREEMENT prior to purchase. Ordering CARE via this website does not guarantee that you are approved for the purchase. Honeywell reserves the right to refuse shipment, if appropriate.

- Point-and-click programming
- Schematic drawing
- Control strategy
- Switching logic
- Time function
- Mathematical editor
- Standard library.
- Documentation
- Control program simulation
- Applicable to EXCEL 5000 System controllers
- Password security

**Used With:** Excel 5000

**Compatible with:** Excel 5000 System Controllers

Product Number	Description	Network Communications	Commissioning Software	Output Type	Includes
CARE-80-LNS	CARE: Graphic Programming Tool	C-Bus; LonWorks Bus	CARE	Graphical Interface	USB Drive with full installation of CARE 8 with voucher number
PROTPLUG-UP	CARE: Graphic Programming Tool Upgrade	C-Bus; LonWorks Bus	CARE	Graphical Interface	USB Drive with CARE 8 upgrade

## SymmetrE

The Honeywell SymmetrE™ building management system redefines what to expect from monitoring and control of your heating, ventilation and air conditioning equipment. The scalable, open SymmetrE™ system brings your building's occupant needs, operational issues and budget pressures into perfect balance. You get an unparalleled solution that helps simplify facility management, boost productivity and reduce costs. **NOTE:** All CARE products require a signed SymmetrE™ LICENSE AGREEMENT prior to purchase. Ordering SymmetrE™ via this website does not guarantee that you are approved for the purchase. Honeywell reserves the right to refuse shipment, if appropriate.

The Honeywell SymmetrE™ PC workstation redefines what to expect from monitoring and controlling your building management system. The scalable, open SymmetrE™ software brings your building's occupant needs, operational issues and budget pressures into perfect balance. You get an unparalleled solution that helps simplify facility management, boost productivity and reduce costs.

**NOTE:** All SymmetrE™ products require a signed SymmetrE™ LICENSE AGREEMENT prior to purchase. Ordering SymmetrE™ via this website does not guarantee that you are approved for the purchase. Honeywell reserves the right to refuse shipment, if appropriate.

SymmetrE™ is a highly configurable PC workstation providing an efficient and reliable way of ensuring the comfort of people and the effective operation of buildings and facilities. Used with the Excel 5000 Building Management System it provides a complete solution to access information and the control needs of one or more buildings.

SymmetrE™ integrates using Open System Standards and Internet and Intranet applications. This allows you to choose the best field solutions for your building and to integrate information into SymmetrE™ seamlessly for further processing, reporting and distribution. SymmetrE™ provides operators, supervisors, and managers with a sophisticated web-style operator interface to enable personnel to easily monitor and control buildings at one or more sites.

The SymmetrE™ Server runs on the multi-user, multi tasking, industry standard, Windows 2000 Professional and Windows XP Professional platforms. The SymmetrE™ Server runs application software that communicates to field controllers and updates a real time database. The SymmetrE™ Server can also act as the file server for displays and historical data collection and archiving.

- Total solution for Heating, Ventilation & Air conditioning Building Management Systems.
- Integration with a diverse range of devices, Internet and Intranet sources allowing intelligent management of key facility information.
- Uses Industry standard hardware and Windows® 2000 Professional and Windows XP® Professional Operating Systems
- Supports the leading open standards: BACnet®, LONMARK®, ODBC, OPC®, AdvanceDDE and Modbus®.
- Easy-to-use web-style interface reduces operator training costs and puts the user in control of every situation.
- Designed and developed to International Standard ISO® 9001:2000 for quality assurance.

**Application:** Workstation Software

**Building Management Interface:** SymmetrE

### SymmetrE R410 - Software/Media

Product Number	Description
SYM-BASE01	SymmetrE R410 Base Package 1
SYM-BASE02	SymmetrE R410 Base Package 2

Product Number	Description
SYM-BASE03	SymmetrE R410 Base Package 3
SYM-ZZDVD410	SymmetrE R410 Software on DVD

## SymmetrE R410 - Upgrades

Product Number	Description
SYM-UPGDR1	SYM Upgrade Unit - Release Minus 1
SYM-UPGDR2	SYM Upgrade Unit - Release Minus 2
SYM-UPGDR3	SYM Upgrade Unit - Release Minus 3
SYM-UPGDRX	SYM Upgrade Unit - Release Minus X

## SymmetrE R410 - Options

Product Number	Description
SYM-DBP00250	250 Point Adder to Database Size
SYM-OPEASYMB	Easy Mobile Services
SYM-IF-BACNET	BACnet Client (R200 and later)
SYM-IF-MODBUS	Modbus Interface
SYM-IF-OPCCL	OPC Client Interface
SYM-IF-XL5DIRDIAL	EXCEL 5000 Dial-up
SYM-NW-OPCSERV	OPC Server
SYM-OP-ALMPAG	Alarm Pager
SYM-OP-BACSERV	BACnet Server (R200 and later)
SYM-OP-DTXL	OPC Data Transfer - Local
SYM-OP-LNS	LNS Server
SYM-OP-LNSUPG	LNS Database Upgrade for systems with existing LNS Database

## SymmetrE R310 Workstation

Product Number	Description
SYM-DB2-5-EXP	Expansion Pack - 250 to 500 point DB
SYM-DB5-10-EXP	Expansion pack - 500 to 1000 Point DB
SYM-DB10-20-EXP	Expansion pack - 1000 to 2000 Point DB
SYM-DB20-35-EXP	Expansion pack - 2000 to 3500 Point DB
SYM-DB35-50-EXP	Expansion pack - 3500 to 5000 Point DB
SYM-DB50-75-EXP	Expansion pack - 5000 to 7500 Point DB
SYM-DB75-10K-EXP	Expansion Pack - 7500 to 10,000 point DB
SYM-DB10K-15K-EXP	Expansion Pack - 10,000 to 15,000 point DB
SYM-DB15K-20K-EXP	Expansion Pack - 15,000 to 20,000 point DB
SYM-IF-ADVDEDECL	Advance DDE Interface
SYM-IF-BAC	BACnet Client (R200 and later)

## SymmetrE R310 - Options

Product Number	Description
SYM-IF-BACNET	BACnet Client (R200 and later)
SYM-IF-MODBUS	Modbus Interface
SYM-IF-OPCCL	OPC Client Interface
SYM-IF-XL5DIRDIAL	EXCEL 5000 Dial-up
SYM-NW-OPCSERV	OPC Server
SYM-OP-ALMPAG	Alarm Pager
SYM-OP-BACSERV	BACnet Server (R200 and later)
SYM-OP-DTXL	OPC Data Transfer - Local
SYM-OP-LNS	LNS Server
SYM-OP-LNSUPG	LNS Database Upgrade for systems with existing LNS Database
SYM-STB-UP-STN	Upgrade Browser client to full station client, R310 ONLY

# Excel 5000

## Excel 800 Controller



With more power and fewer pieces to buy, the new Excel 800 Controller is the plant controller you can count on for years to

come. Along with easy programming and extensive memory, it offers all the flexibility you've come to depend on from the Honeywell Excel 5000 product line. Best of all, you won't have to learn any new programming, because your old Excel 500 application programs work perfectly with the Excel 800 controller.

- Double the memory
- Reduced training needs, use your current Excel 500 application programs
- Hot-swappable replacement of defective I/O modules
- Easy-Access Terminals
- Simplified Installation

**Building Management Interface:** EBI; SymmetrE; ACSELON

**Commissioning Software:** CARE 8

**Voltage:** 24 Vac/dc, ± 20%

**Frequency:** 50 Hz; 60 Hz

**Operating Humidity Range (% RH):** 5 to 93% RH, non-condensing

**Shipping Temperature Range:** -20 C to +70 C (-4 F to +158 F)

### CPU Modules

**Application:** Freely Programmable; Boiler; Discharge Air; Cooling Tower; Chiller; Hydronic; Built-up AHU

**Network Communications:** C-Bus; LonWorks Bus

**Output Type:** Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off

Product Number	Description	Power Consumption	Used With	Comments	Approvals: Underwriters Laboratories, Inc.
XCL8010A	Excel 800 Control System	Max 5 VA (max. 4 W)	Excel 800 Controller	CPU Module	UL 916
XCL8010AU	Excel 800 Control System	Max 5 VA (max. 4 W)	Excel 800 Controller	CPU Module	UL916 and UL864

### Input Output Modules

**Used With:** Excel 800 Controller

**Network Communications:** Panel Bus

Product Number	Description	Application	I/O Count	Approvals: Underwriters Laboratories, Inc.
XF821A	Analog Input Module	Input Module	8 analog input module (Panel)	UL916
XF821AU	Analog Input Module	Input Module	8 analog input module (Panel)	UL916 and UL864
XF822A	Analog Output Module	Output Module	8 Analog Outputs with override (Panel)	UL916
XF822AU	Analog Output Module	Output Module	8 Analog Outputs with override (Panel)	UL916 and UL864
XF823A	Digital Input Module	Input Module	12 binary input module (Panel)	UL916
XF823AU	Digital Input Module	Input Module	12 binary input module (Panel)	UL916 and UL864
XF824A	Digital Output Module	Output Module	6 relay output module (Panel)	UL916
XF824AU	Digital Output Module	Output Module	6 relay output module (Panel)	UL916 and UL864



## Excel Distributed I/O



With more power and fewer pieces to buy, the new Excel 800 Controller is the plant controller you can count on for years to come. Along with easy programming and extensive memory, it offers all the flexibility you've come to depend on from the Honeywell Excel 5000 product line. Best of all, you won't have to learn any new programming, because your old Excel 500 application programs work perfectly with the Excel 800 controller.

- Double the memory
- Reduced training needs, use your current Excel 500 application programs
- Hot-swappable replacement of defective I/O modules
- Easy-Access Terminals
- Simplified Installation

**Application:** Distributed I/O  
**Building Management Interface:** EBI; SymmetrE; ACSELON  
**Network Communications:** LonWorks Bus  
**Commissioning Software:** CARE 8  
**Used With:** Excel 800 Controller

Product Number	Description	I/O Count	Comments	Approvals: Underwriters Laboratories, Inc.
XFL821A	Distributed I/O - Analog input module	8 analog input module (LON)	—	UL916
XFL821AU	Distributed I/O - Analog input module	8 analog input module (LON)	—	UL916 and UL864
XFL822A	Distributed I/O - Analog output module	8 analog output module (LON)	—	UL916
XFL822AU	Distributed I/O - Analog output module	8 analog output module (LON)	—	UL916 and UL864
XFL823A	Distributed I/O - Digital input module	12 binary input module (LON)	Includes 12 LEDs	UL916
XFL823AU	Distributed I/O - Digital input module	12 binary input module (LON)	Includes 12 LEDs	UL916 and UL864
XFL824A	Distributed I/O - Digital output module	6 relay output module (LON)	—	UL916
XFL824AU	Distributed I/O - Digital output module	6 relay output module (LON)	—	UL916 and UL864
XFLR822A	Analog output manual override module	8 Analog Outputs with override (LON)	The manual override module works even if the CPU is not working.	UL916
XFLR822AU	Analog output manual override module	8 Analog Outputs with override (LON)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFLR824A	Digital output manual override module	6 relays with override (LON)	The manual override module works even if the CPU is not working.	UL916
XFLR824AU	Digital output manual override module	6 relays with override (LON)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFR822A	Analog output manual override module	8 Analog Outputs with override (Panel)	The manual override module works even if the CPU is not working.	UL916
XFR822AU	Analog output manual override module	8 Analog Outputs with override (Panel)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFR824A	Digital output manual override module	6 relays with override (Panel)	The manual override module works even if the CPU is not working.	UL916
XFR824AU	Digital output manual override module	6 relays with override (Panel)	The manual override module works even if the CPU is not working.	UL916 and UL864
XFR825A	Actuator output module	Actuator output module (Panel)	—	UL916
XFR825AU	Actuator output module	Actuator output module (Panel)	—	UL916 and UL864

# Excel 5000

## Excel 100 Controllers



The Excel 100 Controllers are direct-digital control, microprocessor-based, programmable controllers that manage building functions.

- Stand-alone or networked operation for flexible use or expansion.
- CARE generated application programs for comprehensive control strategies.
- Analog or digital inputs and outputs for flexible point use.
- Multiple operator interface options for local or easy on-site changes.
- Point trending for timely information.
- Alarm handling facility to locally display the problem and remote dial out to act on it.
- Battery-backed RAM data to keep controller programming in place during power outage.
- Bus-Wide MMI provides local viewing/modification of point information of all controllers attached to the Communication Bus.

**Dimensions, Approximate:** 235 mm high x 192 mm wide x 72 mm deep (9.25 in. high x 7.56 in. wide x 2.83 in. deep)

**Application:** Programmable Controller

**Building Management Interface:** EBI; SymmetrE; ACSELON

**Voltage:** 24 Vac/Vdc

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 25 VA Max.

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Shipping Temperature Range:** -20 C to +60 C (-4 F to +140 F)

**Approvals:**

**CE:** Approved

**Federal Communications Commission:** FCC Meets FCC Part 15, Subpart J for Class A equipment

**Underwriters Laboratories, Inc.** Underwriters Laboratories Inc.: Form UL916

Product Number	Description	Network Communications	Commissioning Software	I/O Count	Output Type	Comments
XL100CU	Freely Programmable DDC controller	C-Bus	CARE	12 UO; 12 UI; 12 DI	0-10 Vdc, 20mA	—
XL100CUUKL	Freely Programmable, for Smoke & Fire (Europe)	C-Bus	CARE	12 UO; 12 UI; 12 DI	0-10 Vdc, 20mA	UUKL approval for use on fire systems

## Excel 50 Controllers



A compact, programmable controller that manages small building control applications. Available with or without operator interface. Provides perfect solution for managing small building control applications and HVAC equipment control applications.

- Direct communication to C-bus & LonWorks bus and/or modems.
- DIN rail or panel door mounting.
- Available with or without operator interface.
- Stand-alone or networked operation.
- CARE-generated application programs; ability to reuse available CARE applications.
- Flash-EPROM for efficient downloads.
- Wiring simplicity: accessible and removable screw terminal blocks.
- Capacitor-backed RAM; no battery required.

**Dimensions, Approximate:** 150 mm high x 198 mm wide x 81 mm deep (5.90 in. high x 7.79 in. wide x 3.19 in. deep)

**Building Management Interface:** EBI; SymmetrE; ACSELON

**Commissioning Software:** CARE

**Network Communications:** C-Bus; LonWorks Bus

**Voltage:** 24 Vac  $\pm$  20%

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 72 VA, if fully equipped

**Operating Temperature Range:** (0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 93% RH, non-condensing

**Shipping Temperature Range:** -20 C to +70 C (4 F to +158 F)

**Includes:** C-Bus / LonWorks Bus communication card

**Approvals:**

**CE:** Approved

**Federal Communications Commission:** FCC Meets FCC Part 15, Subpart J for Class A equipment

**Underwriters Laboratories, Inc.** Form UL916

Product Number	Description	Application	I/O Count	Output Type	Comments
XL50A-UMMIPCCBLON	Freely Programmable DDC controller, with operator interface	Built-up AHU, Chiller, Cooling Tower, Boiler, Freely Programmable	4 DI, 8 UI, 4 UO, 6 DO	Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off	Includes Operator Interface
XL50A-UPCCBLON	Freely Programmable DDC controller	Built-up AHU, Chiller, Cooling Tower, Boiler, Freely Programmable	4 DI, 8 UI, 4 UO, 6 DO	Analog/Modulating; Pulse Width Modulation; Floating; Staged On/Off	Does not have Operator Interface

## Excel Smart I/O



Excel Smart I/O modules feature a variety of software-configurable digital and analog inputs and outputs and are suitable for installation at strategic locations throughout your buildings. The

modules convert physical input signals from sensors into network variables and the network variables into physical output signals for operating actuators.

- Flexible, software-configurable inputs/outputs.
- Flash memory for downloading applications.
- 2-wire FTT-10A LonWorks bus interface.
- Easily-accessible service button and a service LED.
- DIN rail mounting and wall-mounting supported.

**Dimensions, Approximate:** 126 mm wide x 76 mm length x 110 mm high (5 in. wide x 3 in. length x 4.33 in. high)

**Application:** Configurable I/O

**Building Management Interface:** EBI; SymmetrE; ACSELOn

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Shipping Temperature Range:** -30 C to +70 C (-22 F to +158 F)

**Approvals:**

**CE:** CE and EN 50081-1, LonMark Application Layer Guidelines Version 3.2

Product Number	Description	Network Communications	Commissioning Software	I/O Count	Includes
XFC3A04001	Smart I/O module. Lonmark certified. Fixed terminals	LonWorks	CARE	2 UI; 2 AO; 4 DI	—
XFC3A06001	Smart I/O module. Lonmark certified. Fixed terminals	LonWorks Bus	CARE	4 UI; 2 AO; 4 DI	—
XFC3D06001	Smart I/O module with Removable terminals, Lonmark Certified	LonWorks Bus	CARE	4 UI; 2 AO; 4 DI	Six 3-position manual overrides and 10 colored status LEDs

## Compact I/O



The Honeywell Compact I/O are LON modules with a certain number of digital inputs, analog inputs, digital outputs, analog outputs, and hubs used to record or control network variable points (SNVT's) on a LonWorks bus.

- Configured via LNS Plug-in.
- Easy Installation saves time and money.
- Easy to expand.
- Compact Design.

**Dimensions, Approximate:** 35 mm wide x 71 mm high x 66 mm deep (1.4 in. wide x 2.8 in. high x 2.6 in. deep)

**Application:** Input / Output Module

**Commissioning Software:** LNS Plug-in

**Network Communications:** LonWorks Bus

**Voltage:** 20 - 28 V AC/DC

**Operating Temperature Range:** -5 C to 55 C (23 F to 131 F)

**Shipping Temperature Range:** -20 C to 170 C (-4 F to +158 F)

**Compatible with:** Compact I/O Family

**Approvals:**






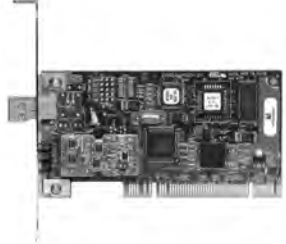

**CE:** Approved



**Underwriters Laboratories, Inc. UL 916**

Product Number	Description	I/O Count	Power Consumption
XIO-10DI	Digital Input Module with 10 Inputs	10 DI	63 mA (AC) / 21 mA (DC).
XIO-10HUB	I/O Module Expander Hub	—	—
XIO-4AO	Analog Output Module with 4 Outputs	4 AO	150 mA (AC) / 70 mA (DC).
XIO-4DI	Digital Input Module with 4 Inputs	4 DI	63 mA (AC) / 21 mA (DC).
XIO-4DO	Digital Output Module with 4 Outputs	4 DO	205 mA (AC) / 67 mA (DC).
XIO-4NTC	Analog Input Module with 4 NTC Sensor Specific Inputs	4 NTC Sensor Specific Inputs	67 mA (AC) / 24 mA (DC).
XIO-4PT1000	Analog Input Module with 4 PT1000 Sensor Specific Inputs	4 PT1000 Sensor Specific Inputs	67 mA (AC) / 24 mA (DC).
XIO-8AI	Analog Input Module with 8 Inputs	8 AI	57 mA (AC) / 30 mA (DC).


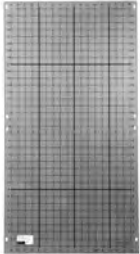



# Excel 5000

## LonWorks Bus Accessories

Product Number	Description	Used With	
Q7740A1008	Two way repeater with connections for two network segments	LonMark Controllers	
Q7740B1006	Four way repeater with connections for four network segments	LonMark Controllers	
Q7750A2003	Excel 10 Zone Manager	LonMark Controllers	
Q7751A2010	Excel 10 router used for connection with four network segments, FT-10/FT-10	LonMark Controllers	
Q7751A2028	Excel 10 router used for connection with four network segments, TP-1250/FT-10	LonMark Controllers	
Q7751E1005	I.LON 10-TP/FT - 10 CHANNEL	LonMark Controllers	
Q7751F1011	I.LON 100 - TP/FT - 10 NO MODEM Firmware version e3	LonMark Controllers	
Q7751F1029	I.LON 100 - TP/FT - 10 With MODEM Firmware version e3	LonMark Controllers	
Q7751G2009	I.LON 600 FT - 10	LonMark Controllers	
Q7751G2017	I.LON 600 XF1250	LonMark Controllers	
Q7751H2007	PCLTA-21/TP-1250	—	
Q7751H2015	PCLTA-21/FT-10	—	
Q7751J2002	MPR-50 Multi-Port Router	—	

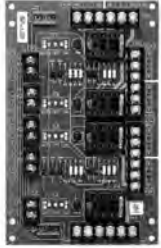








Product Number	Description	Used With	
Q7752B2009	Serial LonTalk Adapter, FTT-10A	LonMark Controllers	
Q7752C2007	U10 - USB Network Interface with Cable	—	





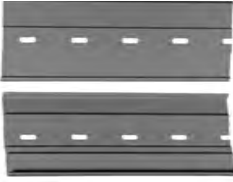






## Excel 5000® Accessories

Product Number	Description	Used With	
14500087-004	Dpdt relay with 12 Vdc coil, switches 120 Vac or 28 Vdc @ 3 amps, used with 14507222 Relay for XL100 Controller	14507222	
14506747-002	sub-panel for full sized cabinet	Panels	
14507063-002	Power Supply Cable To Connect Power To Excel Controller	Excel 5000 System Controllers	
14507063-003	Power Supply Cable (Tinned Ends) To Connect Power Module To Excel Controller	Excel 5000 System Controllers	
14507222-001	Relay Module, Four Relays. Includes Hand-Off-Auto Switches and LEDs	Excel 500/600 Controller; Excel 100B	

Building Automation

# Excel 5000

Product Number	Description	Used With	
14507222-002	Relay Module, Four Relays. Includes LEDs	14507222	
14507287-001	Power Module, 120 Vac Input, 50 VA Controller Transformer with Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-002	Power Module, 120 Vac Input, 50 VA Controller Transformer Plus 100 VA Accessory Transformer With Convertible Outlet and Breaker	Excel 5000 System Controllers	
14507287-003	Power Module, 120 Vac Input, 50 VA Controller Transformer Plus 100 VA Accessory Transformer and 24 Vdc Accessory Transformer With Convertible Output and Breaker	Excel 5000 System Controllers	
14507287-007	50 VA Excel 5000 access power module for Excel 5000 applications	Excel 5000 System Controllers	
14507324-001	High speed, c-bus network repeater, panel mount (without cover) to extend bus length.	Excel 5000 System Controllers	
14507324-002	High speed, c-bus network repeater, field mount (with cover) to extend bus length.	Excel 5000 System Controllers	
14507547-001	C-bus to DB-25 connector cable, to connect internal RS-485 adapter board to C-bus.	Excel 5000 System Controller	
14507549-001	External RS-485 adaptor module to directly connect a PC to a C-bus	C-Bus	
14507551-001	Cable assembly, com port to adapter module, 30 in.	14507549	

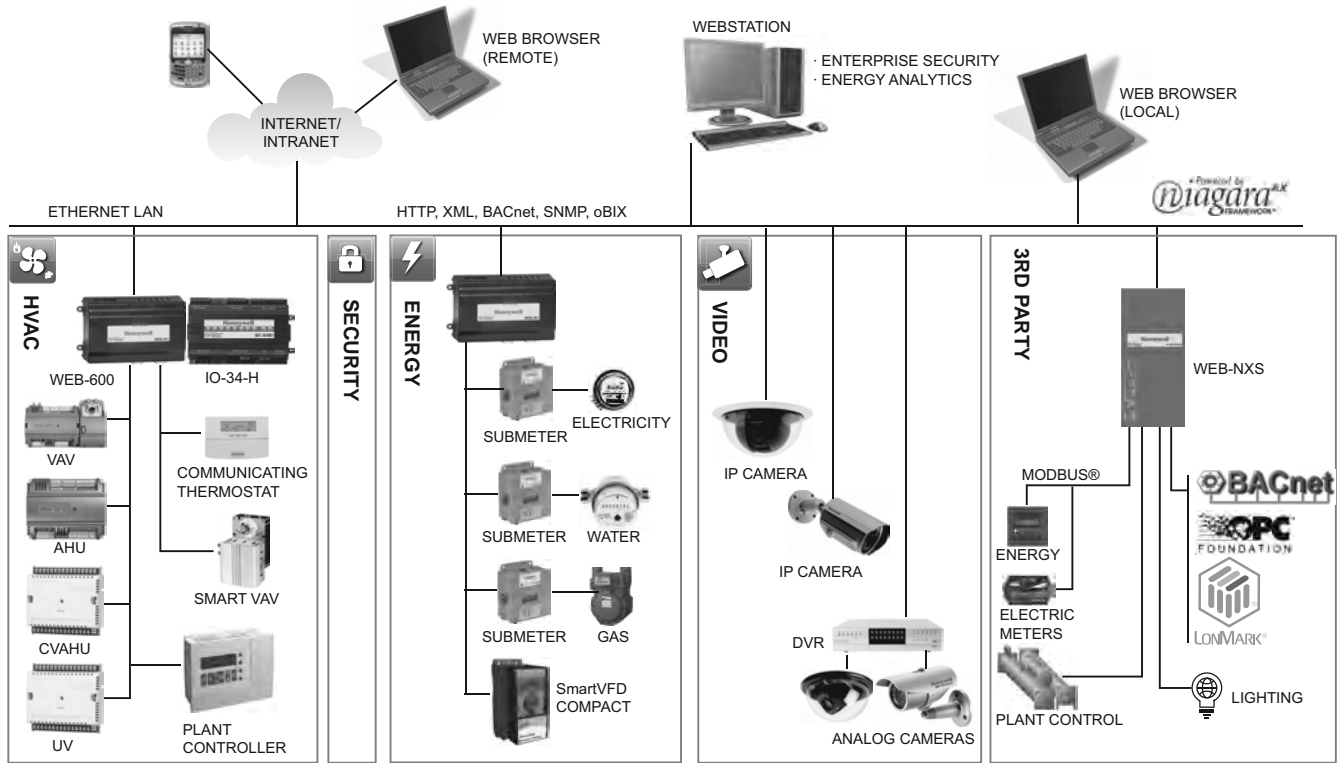
Product Number	Description	Used With	
14507551-002	Cable assembly, com port to adapter module, 10 ft	14507549	
14507552-001	Cable assembly, power to adapter module, used with C-Bus and XBS, 11 inches long	14507549	
14507552-002	Cable assembly, power to adapter module, used with C-Bus and XBS, 15 inches long	14507549	
206317A	Excel 10 termination module, FTT-10	Excel 10 Controllers	
207912	Track mounting for a W7751A, B	Excel 10	
209541B	Terminator module for FTT network (1 required for T- Tap, Star, Mixed or Loop network topologies, 2 Required for Daisy chain network topology)	Excel 10 Controllers	
32000180-004	Replacement cable for use with Q7752B2009	Q7752B2009	
32000180-019	Echelon power supply	Excel 10 Controllers	
32002516-001	Cable to connect Serial LonTalk adapter to Audio-type bus connection on LonMark Controller	LonMark Controllers	
32002517-001	Cable to connect serial Lontalk adaptor to a modem.	Excel 10 Controllers	
EXCELon	EXCELon LonWork Network Management Tool. Software License Required.	Excel 5000 System Controllers	

# Excel 5000




Product Number	Description	Used With	
MCE3	Relay Module, Two Spdt Outputs, One Spst Output	—	
XAL10	Labels (Package Of 10)	Excel 800 Controller	
XD50B-FCL	Excel 50 Communication Card for LON and C-Bus	Excel 50 Controllers	
XI882-ACC	Excel Touch Accessory Kit	XI882	
XL-ONLINE-CD	Excel Online, Commissioning tool for EXCEL 5000 Controllers	Excel 5000 System Controllers	
XL50ACC2	Communications boards for XL50 Communications Modules	Excel 50 Controllers	
XL50ACC3	Panel Mounting Kit for XL50	Excel 50 Controllers	
XM500-US	Remote communication module, TCP/IP WAN Modem. Emulates a Hayes compatible phone modem to convert serial data to Ethernet - TCP/IP packets.	Excel 5000 System Controllers	
XS50	XL50 Terminal Block Set	Excel 50 Controllers	
XS812	Test Connector	Excel 800 Distributed I/O	
XS812RO	Test Connector for relay outputs	Excel 800 Distributed I/O	
XS814	Auxiliary terminal block (10)	Excel 800 Distributed I/O	
XS815	Cross Connector 6 Relays (20)	Excel 800 Distributed I/O	
XS816	Bus Bridge (10)	Excel 800 Distributed I/O	
XS817	Cross Connector 3 Relays (40)	Excel 800 Distributed I/O	
XS821-22	Terminal socket analog modules	Excel 800 Distributed I/O	
XS823	Terminal socket binary input	Excel 800 Distributed I/O	
XS824-25	Terminal socket relay output	Excel 800 Distributed I/O	
XSU821-22	Screw Terminal socket analog modules	Excel 800 Distributed I/O	
XSU823	Screw Terminal socket binary input	Excel 800 Distributed I/O	
XSU824-25	Screw Terminal socket relay output	Excel 800 Distributed I/O	
XW882	Cable from XI582 to XL800-RS232(RJ45)	Excel 800 Distributed I/O	
XW884	Adapter cable, XI582 (RJ45) to old XL500	Excel 800 Distributed I/O	
XW885	Cable from PC to XL800-RS232(RJ45)	Excel 800 Distributed I/O	













## WEBS-Ax SYSTEM ARCHITECTURE



### HVAC OPTIONS:

PROGRAMMABLE ZONE CONTROLLERS		
	PUL6438S PUL1012S PUL4024S PUB6438S	CONSTANT VOLUME AHU CONTROLLER
	PVL6438NS PVL4024NS PVB6438NS	VAV BOX CONTROLLER
	PVL4022AS PVL0000AS PVL6436AS PVB6436AS	VAV BOX CONTROLLER W/ACTUATOR

ZONE CONTROLLERS		
	T7350H	COMMUNICATING THERMOSTAT
	W7750	CONSTANT VOLUME AHU CONTROLLER
	W7751	VAV BOX CONTROLLER
	W7752	FAN COIL UNIT CONTROLLER
	W7753	UNIT VENTILATOR CONTROLLER
	W7761	REMOTE INPUT/OUTPUT DEVICE
	W7762 W7763	HYDRONIC CONTROLLER

CENTRAL PLANT CONTROLLERS	
	EXCEL 50 CONTROLLER
	EXCEL 800 CONTROLLER
	DISTRIBUTED INPUT/OUTPUT MODULES

M16821B

## WEBS-AX™ System Integration Software Platform

Features	Part Numbers	Description	WEB-S-AX-SBS	WEB-S-AX	WEB-S-AX-64	WEB-S-AX-LNX	Enterprise Security	COMBO MYS	COMBO MYS SBS	COMBO SQL	COMBO SQL SBS	Console	HVAC Tools	Sec. Tool
<b>Software Drivers</b>														
Niagara		Niagara Historical DB	*	*	*	*								
		Workbench	*	*	*	*								
Communication		Security Appliance	*	*	*	*								
Client		aBIX Client/Server	*	*	*	*								
	DR-NS-OBIX-AX	aBIX <sup>b</sup>	0	0	0	0								
	DR-NS-OBIX-500	Additional 500 points	0	0	0	0								
	DR-NS-BAC-AX	BACnet IP	0	0	0	0								
	DR-NS-BAC-500	Additional 500 points	0	0	0	0								
	DR-NS-MDB-AX	MODbusTCP	0	0	0	0								
	DR-NS-MDB-500	Additional 500 points	0	0	0	0								
	DR-NS-OPC-AX	OPC	0	0	0	0								
	DR-NS-OPC-500	Additional 500 points	0	0	0	0								
	DR-NS-SNMP-AX	SNMP	0	0	0	0								
	DR-NS-SNMP-500	Additional 500 points	0	0	0	0								
Server		S-AX-BCSRV-AX	0	0	0	0								
DB Connectivity		S-DB-SQL	0	0	0	0								
	S-DB-MYSQL	MySQL	0	0	0	0								
	S-DB-ORCL	Oracle	0	0	0	0								
	S-DB-DB2	DB2	0	0	0	0								
	S-DB-CSV	CSV	0	0	0	0								
EnergyAnalytics		WES-STA-AX	0	0	0	0								
	WES-PNT-AX	Point	0	0	0	0								
Video		Dedicated Micro DVR	0	0	0	0								
	DR-SUP-DED-AX	4 Cameras (16 max)	0	0	0	0								
	DR-SUP-DED-4	4 Cameras	0	0	0	0								
	DR-SUP-AXS-AX	Axis Cameras	0	0	0	0								
	DR-SUP-AXS-4	4 Cameras (16 max)	0	0	0	0								
Enterprise Security		SEC-H-R-16	0	0	0	0								
	SEC-H-R-64	64 Reader Pack	0	0	0	0								
	SEC-H-R-256	256 Reader Pack	0	0	0	0								
	SEC-H-R-1024	1024 Reader Pack	0	0	0	0								
<b>Upgrade Options</b>														
	SUP-U-AX	Revision Upgrade	0	0	0	0								
	WEB-U-AX	Revision Upgrade	0	0	0	0								
SBS Upgrades		WEB-S-AX-SBS-EXUP	0	0	0	0								
	SEC-H-SBS-U	Security SBS Upgrade	0	0	0	0								
Combo Upgrades		SEC-H-SUP-SQL	0	0	0	0								
	SEC-H-SUP-MYS	SBS BAS to Security/MySQL	0	0	0	0								
	SEC-H-SUP-SQL	HVAC + Security/SQL	0	0	0	0								
	SEC-H-SUP-MYS	HVAC + Security/MySQL	0	0	0	0								
	SEC-H-BAS-U	SBS Security/SQL + HVAC	0	0	0	0								
		SBS Security/MySQL + HVAC	0	0	0	0								
		Security/SQL + HVAC	0	0	0	0								
		Security/MySQL + HVAC	0	0	0	0								

<sup>a</sup> Resources and performance limits - no defined limit in license.  
<sup>b</sup> aBIX connectivity for controllers NOT powered by Niagara  
<sup>c</sup> Windows Server 2003, Windows XP Pro  
<sup>d</sup> Windows Server 2003, Windows XP Pro, Linux  
 \* = Standard (included)  
 0 = Optional (excluded)

## WEBS-AX™ System Integration

### Integration Controller Platforms





Features	Part Numbers	Description	4XX		5XX		NXS		2XX		6XX		7XX		Soft	Security		Compact	
			WEB-403-AX	WEB-403-EZ	WEB-403-AX-E	WEB-545-AX-E	WEB-5R-AX	WNXS-FL	WNXS-HD	WEB-201	WEB-600	WEB-602-XPR	WEB-700	WASL-1M-AX	SEC-H-201	SEC-H-600	SEC-H-600	SEC-H-600	
		Open License	O	O	O	O	O	O	O	O	O	O	O	O		*	*		
		Demo Available	O			O				O	O				O	O			
		Device Limit	27	27	a	a	a	a	a	a	a	a	a	a	a	a	75	75	
<b>Hardware</b>																			
Memory	NPM-XXX*	Standard RAM	128	128	256	256	512	512	64	128	256	512	N/A	128	256	256	256		
		Expandable RAM Option							128	256		1GB							
		Standard Flash	32	32	128	128	128	1GB	**	64	128	128	1GB	N/A	64	128	128	128	
Communication		10/100 Ethernet Port	1	1	1	1	1	1	2	2	2			2	2	2	2		
		1 GB Ethernet Port										2							
		USB 2.0 Port										2							
Ports/ Slots		RS-485 Port	1	1	1	4	4	1	1	1	1	1	1		1	1	1	1	
		RS-232 Port	1	1	1	2	2	1	1	1	1	1	1		1	1	1	1	
		NDIO Port								1	1								
		NRIO Port								1	1	1	1				1	1	
		LonWorks FTT-10 Port	1	1	2	1	1	1	1										
		Option Card Slots							2	2	1	2		2	2	2	2		
ON-Board I/O		Universal Inputs	6	6	6							8							
		Supervised Inputs												6	6	6	6		
		Digital Inputs												3	3	3	3		
		Card Readers												2	2	2	2		
		Relay Outputs/ Form	4C	4C	4C						4A			4C	4C	4C	4C		
		Analog Outputs									4								
<b>Software Drivers</b>																			
Niagara	EC-SP-XXX	Fox Client/ Server	O	*	O	O	*	*	*	*	*	*	*	*	*	*	*	*	
	UI-SP-XXX	Web UI	O	*	O	O	*	*	*	*	*	*	*	*	*	*	*	*	
	WEB-AX-EMB	Embedded Workbench	O	O	O	O	O	O	O	O	O	O	O						
		SecurityAppliance													*	*	*	*	
Spyder	DR-SPYDER-LON	Lon Spyder Prog.	O	O	O	O	O	*	*		*	*	*	*	*	*	*	*	
	DR-SPYDER-BAC	BACnet Spyder Prog.	O	O	O	O	O	*	*	*	*	*	*	*	*	*	*	*	
Communication		oBIX Client/Server	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Client	DR-BAC-CLI-AX	BACnet IP	*	*	*	*	O	O	O	O	O	O	O	O			*	*	
	DR-MSTP-AX	BACnet MS/TP	*	*	*	*	O			O	O	O	O						
	DR-LONDRIV-AX	LonWorks FTT10	*	*	*	*	O	*	*	O	O	O	O				*	*	
	DR-LON-IP-AX	LonWorks IP	O	O	O	O	O	O	O	O	O	O	O	O					
	DR-MBUS232-AX	MODbus 232	O	O	O	O	O	O	O	O	O	O	O						
	DR-MDB-AX	MODbusRTU	O	O	O	O	O	O	O	O	O	O	O				*	*	
	DR-MDB-TCP-AX	MODbusTCP	O	O	O	O	O	O	O	O	O	O	O						
	DR-FLX-AX	Flex	O	O	O	O	O	O	O	O	O	O	O	O					
	DR-OPC-CL-AX	OPC						O	O					O					
	DR-SNMP-AX	SNMP	O	O	O	O	O	O	O	O	O	O	O	O				*	
Server	DR-BAC-SRV-AX	BACnet IP (incl client)	O	O	O	O	O	O	O	O	O	O	O	O	*	*	*	*	
	DR-MDB-S-AX	MODbusRTU	O	O	O	O	O	O	O	O	O	O	O						
	DR-MDB-TS-AX	MODbusTCP	O	O	O	O	O	O	O	O	O	O	O						
Legacy	DR-AAMPHP-AX	AAuto PHP	O	O	O	O	O	O	O	O	O	O	O						
	DR-AAMPUP-AX	AAuto PUP	O	O	O	O	O	O	O	O	O	O	O						
	DR-AC256-AX	AC256	O	O	O	O	O	O	O	O	O	O	O						
	DR-GLOBAL-AX	Global Cache	O	O	O	O	O	O	O	O	O	O	O						
	DR-HELVAR-AX	Helvar Lighting	O	O	O	O	O	O	O	O	O	O	O						
	DR-HORTS-AX	Hortsmann (EU)	O	O	O	O	O	O	O	O	O	O	O						
	DR-JOSAM-AX	JosamTrap Sensor	O	O	O	O	O	O	O	O	O	O	O						
	DR-LANGOVN-AX	Lang Oven	O	O	O	O	O	O	O	O	O	O	O						
	DR-SMSALRM-AX	SMSAlarm	O	O	O	O	O	O	O	O	O	O	O						
	DR-VDROOT-AX	VeederRoot	O	O	O	O	O	O	O	O	O	O	O						
Video	DR-JAC-DED-AX	4 Cameras for DM DVR									O	O	O		O		O	O	
	DR-JAC-AXS-4	4Axis Cameras									O	O	O		O		O	O	
<b>Upgrade Options</b>																			
	WEB-U-AX	Revision Upgrade	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
	DR-SEC-LON	BAS (LON) Upgrade													O	→	→	→	
	DR-SEC-BAC	BAS (BACnet) Upgrade													O	→	→	→	

\* Resources and performance limits - no defined limit in license.    \*\* 40 GB Hard Drive    \* = Standard (included)    O = Optional (excluded)    \*NPM-128,NPM-256,NPM-1GB

Building Automation

## WEBS-AX™ System HVAC Controllers Options

### Programmable Field Controllers








	Controller Model	Communication Protocol	Programmable Type	Open Licence**	UI	DI	AO	DO	Velocity Pressure Sensor (Microbridge)	Series 60 Floating Actuator
	PUB6438S	BACnet MS/TP	Unitary	O	6	4	3	8	NO	NO
	PUL6438S	LonWorks	Unitary	O	6	4	3	8	NO	NO
	PVB6438NS	BACnet MS/TP	VAV	O	6	4	3	8	YES	NO
	PVL6438NS	LonWorks	VAV	O	6	4	3	8	YES	NO
	PVB6436AS	BACnet MS/TP	VAV	O	6	4	3	6	YES	YES
	PVL6436AS	LonWorks	VAV	O	6	4	3	6	YES	YES
	PUL1012S	LonWorks	Unitary	O	1*	0	1	2	NO	NO
	PUL4024S	LonWorks	Unitary	O	4*	0	2	4	NO	NO
	PVL4024NS	LonWorks	VAV	O	4*	0	2	4	YES	NO
	PVL0000AS	LonWorks	VAV	O	0	0	0	0	YES	YES
	PVL4022AS	LonWorks	VAV	O	4*	0	2	2	YES	YES

UI - Universal Input, DI - Digital Input, AO - Analog Output, and DO - Digital Output

\* One Universal Input (UI-1\*) is user selectable as a fast digital pulse meter

\*\* Spyder Individually Licensed Controller (ILC) is a fully programmable controller for any NiagaraAX Framework® platform providing the greatest flexibility for expansion on any NiagaraAX platform.

### Configurable Field Controllers

	Model	Application	Communication Protocol	Wall Module	Inputs					Outputs			
					Resistive	Voltage	Dry Contact Digital	Bypass Button	Integrated Actuator	Relay	Triac	Analog	LED
	W7750A	CVAHU	LonWorks	•	1		2	•		6			1
	W7750B	CVAHU	LonWorks	•	4	2	4	•			8		1
	W7750C	CVAHU	LonWorks	•	4	2	4	•			5	3	1
	W7751H	VAV	LonWorks	•	1	1		•	•		4		1
	W7751B/D/F	VAV	LonWorks	•	2	1	3	•			8		1
	W7752	FCU	LonWorks	•			1	•		3			1
	W7753	Unit Ventilator	LonWorks	•	2	2	4	•			8		1
	W7761	Remote Input/Output	LonWorks		4	2							
	T7350H	Communicating Thermostat	LonWorks							8			
	W7762/3	Hydronic Controller	LonWorks	•			1			1	4		

## Accessories

Features	Part Numbers	Description	Standard							Security		Compact					
			4XX WEB-403-AX	4XX WEB-403-EZ	5XX WEB-403-AX-E	5XX WEB-545-AX-E	5XX WEB-5R-AX	NXS WNXS-FL	NXS WNXS-HID	2XX WEB-201	6XX WEB-600	6XX WEB-602-XPR	7XX WEB-700	SEC-H-201	SEC-H-600	SEC-H-600	SEC-H-600
Display	LCD-CT043A100	Reveal Color*	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	LCD-GT043A100	Reveal Grayscale*	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Option Cards	NPB-2X-RS485	RS 485 Card								O	O	O	O	O	O	O	
	NPB-BATTERY	WEB 2 and 6 Batt								O	O						
	NPB-GPRS-H	GPRS Modem								O	O				O	O	
	NPB-GPRS-W-H	GPRS Modem Kit								O	O				O	O	
	NPB-LON	LON Card								O	O	O	O		O	O	
	NPB-MDM	Modem Card								O	O	O	O		O	O	
	NPB-PWR-H	24 V Power Module								O	O						
	NPB-PWR-UN-H	Universal Power Supply								O	O	O	O		O	O	
	NPB-RS232	RS 232 Card								O	O	O	O		O	O	
	NPB-WPM-US	Wall Adaptor (US)								O	O				O	O	
Input/ Output	IO-16-H	16 point I/O								O	O						
	IO-16-REM-H	16 point Remote I/O								O	O	O	O		O	O	
	IO-34-H	34 point I/O								O	O						
	SEC-H-RIO	Security Remote I/O													O	O	
	SEC-H-R2R	Security Remote Reader													O	O	

\* Needs a dedicated RS485 port. May need optional RS485 cards in certain cases

• = Standard (included)

O = Optional (excluded)

# WEBS-AX System

## WEB-201 Controller



The Honeywell WEB-201 controller is a compact, embedded controller/server platform. Its combine integrated control, supervision, data logging, alarming, scheduling and network management features in a small, compact platform. The WEB-201 controller is a member of the Honeywell WEBS-AX suite of JAVA based controller/server products.

- Runs stand-alone control, energy management, and multi-protocol integration.
- Web User Interface serves rich presentation and live data to a browser.
- Standard and optional communications boards.
- Can be expanded with optional IO-16-H and IO-34-H I/O modules.
- Small compact design is easy to install and supports multiple power options.

**Dimensions, Approximate:** 16.2 cm wide x 10.5 cm high x 6.4 cm deep (6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep )

**Application:** Controller

**Application Size:** Approximately 15 - 20 nodes

**Building Management Interface:** WEBS-AX

**Operating System:** QNX RTOS; IBM J9 JVM Java Virtual Machine; NiagaraAX

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Used With	Includes
WEB-201	WEB-201 Controller	WEBS-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver
WEB-201-O	WEB-201 Controller with Open License	WEBS-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver

## WEB-600 Controller



The WEB-600 controller serves data and rich graphical displays to a standard web browser via an Ethernet LAN or remotely over the Internet, or dial-up modem. In larger facilities, multi-building applications and large scale control system integrations, WEBStation-AX software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of WEBSAX controllers into a single unified application. The WEBStation-AX Supervisor can manage global control functions, support data passing over multiple networks, connect to enterprise level software applications, and host multiple, simultaneous client workstations connected over the local network, the Internet, or dial-up modem.

- Supports open and legacy protocols.
- Web User Interface (standard) serves rich presentation and live data to a browser.
- Run stand-alone control, energy management, and multi-protocol integration.
- Standard and optional communications boards.
- Can be expanded with optional 16 and 34 point I/O Modules.
- Small compact design is easy to install and supports multiple power options.
- Embedded IBM® Power PC Platform.

The WEB-600 is ideal for smaller facilities, remote sites, and for distributing control and monitoring throughout large facilities. Optional I/O modules can be plugged in for applications where local control is required. The WEB-600 controller also supports a wide range of field busses for connection to remote I/O and standalone controllers. In small facility applications, the WEB-600 controller is all you need for a complete system.

**Dimensions, Approximate:** 16.2 cm wide x 10.5 cm high x 6.4 cm deep (6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep)

**Application:** Controller

**Building Management Interface:** WEBS-AX

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Used With	Includes
WEB-600	WEB-600 Controller	WEBS-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver
WEB-600-O	WEB-600 Controller with Open License	WEBS-AX Platform	WEB User Interface, Niagara Connectivity (Fox), oBix Client/Server driver

## WEB-201/WEB-600 Accessories



IO-16-H



IO-34-H



NPB-PWR-H

**Building Management Interface:** WEBs-AX

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Used With:** WEB-201; WEB-600

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

Product Number	Application	Description	I/O Count	Operating Temperature Range		Power Input	Includes	Approvals: Underwriters Laboratories, Inc.	Approvals: CE
				(C)	(F)				
DR-LONFT10-AX	Software Driver/Accessory	LONworks FTT10 Driver and NPB-LON card bundle	—	—	—	—	—	UL 916, cJUL listed	Approved
ENC-H-001	Enclosure	WEBs Small Enclosure	—	—	—	120 Vac	24 Vac Power Supply	—	—
ENC-H-002	Enclosure	WEBs Large Enclosure	—	—	—	120 Vac	24 Vac Power Supply	—	—
ENC-H-BPK-1	Enclosure	WEBs Small Enclosure Backplate (8 in. X 11 in.)	—	—	—	—	—	—	—
ENC-H-BPK-2	Enclosure	WEBs Large Enclosure Backplate (11 in. X 11 in.)	—	—	—	—	—	—	—
IO-16-H	Input/Output Expansion Module	16 Point Input/Output Expansion Module	8 UI, 4 DO (Relay), 4 AO	0 C to 50 C	32 F to 122 F	—	—	UL 916, cJUL listed	Approved
IO-34-H	Input/Output Expansion Module	34 Point Input/Output Expansion Module	16 UI, 10 DO (Relay), 8 AO	0 C to 50 C	32 F to 122 F	—	Internally dedicated 24 Volt Power Supply	UL 916, cJUL listed	Approved
NPB-GPRS-H	Modem Option Card	WEBs Cellular Modem w/o SIM Card	—	—	—	—	—	—	—
NPB-GPRS-W-H	Modem Option Card	WEBs Cellular Modem w/ Wyless SIM Card	—	—	—	—	—	—	—
NPB-MDM	Optional Communications Card	56kbps Modem with one RJ-11 connector for WEB-201/600	—	0 C to 50 C	32 F to 122 F	—	—	UL 916, cJUL listed	Approved
NPB-PWR-H	Power Module	24 Volt DIN mounted power module	—	0 C to 50 C	32 F to 122 F	—	—	UL 916, cJUL listed	Approved
NPB-WPM-US	Power Adaptor	Wall Power Adaptor - US Plug type	—	0 C to 50 C	32 F to 122 F	—	—	UL 916, cJUL listed	Approved

Building Automation

## WEB-201/WEB-600 Drivers

**Building Management Interface:** WEBs

Product Number	Application	Description	Used With
NPM-128	Software-Driver	WEB-201 Memory Expansion License from 64 to 128 MB	WEB-201 Platform
NPM-256MB	Software-Driver	WEB-600 Memory Expansion License from 128 to 256 MB	WEB-600 Platform

# WEBs-AX System

## WEB-403 Controller



The AX Platform of controllers include smarter applications that provide valuable information, stronger tools that empower users, and all with a faster time-to-market with Web-services applications. The WEB-403 AX bundles WEBs software capability in a hardware platform that can be installed in typical building control environments. Each WEB-403 AX connects to a system field bus and provides real time control functions as constant streams of data from individual systems are instantaneously transformed to a common object model. The products provide a fully distributed system when multiple units are networked together, which provides unsurpassed scalability and reliability. In this configuration, WEBs can be used to network controllers and manage enterprise-level control functions. The appropriate model is determined by connectivity and computing power requirements.

- Embedded RISC Microprocessor platform.
- 128 MB RAM/32 MB Flash
- One Lon FTT10A port for Lon device integration.
- Direct, on-board I/O with six universal inputs and 4 digital relay outputs.
- One RS-485 port for connection to open and proprietary protocol devices.
- One RS-232 port for integration or support of an optional internal modem.
- Wind River VxWorks OS with Jeode Java Virtual Machine
- Niagara Control Engine

**Dimensions, Approximate:** 28 cm wide x 36 cm high x 6 cm deep (11 in. wide x 14 in. high x 2 1/2 in. deep)

**Application:** Controller

**Building Management Interface:** WEBs-AX

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Used With:** WEBs-AX Platform

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Includes
WEB-403-AX	WEB 403 AX Controller	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-AX-E	WEB-403-AX-E Controller with Expanded Memory	LonWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 256 MB RAM, 128 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-AX-EO	WEB-403-AX-EO Controller with Expanded Memory and Open License	LonWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 256 MB RAM, 128 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-AX-O	WEB-403-AX-O Controller w/ open license	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-EZ	WEB 403 AX Controller Easy-pack bundle	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WEB-403-EZO	WEB 403 AX Controller Easy-pack bundle w/ Open license	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector

## WEB-403 Drivers

Product Number	Application	Description	Building Management Interface	Used With
WEB-403-EXPUP-AX	Software-Driver	Upgrade of WEB-403-AX to Unlimited	WEBs	WEBs-AX Platform



## WEB-545 Controller



The AX Platform of controllers include smarter applications that provide valuable information, stronger tools that empower users, and all with a faster time-to-market with Web-services applications. Specifically designed for commercial applications, the WEB-545 AX is ideally suited for users who require a compact controller that can be wall or enclosure mounted. A single WEB-545 AX controller can support a network of devices via the LonWorks port and auxiliary devices that can be accessed directly via onboard I/O, or through the 4 RS-485 ports, or an RS-232 port (unless used by the optional internal modem). The WEB-545 AX can integrate any combination of LON®, Modbus, BACnet, or legacy devices with the appropriate optional drivers.

- Embedded RISC Microprocessor platform.
- Wind River VxWorks Operating System with Jeode Java Virtual Machine.
- Java Application Control Engine Software with I/O control objects.
- 128 MB RAM/32 MB Flash
- One Lon FTT10A port for Lon device integration.
- Four RS-485 ports (electrically isolated) for connection to open and proprietary protocol devices.
- Two RS-232 port for Integration or support of an optional internal modem.
- Optional web UI services to support many simultaneous users over the intranet or Internet via a standard web browser (WEB-545-UI only).

**Dimensions, Approximate:** 28 cm wide x 36 cm high x 6 cm deep (11 in. wide x 14 in. high x 2 1/2 in. deep)

**Application:** Controller

**Building Management Interface:** WEBs-AX

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Used With	Includes
WEB-545-AX-E	WEB-545 AX Expanded Memory Controller with open license	WEBs-AX Platform	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10
WEB-545-AX-EO	WEB-545 AX Expanded Memory Controller	WEBs-AX Platform	LONWorks FT10 driver BACnet MSTP driver, BACnet IP Client driver, 128 MB RAM, 32 MB FlashOne 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10

## WEB-403/WEB-545 Drivers

Product Number	Application	Description	Building Management Interface	Used With
EC-SP-4XX	Software-Driver	WEB 403 Enterprise Connectivity Pack	WEBs-AX	WEB-403
EC-SP-5XX	Software-Driver	WEB 545 Enterprise Connectivity Pack	WEBs-AX	WEB-545
UI-SP-4XX	Software-Driver	WEB 403-AX Web User Interface	WEBs-AX	WEB-403
UI-SP-5XX	Software-Driver	WEB 545-AX Web User Interface	WEBs-AX	WEB-545

## WEB-403/WEB-545 Accessories

Product Number	Application	Description	Building Management Interface	Used With
MODEM-401	Accessory-Parts	Modem option for WEB-403-AX and WEB-545-AX controllers	WEBs	WEBs-AX Platform

# WEBS-AX System

## WEB-5R Controller

**Dimensions, Approximate:** 431.8 mm wide X 304.8 mm wide X 44.5 mm high (17 in. wide X 12 in. deep X 1.75 in. high)

**Application:** Controller

**Building Management Interface:** WEBS

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, C-UL listed

**Accessories:**

**WEB-WMT-BKT** Wall Mount Brackets for WEB-5R-AX/O Controller

Product Number	Description	Used With	Includes
WEB-5R-AX	Rack Mount WEB-545-AX-E Controller	WEBS-AX Platform	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10
WEB-5R-AX-O	Rack Mount WEB-545-AX-E Controller with open license	WEBS-AX Platform	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10

## WEB-5R Accessories

Product Number	Application	Description	Building Management Interface	Used With
WEB-WMT-BKT	Accessory-Parts	Wall Mount Brackets for WEB-5R-AX/O Controller	WEBS	WEB-5R-AX

## WEB-NXS Controller



Specifically designed for commercial and light industrial applications, the WEBS NXS controllers have 512 MB RAM standard, 1 Gb Flash drive, and a 400 MHz Celeron processor - making it ideally suited for users who require more processing power, or a large amount of archives or graphics.

Because it has a PC processor platform with hard disk and embedded Microsoft® Windows XP, the NXS is ideal for organizations whose IT policies dictate Microsoft products or when applications such as OPC require a Windows-based operating system. The W-NXS-AX-FL controller includes an integral UPS.

The WEBS NXS controllers have no moving parts and can be wall or enclosure mounted. A single NXS controller can support a network of devices via the LonWorks port and auxiliary devices that can be accessed through the RS-485 port or the RS-232 port. MSTP protocols are not supported on the NXS controllers.

- High performance Intel® Celeron® Microprocessor provides fast, reliable processing
- Real-time control engine provides local closed loop control across protocols
- Integral energy management routines
- Trending, scheduling, alarm notification via email
- Distributed architecture provides scalability and reliability
- Can be integrated with other WEBS controllers for large scale systems
- Options for either a Flash memory-based or hard drive-based version

**Dimensions, Approximate:** 172 mm wide x 192 mm high x 256 mm deep (6 13/16 in. wide x 7 9/16 in. high x 10 1/16 in. deep)

**Application:** Controller

**Building Management Interface:** WEBS-AX

**Operating System:** Embedded version of Microsoft Windows™ XP, Microsoft Java Virtual, Java Application Control Engine with NiagaraAX 3.1 or later

**Voltage:** 100 Vac - 240 Vac

**Frequency:** 47 to 63 Hz

**Power Input:** 2A Max/115V and 1A Max/230V

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 32 F to 158 F (0 C to 70 C)

**Used With:** WEBS-AX Platform

**Comments:** Construction: Heavy-duty steel chassis

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Network Communications	System Requirements	Includes
W-NXS-AX-FL	NXS controller with 1 GB flash drive and NiagaraAX software version 3.1 or later, UPS power supply, embedded Windows XP, Web User Interface, oBIX Client/Server driver, Niagara Network (Fox) Client/Server driver and LON over twisted pair.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	Real-time clock with lithium battery backup1 Gb Flash drive (W-NXS-AX-FL) or 40 Gb hard drive (W-NXS-AX-HD and WEB-NXS-R2)512 MB RAM; High Speed Intel Celeron CPU @ 650 MHz	512 MB RAM, 10/100 MB Ethernet Port, (1) RS-232 Ports (1) RS-485 Port, (1) LONWorks port and driver, BACnet and oBix drivers
W-NXS-AX-FLO	W-NXS-AX-FL Controller with 1GB Flash Memory and Open License			
W-NXS-AX-HD	NXS controller with 40 Gb hard drive and NiagaraAX software version 3.1 or later, embedded Windows XP, Web User Interface, oBIX Client/Server driver, Niagara Network (Fox) Client/Server driver and LON over twisted pair.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	Real-time clock with lithium battery backup1 Gb Flash drive (W-NXS-AX-FL) or 40 Gb hard drive (W-NXS-AX-HD and WEB-NXS-R2)512 MB RAM; High Speed Intel Celeron CPU @ 650 MHz	512 MB RAM, 10/100 MB Ethernet Port, (2) RS-232 Ports, (1) RS-485 Port, (1) LONWorks port and driver, BACnet and oBix drivers
W-NXS-AX-HDO	W-NXS-AX-HD Controller with 40 GB Hard Drive and Open License			

## WEB-NXS Accessories

**Application:** Power Supply

**Building Management Interface:** WEBS

**Voltage:** 100 Vac - 240 Vac

**Frequency:** 47 to 63 Hz

**Power Input:** 2A Max/115V and 1A Max/230V

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Used With:** W-NX-AX Platform, W-NXS-R2 Platform

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Network Communications	Comments
NXS-UPS	Optional UPS upgrade for W-NXS-AXHD or WEB-NSX-R2. Provides UPS module with battery.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	WEB UI Server option for WEB-NXS-R2 only

# WEBs-AX System

## WEBs-AX Software Controller

Building Management Interface: WEBs-AX

Product Number	Application	Description	Used With
SJ-2M-UPG-AX	Software-Driver	Upgrade for WEBs-AX SoftJACE. Increases Niagara point count from 10M to 30M.	WEBs-AX Soft Controller
W-SJ-1M-AX	Controller	WEBs-AX SoftJACE software for Windows XP	WEBs-AX Platform

## WEBs-AX Platform - Displays



Reveal™ is an easy-to-operate and robust operator unit for the entire range of WEBs-AX and ComfortPoint (CP) supervisory Controllers.

Reveal's touch-panel operation screens allow for easy and self-explanatory operation by finger-tip.

User-configurable fast-access lists can contain selected datapoints, time programs, and parameters, thus permitting plant oriented and customer-oriented operation.

**Dimensions, Approximate:** 167 mm long x 93 mm wide x 36 mm deep (6 9/16 in. long x 3 11/16 in. wide x 1 7/16 in. deep)

**Application:** Display

**Building Management Interface:** WEBs

**Operating System:** Windows CE

**Commissioning Software:** WEBs AX

**Voltage:** 24 Vac

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

Reveal uses Honeywell's patent pending EZ-Nav™ technology to provide real-time status information on an easy-to-use, wall-mounted touch-screen LCD. Reveal has a 480 x 272, High Definition, 24-bit Full Color backlit LCD display. It is also available in a 16-level Extended Temperature gray-scale display. Both displays have a viewing area of 8 in<sup>2</sup> (51.6 cm<sup>2</sup>).

Reveal has customizable user screens, multi-language capability, and permission-based access control. With these features it provides site personnel the ability to quickly and conveniently access setpoint changes, local alarm data, and other system information.

This device can be configured through the WEBs or ComfortPoint (CP) workbench/supervisor using a software driver.

- Multi Language capable
- Password protection
- Upgrade of installed systems
- System-wide information access
- Multiple Displays for a single Controller
- Protocol independent
- Maintenance free
- Network security

**Shipping Temperature Range:** (-20 C to +60 C (-4 F to +140 F))

**Approvals:**

**Canadian Standards Association:** Certified

**CE:** CE Mark

**Federal Communications Commission:** FCC part 15 Class B requirements

Product Number	Description	Network Communications	Output Type	Operating Temperature Range		Used With
				(C)	(F)	
LCD-CT043A100	Reveal Color Touchscreen	1 RS 485	Graphical Interface	-10 C to +50 C	14 F to 122 F	WEB-NXS; WEB-600; WEB-201; WEB-5R-AX; WEB-403; WEB-545; WEB NX Controller
LCD-GT043A100	Reveal Grayscale Touchscreen	1 RS 485	Graphical Interface	-20 C to 70 C	-4 F to 158 F	WEB-NXS; WEB-600; WEB-201; WEB-5R-AX; WEB-403; WEB-545; WEB NX Controller

## WEBs-AX Platform - Drivers for Controllers

**Application:** Software-Driver

**Building Management Interface:** WEBs-AX

**Used With:** WEBs-AX Controllers

Product Number	Description
DR-AAMPHP-AX	American Automatrix PHP Driver over RS-232 or RS-485
DR-AAMPUP-AX	American Automatrix PUP Driver over RS-232 or RS-485
DR-AC256-AX	AC256 Driver
DR-BAC-CLI-AX	BACnet IP Client Driver over Ethernet
DR-BAC-SRV-AX	BACNet Server includes BACNet IP Client
DR-FLX-AX	Flex Driver over RS-232 or RS-485
DR-GLOBAL-AX	Enables control of IR controlled AV equipment via an RS-323 connection to a Global Cache FC module
DR-HELVAR-AX	Helvar Lighting Control Driver
DR-HORTS-AX	Driver for European Hortsmann meters

Product Number	Description
DR-JOSAM-AX	Josam Grease Trap Sensor Driver
DR-LANGOVN-AX	Lang Oven over RS-232 or RS-485
DR-LON-IP-AX	LON over IP Driver
DR-LONDRIV-AX	LONworks FTT10 Driver
DR-MBUS232-AX	M-Bus RS-232 Driver
DR-MDB-AX	Driver for Modbus RTU or ASCII over RS-485 or RS232
DR-MDB-S-AX	Data server to Modbus Master devices over RS485
DR-MDB-TCP-AX	Driver for Modbus TCP (25 node limit recommended)
DR-MDB-TS-AX	Data server to Modbus Master devices over TCP
DR-MSTP-AX	MSTP BACnet communications via RS-485 port
DR-SMSALRM-AX	Enables SMS alarms to be sent to any mobile phone via a GSM/GPRS modem connected to the RS-232
DR-SNMP-AX	Driver for importing data from SNMP compliant devices. Also exports WEBs alarms to SNMP devices.
DR-VDROOT-AX	VeederRoot Driver
WEB-AX-EMB	Embedded WEBPro-AX tool
WEB-U-AX	Revision Upgrade for WEBs-AX Controller

## WEBs-AX Platform - Software

**Application Size:** Software  
**Building Management Interface:** WEBs-AX  
**Used With:** WEBs-AX Platform

Product Number	Description
W-ALARM-CONSL	WEBs-AX Alarm Console software for Windows XP
WEB-S-AX-W	AX Workbench

## WEBs-AX Platform - Supervisor Software

**Application Size:** Software  
**Building Management Interface:** WEBs-AX  
**Used With:** WEBs-AX Platform

Product Number	Description
WEB-S-AX	WEBStation-AX Workstation software for Windows XP
WEB-S-AX-64	WEBStation-AX Workstation software for 64 bit Windows Platforms
WEB-S-AX-LNX	WEBStation-AX Workstation software for Linux
WEB-S-AX-SBS	Small Building System WEBStation-AX, for 3 controllers

## WEBs-AX Platform - Drivers for Supervisors

**Application:** Software-Driver  
**Building Management Interface:** WEBs-AX  
**Used With:** WEBs-AX Supervisors

Product Number	Description
DR-NS-BAC-500	Additional 500 point block for WEBStation-AX BACnet driver
DR-NS-BAC-AX	AX Supervisor BACnet Driver
DR-NS-MDB-500	Additional 500 point block for WEBStation-AX MDB TCP Driver
DR-NS-MDB-AX	AX Supervisor Modbus TCP Driver
DR-NS-OBIX-AX	AX Supervisor oBix Driver
DR-NS-OBIX500	Add'l 500 point block for AX Supervisor oBix Driver
DR-NS-OPC-500	Additional 500 point block for WEBStation-AX OPC Client Driver
DR-NS-OPC-AX	AX Supervisor OPC Driver
DR-NS-SNMP-500	Additional 500 point block for WEBStation-AX SNMP Driver
DR-NS-SNMP-AX	AX Supervisor SNMP Driver
S-AX-BCSRV-AX	AX Supervisor BACNet IP Server Driver
S-DB-CSV	File Network Device Driver for importing CSV files

# WEBS-AX System

Product Number	Description
S-DB-DB2	WEBStation-AX driver for DB2 database
S-DB-MYSQL	WEBStation-AX driver for Microsoft MySQL database
S-DB-ORCL	WEBStation-AX driver for Oracle database
S-DB-SQL	WEBStation-AX driver for Microsoft SQL database
SUP-U-AX	Revision Upgrade for WEBStation-AX Supervisor
WEB-S-AX-SBS-EXUP	Small Building System Upgrade
WES-PNT-AX	WEBS Energy Analytics Point License. Licenses one point for monitoring on a WEBS-AX Supervisor
WES-STA-AX	WEBS Energy Analytics Station License. Licenses one controller station connection to Energy Analytics with unlimited points.

## WEBS-AX Platform - Accessories

Application Size: Accessory-Parts

Building Management Interface: WEBS-AX

Product Number	Description	Used With
H-GPRS-CBL-EXT	GPRS Modem Extension Cable	WEB-201; WEB-600
H-GPRS-SIM-W	Wysless SIM card for GPRS Modem	WEB-201; WEB-600
NPB-BATTERY	Replacement Battery Assembly for WEB-201 and WEB-600 Controllers	WEB-201; WEB-600

## WEBS Platform - Accessories

Building Management Interface: WEBS

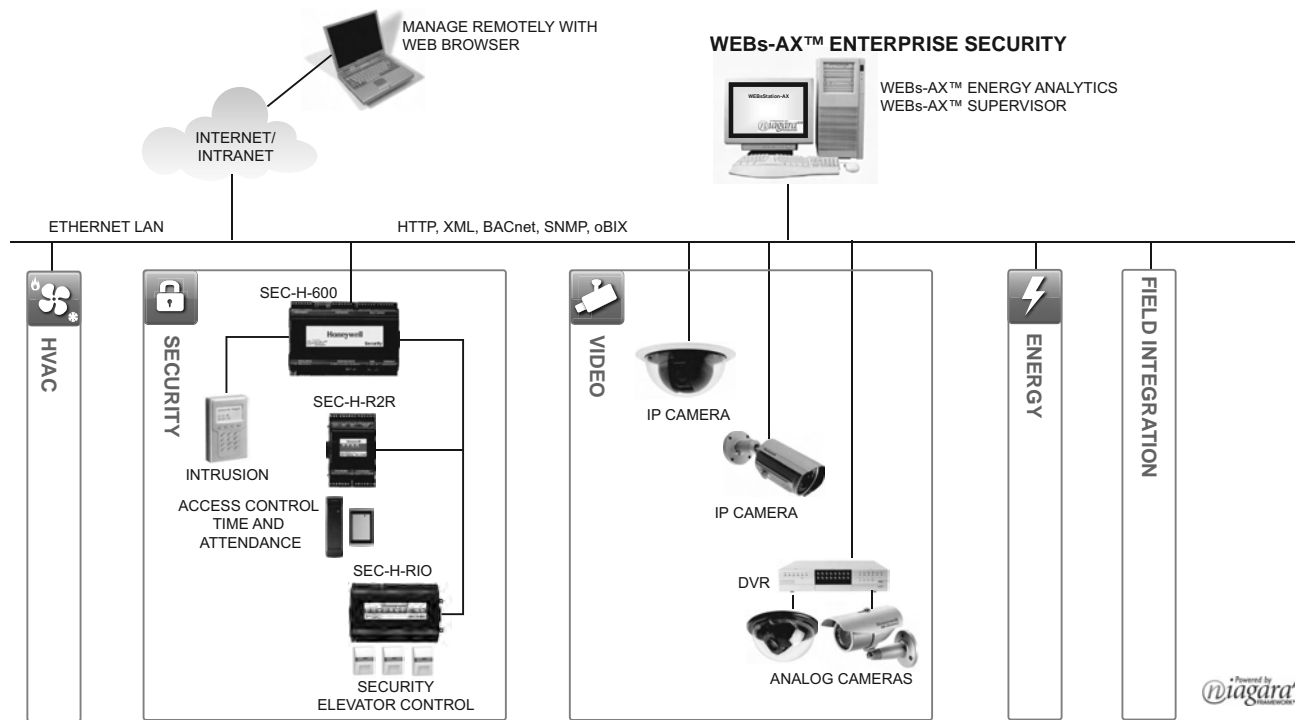
Product Number	Application	Description	Used With
50000276-014	Battery	Replacement Battery For WEB 4 Series and WEB 5 Series Controller	WEB-403; WEB-545
H10026	Accessory-Parts	Lon Trunk 2-position Connector Plug	WEB-201; WEB-600; WEB-403; WEB-545
H10027	Accessory-Parts	WEB5 RS-485 3-position Connector Plug	WEB-201; WEB-600; WEB-403; WEB-545
H10139	Accessory-Parts	6 Position Input/output Connector	WEB-201; WEB-600; WEB-403; WEB-545
H10140	Accessory-Parts	Weidmuller 3-position Straight Connector	WEB-201; WEB-600; WEB-403; WEB-545
H10148	Accessory-Parts	RJ-45 Adapter to DB-9 (Female Connection On both ends)	WEB-201; WEB-600; WEB-403; WEB-545
H10180	Accessory-Parts	4 foot silver satin cable (male RJ-45 both ends)	WEB-201; WEB-600; WEB-403; WEB-545
H10181	Accessory-Parts	10 Foot Silver Satin Cable (Male RJ-45 both ends)	WEB-201; WEB-600; WEB-403; WEB-545
H10182	Accessory-Parts	25 Foot Silver Satin Cable	WEB-201; WEB-600; WEB-403; WEB-545
H10429	Accessory-Parts	6 Position Connector for IO-16-H and WEB-IO-16	WEB-201; WEB-600; WEB-403; WEB-545
H10598	Accessory-Parts	2 Position Connector for IO-34-H and WEB IO-34	WEB-201; WEB-600; WEB-403; WEB-545
H10599	Accessory-Parts	12 Position Connector for IO-34-H and WEB-IO-34	WEB-201; WEB-600; WEB-403; WEB-545
H10600	Accessory-Parts	15 Position Connector for IO-34-H And WEB IO-34	WEB-201; WEB-600; WEB-403; WEB-545

## Honeywell Security Portfolio

Flexibility is the key to Honeywell WEBS-AX™ Security, which is built on the Niagara<sup>AX</sup> Framework®. Whether you need single site or enterprise access control, intrusion detection, video surveillance or a combination of all, WEBS-AX Security has the solution for you.

WEBS-AX Security can work as a standalone system or integrate easily with other WEBS-AX products as well as third-party devices for information-sharing on the enterprise level.

Figure 1. WEBS-AX Security Architecture Drawing



### WEBS-AX Security Solution Options

- WEBS-AX Enterprise Security—A comprehensive security and access control system for one or more facilities and integration with existing building systems including HVAC, lighting, video, and energy analysis. Ideal for single medium to large facilities or multi-site facilities.
- WEBS-AX Standalone Security—An out-of-the-box, Web-enabled solution for access control, intrusion detection, and video surveillance. Ideal for small to medium sized facilities.
- WEBS-AX Compact Security—A cost effective solution for integrating access control, security, video surveillance, and building automation systems. A cost-effective solution for small to medium sized facilities.

- WEBS-AX Integrated Video—Video drivers that provide an open video framework designed to integrate with diverse manufacturer IP and analog devices and protocols.
- Energy Analytics—An enterprise energy monitoring application designed to help manage energy in one or more facilities. Energy Analytics is a software solution that provides easy to understand, easy to configure reports that identify where, when, and how energy is used and provides cost analysis scenarios to allow the facility manager to make informed buying decisions.

### WEBS-AX Security Solutions

Facility	Doors	Open System Integration Capable	Solution	Selection Information
Single Facility	< 32	No	Standalone Security	See Table 2. Security Controllers
Single Facility	< 16	Yes	Compact Security	See Table 3. Security Controller with Compact Drivers
Single Facility	32+	Yes	Enterprise Security	See Table 2. Security Controllers; Table 3. Security with Compact Drivers and Table 4. Enterprise Security
Multiple Facility	Unlimited	Yes	Enterprise Security	

Building Automation

# WEBS-AX Security System

## WEBS-AX Security Controllers Selection

Features and Options		SEC-H-600	SEC-H-201	More Selection Information
Controllers		SEC-H-600	SEC-H-201	See Controllers
	Card Readers	32*	16	See Readers and Keypads
	Input/Output Points	120/120*	64/64	Third party devices such as motion sensors and glass break detectors
	Remote Reader Modules	15*	7	See Controller Modules and Option Cards
	Remote I/O Modules	15*	8	See Controller Modules and Option Cards
	Intrusion Keypads	6	2	See Intrusion Keypad/Display, (SEC-H-INT-KP)
	Personnel	20,000	5,000	
	Access Rights	250	100	
	Access Zones	50	10	
	Intrusion Zones	25	5	
	On-line Historical Records	50,000	10,000	
	Simultaneous System Users	10	5	
Video Drivers	DR-JAC-DED-AX	Dedicated Micros DVR & 4 cameras	N/A	See Video Drivers
	DR-JAC-AXS-4	4 Axis IP Cameras	N/A	See Video Drivers
Integration Options	Video (Cameras)	16	N/A	

\* A total of 15 modules can be connected to the SEC-H-600 in any combination. Points and reader counts depend on mix of reader modules.

## WEBS-AX Compact Security Selection

Features & Options		DR-SEC-LON (LON Focus)	DR-SEC-BAC (BACnet Focus)	Product Information
Controller		SEC-H-600		See Controllers
Security Capabilities	Card Readers	16*		See Readers and Keypads
	Input/Output Points	120/120*		Third party devices such as motion sensors and glass break detectors
	Remote Reader Modules	15*		See Controller Modules & Option Cards
	Remote I/O Modules	15*		See Controller Modules & Option Cards
	Intrusion Keypads	6		See Intrusion Keypad/Display, (SEC-H-INT-KP)
	Personnel	20,000		
	Access Zones	50		
	Intrusion Zones	25		
	On-line Historical Records	50,000		
Simultaneous System Users	10			
Video Drivers	DR-JAC-DED-AX	Dedicated Micros DVR & 4 cameras		See Video Drivers
	DR-JAC-AXS-4	4 Axis IP Cameras		See Video Drivers
Open Device/Points Supported	LonWorks Devices/Points	60/2000	5/100	
	BACnet Devices/Points	5/100	60/2000	
	Modbus TCP or RTU Devices & Points	5/100	5/100	
	SNMP (over Ethernet) Devices/Points	5/100	5/100	
Integration Capabilities	Video (Cameras)	16 cameras, 1 DVR connection		Video Drivers
	HVAC	•		Spyder®, Excel 10, & other open devices
	Lighting	•		Third party devices
	Other Open Systems	•		Third party devices

\* A total of 15 modules can be connected to the SEC-H-600 in any combination. Points and reader counts depend on mix of reader modules.



# WEBS-AX Security System

## Enterprise Security Software

The WEBS-AX Enterprise Security solution is a combination of the WEBS-AX Enterprise Security software and SEC-H-600 controller(s) and/or Compact drivers.

Software Platform			Enterprise Security				WEBS-AX Station with Security Options		Sec. Tool	
Features	Part Numbers	Description	SEC-H-MYS-SBS	SEC-H-MYS	SEC-H-SQL-SBS	SEC-H-SQL	WEB-S-AX-SBS	WEB-S-AX	SEC-H-MT-AX	
		Operating System	a	a	a	a	b	b	b	
		Demo Available		O		O			O	
		Controller Limit <sup>C</sup>	6	500	6	500	3	500	NA	
		Reader Limit	64	10,000	64	10,000	64	10,000		
<b>Software Drivers</b>										
<b>Niagara</b>		Niagara Historical DB	•	•	•	•	•	•		
		Workbench	•	•	•	•	•	•		
		Security Appliance	•	•	•	•	O	O		
<b>HVAC Upgrade</b>	SEC-H-BAS	BAS Upgrade for Security	O	O	O	O				
<b>Security Upgrade</b>	SEC-H-SUP-MYS	Add Security with MYS DB					O	O		
	SEC-H-SUP-SQL	Add Security with SQL DB					O	O		
<b>SBS Upgrade</b>	SEC-S-SBS-U	Remove 64 reader, 6 Controller Limit	O		O					
<b>Communication</b>		oBIX Client/Server	•	•	•	•	•	•		
	<b>Client</b>	DR-NS-OBIX-AX	oBIX <sup>d</sup>					O	O	
		DR-NS-OBIX500	Additional 500 points					O	O	
		DR-NS-BAC-AX	BACnet IP					O	O	
		DR-NS-BAC-500	Additional 500 points					O	O	
		DR-NS-MDB-AX	MODbus TCP					O	O	
		DR-NS-MDB-500	Additional 500 points					O	O	
		DR-NS-OPC-AX	OPC					O	O	
		DR-NS-OPC-500	Additional 500 points					O	O	
		DR-NS-SNMP-AX	SNMP					O	O	
DR-NS-SNMP-500	Additional 500 points					O	O			
<b>Server</b>	S-AX-BCSRV-AX	BACnet IP					O	O		
<b>Video</b>	DR-SUP-DED-AX	Dedicated Micro DVR	O	O	O	O	O	O		
	DR-SUP-DED-4	4 Cameras	O	O	O	O	O	O		
	DR-SUP-AXS-AX	Axis Cameras	O	O	O	O	O	O		
	DR-SUP-AXS-4	4 Cameras	O	O	O	O	O	O		
<b>Energy Analytics</b>	WES-STA-AX	Station (Controller) Connection					O	O		
	WES-PNT-AX	Point (IP) Connection					O	O		
<b>Enterprise Security</b>	SEC-H-R-16	16 Reader Pack	O	O	O	O	O	O		
	SEC-H-R-64	64 Reader Pack	O	O	O	O	O	O		
	SEC-H-R-256	256 Reader Pack	O	O	O	O	O	O		
	SEC-H-R-1024	1024 Reader Pack	O	O	O	O	O	O		

<sup>a</sup> Windows Server 2003, Windows XP Pro, Linux

<sup>b</sup> Windows Server 2003, Windows XP Pro

<sup>c</sup> Resources and performance limits - no defined limit in license.

<sup>d</sup> oBix connectivity for controllers NOT powered by Niagara

• = Standard (included); O = Optional

# WEBS-AX Security System

## WEBS-AX™ Enterprise Security Software

WEBS-AX Enterprise Security is a comprehensive access control and security management solution, built on a truly open, IP based platform. Developed using the NiagaraAX Framework, WEBS-AX Enterprise Security provides unparalleled interoperability within traditional security environments and extends seamlessly to create a unified, intelligent building by integrating with today's diverse facility systems including environmental controls, lighting, energy management, and video

Enterprise Security provides scalability ranging from single door solutions to multi-building/multi-campus deployments. Entirely accessible from any standard web browser, the solution provides flexible access into the system any time, anywhere, while liberating end users from dedicated client workstations in the traditional client /server model. WEBS-AX Enterprise Security is open – open architecture, open framework, open distribution, and open protocol support.

- Truly open solution-connectivity via oBIX, BACnet, SNMP, Modbus, Lon, and other optional non-proprietary protocols
- Web based security application – easily managed via a standard browser anytime, anywhere
- Supports database connectivity to MS SQL Server 2003 and MySQL
- Distributed architecture for increased reliability and control at remote locations
- Centrally managed card holder and credential database
- Quick click access to video playback related to individual alarm events
- UL-294 and CE listed systems
- Advanced occupancy restriction rules through access zone functionality
- Alarm Escalation
- Scheduled unlock on first validation
- Elevator control
- Live credential enrollment from any card reader
- Intrusion detection
- Configurable Operator Access Levels
- Simultaneous support for multiple credential formats

### System Capacities

Personnel	Card Readers	Access Rights	Schedules	Access Zones	On-Line History Records	Simultaneous System Users	Area Controllers	Integrated Cameras
1,000,000	10,000	25,000	25,000	25,000	25,000,000	25	500	No Limit

Product Number	Description
<b>WEBS-AX Enterprise Security Server Software</b>	
<b>SEC-H-MYS</b>	Security AX Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and MySQL database driver. Supervisor limited to security Controllers and drivers only. Platform for systems greater than 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
<b>SEC-H-MYS-SBS</b>	Security AX Small Building Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and MySQL database driver.. SBS limited to max of 6 security Controller connections and 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
<b>SEC-H-SQL</b>	Security AX Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and SQL database driver. Platform for systems greater than 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
<b>SEC-H-SQL-SBS</b>	Security AX Small Building Supervisor bundled part. Includes Enterprise Security application with 32 reader license, security AX supervisor and SQL database driver. SBS limited to max of 6 security controller connections and 64 readers. Includes OBIX client/server driver for connecting to Niagara based controllers only.
<b>WEBS-AX Enterprise Security Server Upgrades</b>	
<b>SEC-H-SBS-U</b>	Security SBS upgrade. Removes reader limit of 64 and controller limit of 6.
<b>SEC-H-BAS-U</b>	Upgrade security supervisor to allow BAS driver functionality.
<b>SEC-H-SUP-MYS</b>	Base Enterprise security software, includes reader license for 32 readers, Enterprise security application and MySQL database driver. Part required for all instances of Security 2.0. Requires AX supervisor software or small building AX supervisor software.
<b>SEC-H-SUP-SQL</b>	Base Enterprise security software, includes reader license for 32 readers, enterprise security application and SQL database driver. Part required for all instances of Security 2.0. Requires AX supervisor software or small building AX supervisor software.
<b>WEBS-AX Enterprise Security Reader Expansion Packs</b>	
<b>SEC-H-R-16</b>	Expands enterprise security license by 16 readers.
<b>SEC-H-R-64</b>	Expands enterprise security license by 64 readers.
<b>SEC-H-R-256</b>	Expands enterprise security license by 256 readers.
<b>SEC-H-R-1024</b>	Expands enterprise security license by 1024 readers.

## WEBS-AX™ Security Controllers



The WEBS-AX Security Controller provides an out of the box, web-enabled solution for access control and intrusion detection with integrated reporting and alarm management. Users can assign access rights, schedules, credentials, and perform system set up and maintenance via a web browser from anywhere in the world. The easy to use security control application and user interface are embedded in the WEBS-AX Security Controller requiring no additional software to set up or operate the system. The embedded application can provide complete access control and intrusion detection functionality in a stand alone mode or it can be easily integrated into the WEBS-AX automation system to control lighting, HVAC equipment, and other building management strategies in response to access events and system alarms. WEBS-AX Security Controllers may also be joined to an Enterprise Security server to provide central database management for larger applications requiring more than one controller.

- Integrated management of access control, alarm monitoring, and credential database
- Pre-defined custom reports on-screen or exported
- Web-based security application - easily managed via a web browser anytime, anywhere
- Web User Interface serves rich presentations and live data to a browser
- No thick client software required
- Custom graphic floor plans and equipment displays
- User-definable Wiegand card formats
- Robust, modular solution for smaller facilities
- Seamlessly integrates to Video Monitoring, HVAC, Lighting, and Energy Management in the WEBS-AX Automation System or other open systems
- Connectivity to any BAS system via BACnet®, LONWORKS®, Modbus®, and oBIX
- IT connectivity includes XML, oBIX, SNMP
- Built on the NiagaraAX Framework - the industry's leading facility management software platform
- On-board I/O for 2 standard Access Controlled doors, 2 Alarm Inputs, and 2 Relay outputs
- SEC-H-201: Expandable to 16 readers and 64 input and 64 output points. Up to 10,000 personnel credentials.
- SEC-H-600: Expandable to 32 readers and up to 120 input and 120 output points depending on mix of up to 15 remote modules. Video integration with up to 16 cameras. Up to 20,000 personnel credentials. Integrates directly with Lon or BACnet remote devices using Compact Security Drivers (see controller drivers section for details).

System Capacity	SEC-H-600	SEC-H-201
Personnel	20,000	5,000
SEC-H-R2R Modules (2 Wiegand Readers, 4 supervised digital inputs, 2 relay outputs, 2 digital inputs)	15 <sup>1</sup>	7
SEC-H-RIO Modules (8 digital outputs, 8 supervised digital inputs, 2 digital inputs)	15 <sup>1</sup>	8
IO-REM-16-H <sup>2</sup> (8 universal inputs, 4 relay outputs, 4 analog outputs)	4 <sup>1</sup>	N/A
Access Rights	250	100
Schedules	100	25
Access Zones	50	10
Intrusion Zones	25	5
Intrusion Keypads	6	2
On-line Historical Records	50,000	10,000
Simultaneous System Users*	10	5
Video (Cameras)	16	N/A


1. SEC-H-600 controller may connect to 15 SEC-H-R2R or SEC-H-RIO or IO-REM-16-H modules total in any combination.
2. Requires NXB-2X-RS485 Option Card

# WEBS-AX Security System

## Controller Modules and Option Cards


### WEBS-AX™ Security Modules

Expand the capacity of your WEBS-AX Security Controller with the SEC-H-RIO, remote input/output module, and the SEC-H-R2R remote reader modules.

Product Number	Wiegand Card Reader Interface	Supervised Digital Inputs	Relay Outputs	Digital Inputs	
SEC-H-RIO	-	8	8	2	
SEC-H-R2R	2	4	2	2	

### WEBS-AX™ IO Modules

Monitor and control building automation points with the IO-16-REM-H. These modules may not be connected to the SEC-H-201 controller.

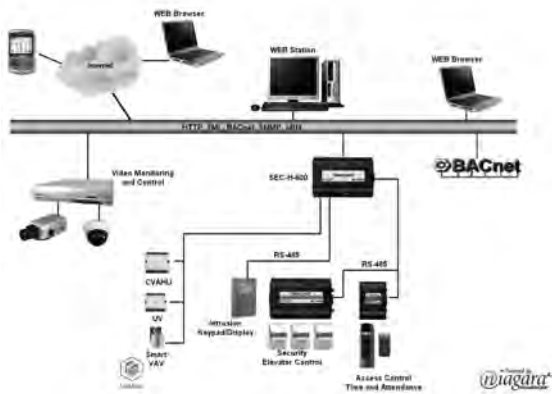
Product Number	Universal Inputs	Analog Outputs	Relay Outputs	
IO-16-REM-H	8	4	4	

### WEBS-AX™ Option Cards

Use these option cards to interface to other open systems on the SEC-H-600 when using the Compact Security Drivers. The NPB-2X-RS485 option card is required on the SEC-H-201 and SEC-H-600 controllers to interface with the Intrusion Keypad.

Product Number	Description
NPB-LON	78 Kbps FTT 10 A LON Adapter. Uses one of the two communication slots in the SEC-H-600
NPB-2X-RS485	Dual Port RS485 Option Card. Uses one of the two communication slots in the SEC-H-201 or SEC-H-600.
NPB-RS232	Single Port RS232 Option Card. Uses one of the two communication slots in the SEC-H-600.

## Compact Security Solution Drivers



WEBS Compact Security Solution provides a cost effective solution for integrating access control, security, video surveillance, and building automation on the SEC-H-600 platform. A Lon or BACnet Focused Driver Option Pack determines the mix of controlled devices that can be integrated onto the platform. The embedded WEBS-AX security control application allows thin-client configuration of the access control and security functions. WEBS-AX Workbench software is required for configuration of the HVAC devices. Note that card reader and personnel record capacities are reduced when using the Compact Security Drivers. Option cards to interface with BACnet, Lon, Modbus, and SNMP are ordered separately

## Compact Security Solution System Capacities

	DR-SEC-LON	DR-SEC-BAC
LON Devices/Points (TP/FT-10)	60 Devices/2000 Points	5 Devices/100 Points
BACnet Devices/Points (IP or MSTP)	5 Devices/100 Points	60 Devices/2000 Points
Modbus TCP or RTU	5 Devices/100 Points	5 Devices/100 Points
SNMP (over Ethernet)	5 Devices/100 Points	5 Devices/100 Points
Remote I/O modules (SEC-H-RIO)	15 <sup>1</sup>	15 <sup>1</sup>
Remote Reader Modules (SEC-H-R2R)	15 <sup>1</sup>	15 <sup>1</sup>
Digital Input/Output Points	120 inputs/ 120 outputs <sup>2</sup>	120 inputs/ 120 outputs <sup>2</sup>
Card Readers	16 <sup>2</sup>	16 <sup>2</sup>
Intrusion Keypads (SEC-H-INT-KP)	2	2
Personnel Records	20,000	20,000
History Records	50,000	50,000

1. Maximum of 15 modules (SEC-H-RIO and SEC-H-R2R) per SEC-H-600.

2. Up to 16 readers or 120 I/O points, depending on module combination.

# WEBs-AX Security System

## Video Integration Drivers

WEBs-AX Integrated Video is an open video framework solution designed to integrate diverse manufacturer devices and protocols into a unified, smart facility management system. Built on the NiagaraAX Framework®, WEBs-AX Video integrates with IP and analog based systems to create complete interoperability between video, security, lighting, energy management, and building automation for any facility.

- Bi-directional alarming interface between NiagaraAX stations and video products.
- NiagaraAX alarms can initiate events in video subsystem.
- Video system events such as video motion detection and camera loss alarms can be processed as standard Niagara alarms.
- Automatically redirect camera and start video recording based on events or alarms

- Create video system alarm record and associate recorded video for instant look-up
- Initiate control logic sequences such as lighting control, building lockdown, etc.
- Ability to view live video through NiagaraAX graphical user experience.
- Supports pan, tilt, zoom, iris, and focus camera control.
- Query video subsystem for stored video and playback by time and date.
- Integrated video playback with Niagara alarm console.
- Customizable user experience through extensive video widget library (PX pages).

### WEBs-AX™ Platforms Supported for Video Integration Drivers (Requires Niagara<sup>AX</sup> Build 3.4 or later)

Product Number	Product	Restrictions
SEC-H-MYS	Enterprise Security Server with MYS database	No Set Limit
SEC-H-MYS-SBS	Enterprise Security Server Small Building System with MYS Database	No Set Limit
SEC-H-SQL	Enterprise Security Server with SQL database	No Set Limit
SEC-H-SQL-SBS	Enterprise Security Server Small Building System with MYS Database	No Set Limit
W-S-AX	WEBs-AX Supervisor	No Set Limit
W-SJ-1M-AX	WEBs SoftJACE	No Set Limit
SEC-H-600	WEBs Expanded Security Controller	Maximum of 16 cameras
WEB-600, WEB-600-O	WEB 600 Controller	Maximum of 16 cameras, requires NPM-256 memory option.

Part#	Description
DR-SUP-DED-AX	Base Driver for Dedicated Micros DVR for WEBs Supervisor, WEBs SoftJACE, or Enterprise Security. Includes support for up to 16 cameras.
DR-SUP-DED-4	Additional 4 camera license for Dedicated Micros DVR on WEBs Supervisor, WEBs SoftJACE, or Enterprise Security.
DR-JAC-DED-AX	Driver for Dedicated Micros DVR and 4 cameras on SEC-H-600 or WEB-600.
DR-SUP-AXS-AX*	Base Driver for Axis IP Cameras for WEBs Supervisor, WEBs SoftJACE, or Enterprise Security. Supports for up to 16 cameras.
DR-SUP-AXS-4*	Additional 4 camera license for Axis IP cameras on WEBs Supervisor, WEBs SoftJACE, or Enterprise Security.
DR-JAC-AXS-4*	Driver for 4 Axis IP Cameras on SEC-H-600 or WEB-600.

\*Note: Axis IP Camera drivers do not support video playback, they are used for live viewing only. To integrate recording of IP cameras, use a supported DVR with IP interface.





## Readers and Keypads

### OmniProx™ Proximity Card Readers

Honeywell's OmniProx™ family is a complete line of 125 kHz HID compatible proximity readers that delivers outstanding and consistent performance in a small package with attractive styling and colors to fit any décor.

All OmniProx™ readers (except the OP90) include three bezels: black, charcoal gray and ivory and are constructed with rugged polycarbonate materials potted for both indoor and outdoor applications.

For locations that require a proximity reader able to withstand the vandal-prone environments, such as: universities, schools, elevators and prisons, the OP90 vandal resistant reader comes standard in a zinc die-cast metal housing.

Product Number	Read Range (PVC Card)	Read Range (Key Fob)	Dimensions	Max. Operating Current @ 5 VDC	Operating Voltage	
OP10HONE	2.25"	1.25"	3.15" H x 1.57" W	50 mA	5.0 -16 VDC	
OP30HONE	2.25"	1.25"	5.71" H x 1.69" W	100 mA	5.0 -16 VDC	
OP40HONE	2.25"	1.25"	4.33" H x 2.95" W	100 mA	5.0 -16 VDC	
OP90HONE	1.25"	Not recommended	4.5" H x 3.15" W	100 mA	5.0 -16 VDC	

Building Automation

## Readers with PIN Keypads

### OmniClass™ Reader/Keypad



OmniClass™ OM56BHONA reader/keypad is built upon the convenience and reliability of prox technology and reads both 125 kHz Prox and 13.56 MHz Smart cards. Keypad is backlit for easy visibility in low-light conditions. LED bar at top of reader makes ADA compliant with built-in audible beeper.

### ProxPro® Reader/Keypad



The ProxPro® Hu5355AGK00 proximity card reader's weatherproof design and architecturally attractive enclosure allows easy mounting indoors or out. Reads 125kHz Prox cards. The ProxPro Reader is ideal for applications requiring a larger read range. LED and beeper indicate access card reads.

Product Number	Max Read Range	Dimensions	Max. Operating Current @ 12 VDC	Operating Voltage
OM56BHONA	4"	4.8" H x 3.3" W	253 mA	10 -16 VDC
HU5355AGK00	7"	5.0" H x 5.0 " W	120 mA	10-28.5 VDC

# WEBS-AX Security System

## Intrusion Keypad/Display

### Smartkey Intrusion Keypad and Display



The SEC-H-INT-KP Smartkey Intrusion Keypad and Display is used for arming and disarming areas protected by intrusion monitoring such as motion detection, glass break detection, door and window status switches and other monitoring devices.




Multiple users and zones may be controlled with a single keypad by assigning unique PIN numbers to system operators. The display warns the user if a zone is in alarm prior to arming to avoid unwanted alarms.

Requires an NPB-2X-RS485 Option card to interface with SEC-H-600 and SEC-H-201 Security Controllers.

Product Number	Max per SEC-H-600	Max per SEC-H-201	Dimensions	Max. Operating Current @ 12 VDC	Operating Voltage
SEC-H-INT-KP	6	2	5.12" H x 3.23" W	150 mA	12 -15 VDC

### Credentials

#### 125 kHz HID compatible Proximity Credentials

Product Number	Description	
PVC-H-4	HID PVC Prox Card (34-Bit). HID PVC proximity card sequentially numbered where encoded number equals printed number. Allows a video photo ID to be printed directly on the card surface. This card can be used with all PVC printers. Dimensions: 2.125 IN. H x 3.375 IN. W (5.398cm H x 8.573cm W) Minimum order quantity of 25. Must be ordered in increments of 25.	
PX-4-H	HID proximity card (34-bit) with Honeywell logo and a slot hole punch on the short side. Dimensions: 2.125 IN. H x 3.375 IN. W x 0.070 IN. T (5.398cm H x 8.573cm W x .178cm T). Minimum order quantity of 25. Must be ordered in increments of 25.	
PX-KEY-H	HID Proximity Card Key Fob (34-Bit). HID proximity key fob (34-bit) designed to be carried on a user's key ring. Read ranges may be reduced by 50% when using the fob versus a card. Dimensions: 4.75 cm H x 2.350 cm W x 1 cm (1.87 IN. H x .925 IN. W x .395 IN. T). Minimum order quantity of 10. Must be ordered in multiples of 10.	






## Request to Exit Devices

### PIR Overhead Motion Sensors

Mount IS310BL and IS310WH PIR (passive infra-red) motion sensors over access controlled doors to inhibit alarms when exiting and/or to unlock the door. Hands-free automatic operation makes these units the ideal request to exit devices for access control systems.



### Push Button

The EXB-1 is used to signal the access control panel to unlock a door and inhibit door alarms when exiting.

Product Number	Description	
IS310BL	Request-to-Exit Sensor, Standard Version - Black. Adjustable relay time (0.5 - 64 seconds), Adjustable "tamper proof" shutters, to enable precise target area detection, Two "Form C" outputs, Swivel optics – allow for offset mounting.	
IS310WH	Request-to-Exit Sensor, Standard Version - White. Adjustable relay time (0.5 - 64 seconds), Adjustable "tamper proof" shutters, to enable precise target area detection, Two "Form C" outputs, Swivel optics – allow for offset mounting.	
EXB-1	Egress Button. Exit button with a single gang stainless steel mounting plate, DPDT. Can be configured with momentary or latching contact status. Temperature range: 32° to 158° F (0° to 70° C). Dimensions: 11.43cm H x 6.99cm W x 5.40cm D (4.5 IN. H x 2.75 IN. W x 2.13 IN. D).	

### Door Locks

The NS5100 Electric Strike and ML8011-LC-US28 locks work with many types of doors and applications.

Product Number	Description	
ML8011-LC-US28	UL listed magnetic door lock for a single door with 1,200lbs (544kg) holding force. Operates on 12/24VDC.2A current draw and comes with a US28 (satin stainless) finish. Lock dimensions: 2.625 IN. H x 10.5 IN. W x 1.625 IN. D (6.67cm H x 26.67cm W x 4.13cm D). Armature dimensions: 6.35cm H x 17.78cm W x .95cm D (2.5 IN. H x 7 IN. W x .375 IN. D).	
NS5100	1300lb Electric Strike, non-handed. Fail-secure/fail-safe field reversible. Maximum current draw is .38A @ 12VDC or .19A @ 24VDC. Strike includes three face plates for use with hollow metal, wood, or aluminum frames. Adjustable keeper and small back box fit almost any application. Retrofit existing doors or lock replacements with included neoprene filler. Back box: 3.375 IN. H x 1 IN. W x 1.345 IN. D. Keeper pocket: 1.4375 IN. H x .5 IN. D x .6875 IN. –.8125 IN. W (adjustable).	

# WEBS-AX Security System

## Enclosures and Power Supplies

### WEBS-AX™ Security Enclosures



Custom enclosures are available for secure mounting of the WEBS-AX Security controller and the Remote Reader and Input/ Output modules. Three sizes are available to allow for various combinations of controllers and remote modules and all are equipped with a key lock and tamper switch. The medium and large enclosures may be ordered with a factory mounted universal voltage power supply (NPB-PWR-UN-H) covered by a protective metal shield. Knockouts are provided on top, bottom and sides for external connections. The enclosure interiors have a generous amount of space for cable management. These enclosures are required to maintain the UL access control and FCC listing. The Security controller **MUST** be mounted in a WEBS-AX Security enclosure with integral supply to properly charge the on-board NiMH batteries and maintain the controller listings.

Product Number	Description
SEC-ENC-H-1	Security panel medium enclosure with integral NPB-PWR-UN-H universal power supply. 17" W x 15" H x 4" D with DIN rail, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose one Security Controller, or 2 reader modules or one Remote I/O module.
SEC-ENC-H-1NP	Security panel medium enclosure. 17" W x 15" H x 4" D with DIN rail, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose 2 reader modules or one Remote I/O module plus one additional reader module in place of the integral power supply not included with this part.
SEC-ENC-H-2	Security panel large enclosure with integral NPB-PWR-UN-H universal power supply. 17" W x 22" H x 4" D with DIN rails, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose one Security Controller and up to four Reader Modules, or two I/O modules, or two Reader Modules and one I/O Module.
SEC-ENC-H-2NP	Security panel large enclosure. 17" W x 22" H x 4" D with DIN rails, tamper switch, key lock, and capacity for 2 user provided SLA backup batteries. Can enclose up to seven Reader modules or three I/O modules plus one additional Reader module in place of the integral power supply not included with this part. Other combinations of Reader and I/O modules are possible.
SEC-ENC-H-3	WEBS-AX Security Small enclosure 6 in. W x 9 in. H x 4 in. D with DIN rail, tamper switch and key lock. Encloses one Reader module.
NPB-PWR-UN-H	90 - 263 V AC 50/60 Hz Auto sensing Power Supply Module, DIN Rail Mountable 15 VDC Output.

### Auxiliary Power Supplies by Honeywell Power Products



These access control power supplies/chargers will convert 115VAC/60Hz into power limited field-selectable continuous power output. These power supplies are UL listed for access control (UL294), fire alarm (UL1481) and burglar alarm installations (UL603), and conform to NEC requirements. LED diagnostics speed troubleshooting and fused disconnects make servicing easier. Relay outputs provided for remote monitoring of AC Power fail and Battery fail. All supplies are field configurable for 12 or 24 VDC output. Dimensions: 33 cm H x 34.3 cm W x 8.3 cm D (13 in. H x 13.5 in. W x 3.25 in. D).

Product Number	Output Current	Protected Outputs
HP300ULX	2.5 A	1
HP300ULPD4CB	2.5 A	4
HP400ULX	4.0 A	1
HP400ULPD4CB	4.0	4
HP600ULX	6.0	1
HP600ULPD16CB	6.0	16

### Backup Battery



Sealed Lead-Acid 7 AH backup battery. Use these batteries to provide backup power for the WEBS-AX Security controller and auxiliary power supplies

Product Number	Description
712BNP	12V 7AH Battery

## WEB 403 R2 Controller



**Dimensions, Approximate:** 28 cm wide x 36 cm high x 6 cm deep  
(11 in. wide x 14 in. high x 2 1/2 in. deep)

**Application:** Controller

**Building Management Interface:** WEBs

**Voltage:** 25 VA max

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 120 Vac

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

The WC2003B WEB-403 bundles WEBs software capability in a hardware platform that can be installed in typical building control environments. Each WEB-403 connects to a system field bus and provides real-time control functions as constant streams of data from individual systems are instantaneously transformed to a common object model. The products provide a fully distributed system when multiple units are networked together, which provides unsurpassed scalability and reliability. In this configuration, WEBs can be used to network controllers and manage enterprise-level control functions. The appropriate model is determined by connectivity and computing power requirements.

- Embedded RISC Microprocessor platform.
- One LON® FTT10A port for LON® device integration.
- Direct, on-board I/O with six universal inputs, and 4 digital relay outputs.
- One RS-485 port for connection to open and proprietary protocol devices.
- One RS-232 port for Integration or support of an optional internal modem.
- Integral Web User Interface services to support many simultaneous users over the intranet or Internet via a standard web browser.
- The WC2003B1022 can integrate up to 27 LONWORKS® devices.
- The WC2003B1048 can integrate up to 120 LONWORKS® devices.

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	I/O Count	Used With	Comments	Includes
WC2003B1022	4 DO relays with LED indicators, 6 UI	WEBs System	Includes Web User Interface, license restricted to 27 node max.	One 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector
WC2003B1048	4 DO relays with LED indicators, 6 UI	WEBs System	Includes Web User Interface, 120 connected device (node) limit	One 10/100 MB Ethernet port - RJ-45 connection, One RJ-45 connector for RS-232 port, One RS-485 port, One LonWorks port - FTT-10 with Weidmuller connector

## WEB 403 R2 Drivers

**Building Management Interface:** WEBs

Product Number	Application	Description	Used With
WC2003B1055	Controller	Option to upgrade existing WEB-403 to provide unrestricted connected device limit.	WEBs System

## WEB-NXS R2 Controller

**Dimensions, Approximate:** 172 mm wide x 192 mm high x 256 mm deep (6 13/16 in. wide x 7 9/16 in. high x 10 1/16 in. deep)

**Application:** Controller

**Building Management Interface:** WEBs R2

**Operating System:** Embedded version of Microsoft Windows™ XP, Sun Hotspot VM, Java Application Control Engine with Niagara R2

**Voltage:** 100 Vac - 240 Vac

**Frequency:** 47 to 63 Hz

**Power Input:** 2A Max/115V and 1A Max/230V

**Operating Temperature Range:** 0 C to 40 C (32 F to 104 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Comments:** Construction: Heavy-duty steel chassis

**Used With:** WEBs R2 Platform

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Network Communications	System Requirements	Includes
WEB-NXS-R2	NXS controller with 40 Gb hard drive and Niagara Release 2 (R2) software, embedded Windows SP and LON over twisted pair.	One LON FTT10 A port (78 KBps)One RS-485 Port, electrically isolated; One high-speed RS-232 serial port; DB-9 connector; One 10/100-mbit Ethernet port - RJ 45 connection	Real-time clock with lithium battery backup1 Gb Flash drive (W-NXS-AX-FL) or 40 Gb hard drive (W-NXS-AX-HD and WEB-NXS-R2)512 MB RAM; High Speed Intel Celeron CPU @ 650 MHz	512 MB RAM, 10/100 MB Ethernet Port, (1) RS-232 Ports (1) RS-485 Port, (1) LONWorks port and driver, BACnet and oBix drivers, 40 GB Hard Drive

# WEBs R2 System

## WEB 545 R2 Controller



Honeywell WEBs® is a product suite developed on the Niagara Framework® that provides an end-to-end building automation solution. Users can seamlessly integrate LONWORKS®, BACnet®, Modbus®, OPC, and other standard protocols with legacy systems to provide a unified real-time controls network. The suite includes a browser-based graphical user interface allowing users to view and manipulate underlying systems without the need for dedicated workstations or client software.

- Embedded RISC Microprocessor platform.
- One LON® FTT10A port for LON® device integration.
- Four RS-485 ports (electrically isolated) for connection to open and proprietary protocol devices.
- Two RS-232 port for Integration or support of an optional internal modem.

**Dimensions, Approximate:** 28 cm wide x 36 cm high x 6 cm deep  
(11 in. wide x 14 in. high x 2 1/2 in. deep)

**Application:** Controller

**Building Management Interface:** WEBs

**Voltage:** 25 VA max

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 120 Vac

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, C-UL listed

Product Number	Used With	Comments	Includes
WC2003A2005	WEBs System	—	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10
WC2003B2004	WEBs System	Includes Web User Interface software	One 10/100 MB Ethernet port - RJ-45 connection, two RJ-45 connectors for RS-232 port, four RS-485 ports, one LonWorks port - FTT-10

## WEB 545 R2 Drivers

**Building Management Interface:** WEBs

Product Number	Application	Description	Used With
WEB-5-UP-UI	Software-Driver	WEB User Interface for WEB-545 Controller	WEB-545

## WEBs R2 Platform - Drivers for Controllers

**Application :** Software-Driver

**Building Management Interface:** WEBs R2

Product Number	Description	Used With
32005192-004	DDE Driver for WEB controller	WEBs R2 Platform
32005192-006	Driver for Modbus TCP	WEBs R2 Platform
32005192-007	Driver for Modbus Server (WEB NP only).	WEBs R2 Platform
32005192-016	Driver for MSTP BACnet communications via RS-485 port - supports max of 31 BACnet MSTP devices. Note: 27 max. device limit on WEB 403.	WEBs R2 Platform
DRV-A256	Driver for Andover AC-8 and AC-256	WEBs R2 Platform
DRV-AINF	Driver for Andover Infinity	WEBs R2 Platform
DRV-APUP	Driver for American Automatrix	WEBs R2 Platform
DRV-CSD	Configurable Serial Driver	WEBs R2 Platform
DRV-MCQ	Driver for McQuay Open Protocol	WEBs R2 Platform
DRV-NOVUS	Driver for Novus Door Access System	WEBs R2 Platform
DRV-NOVUS-DOOR	Support for each additional Novus Door	WEBs R2 Platform
DRV-SNMP	SNMP device driver	WEBs R2 Platform
DRV-SOL	Driver for Solidyne building controller	WEBs R2 Platform
DRV-TCS	Driver for TCS-Basys	WEBs R2 Platform
DRV-TLC	Driver for GE TLC Lighting Panel	WEBs R2 Platform

# WEBs R2 System

Product Number	Description	Used With
WEB-U	Revision Upgrade for WEBs-R2 Controller	WEBs R2 Platform
ZW2002A1009	Modbus Driver for WEB controller	WEBs R2 Platform

## WEBs R2 Platform - Software

Application: Software

Building Management Interface: WEBs R2

Product Number	Description
ZW2001A1001	Additional copies of WEBPro Software - per copy

## WEBs R2 Platform - Supervisor Software

Building Management Interface: WEBs R2

Product Number	Application	Description
ZW2000A1003	Software	WEBStation Software WS-1 and first copy of WEBPro Software: for a single JACE
ZW2000B1002	Software-Driver	WEBStation Software; additional node
ZW2000C1001	Software	WEBStation Software and 20 pack of node software keys.
ZW2000D1000	Software	WEBStation Software and 50 pack of node software keys.
ZW2000E1009	Software	WEBStation Software and 100 pack of node software keys.
ZW2000F1008	Software	Master WEBStation Software for monitoring multiple WEB Supervisors.
ZW2000G1007	Software-Driver	N additional Mast WEBStation Software licenses
ZW2003A1007	Software-Driver	BACnet Supervisor, 500 additional point license block.
ZW2003A1023	Software	BACnet Supervisor base software. Includes license for 500 BACnet points.

## WEBs R2 Platform - Drivers for Supervisors

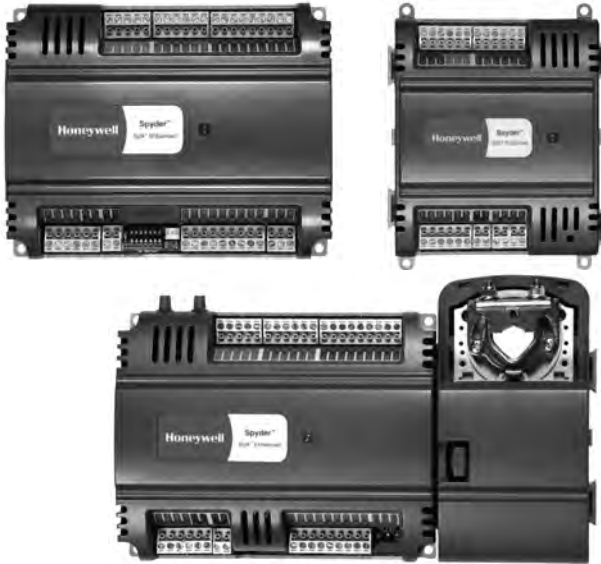
Application : Software-Driver

Building Management Interface: WEBs R2

Product Number	Description	Used With
32005192-011	Service to monitor and manage alarms from multiple Niagara Systems through a single client interface.	WEBs R2 Platform
32005192-012	License for an additional client for the WEBs R2 Alarm Service.	WEBs R2 Platform
32005192-015	Proteus Alarm Service for Eagle Maintenance Management Software. Runs on any WEBs R2 Supervisor.	WEBs R2 Platform
32005192-017	SQL Driver for Web Supervisor, OPC Supervisor or BACnet Supervisor. Does not include MS SQL Server Software.	WEBs R2 Platform
32005192-021	Tenant Billing Service. Runs on any Web Supervisor.	WEBs R2 Platform
WS-MSDE	MSDE Driver for WEBStation, OPC Supervisor or BACnet Supervisor	WEBs R2 Platform
WS-MTCP-500	Modbus 500 Point Addition	WEBs R2 Platform
WS-OPC-500	OPC 500 Point Addition	WEBs R2 Platform
WS-ORCL	Oracle Driver	WEBs R2 Platform
WS-OSD	Open System Driver	WEBs R2 Platform
WS-SNMP-500	SNMP 500 Point Addition	WEBs R2 Platform
ZW2003A1015	BACnet Supervisor node license. Enables a WEB to be connected to a BACnet Supervisor. One required per WEB.	—

# Spyder Controllers

## Spyder Programmable Controllers



The Spyder Family of controllers are for use in VAV (Variable Air Volume) and Unitary HVAC control applications. Each controller communicates via either LONWORKS® or BACnet MS/TP network communications. Each controller provides flexible, universal inputs (UI) for external sensors, digital inputs (DI), and a combination of analog outputs (AO) and digital Triac outputs (DO). The Sylk Bus is included in each controller which enables connection to other Sylk enabled devices. These controllers provide many options and advanced system features that allow state-of-the-art commercial building control. Each controller is programmable and configurable using the NIAGARA AX FRAMEWORK® software.

**Dimensions, Approximate:** 138.4 mm high x 174 mm wide x 57.4 mm deep (5.45 in. high x 6.85 in. wide x 2.26 in. deep)

**Application Size:** Small to Large

**Commissioning Software:** WEBs AX

**Voltage:** 24 Vac with a valid range of 20 to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Setpoint Temperature Range:** Programmable

**Shipping Temperature Range:** -40 C to 65.5 C (-40 F to 150 F)

**Compatible with:** WEBs AX

**Comments:** Onboard 20 VDC power supply

**Approvals:**

**Canadian Standards Association:** Certified

**CE:** Approved

**Federal Communications Commission:** FCC Part 15, Subpart B, Class B

**Underwriters Laboratories, Inc.** UL 916

**Accessories:**

**TR70** Zio LCD Wall Module (Temperature)

**TR70-H** Zio LCD Wall Module (Temperature & Humidity)

Product Number	Description	Network Communications	I/O Count	Power Consumption	Output Type	Operating Temperature Range		Includes
						(C)	(F)	
PUB6438S	Spyder Programmable Unitary Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUB6438S-ILC	Spyder ILC Programmable Unitary Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUL1012S	Spyder Programmable Unitary Controller	LonWorks	1 UI, 0 DI, 1 AO, 2 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUL1012S-ILC	Spyder ILC Programmable Unitary Controller	LonWorks	1 UI, 0 DI, 1 AO, 2 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUL4024S	Spyder Programmable Unitary Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUL4024S-ILC	Spyder ILC Programmable Unitary Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUL6438S	Spyder Programmable Unitary Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PUL6438S-ILC	Spyder ILC Programmable Unitary Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	-40 C to 65.5 C	-40 F to 150 F	—
PVB6436AS	Spyder Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVB6436AS-ILC	Spyder ILC Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVB6438NS	Spyder Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Onboard Pressure Sensor
PVB6438NS-ILC	Spyder ILC Programmable VAV Controller	BACnet MS/TP	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Onboard Pressure Sensor
PVL0000AS	Spyder Programmable VAV Controller	LonWorks	0 UI, 0 DI, 0 AO, 0 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor

# Spyder Controllers

Product Number	Description	Network Communications	I/O Count	Power Consumption	Output Type	Operating Temperature Range		Includes
						(C)	(F)	
PVL0000AS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	0 UI, 0 DI, 0 AO, 0 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVL4022AS	Spyder Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 2 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVL4022AS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 2 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVL4024NS	Spyder Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Onboard Pressure Sensor
PVL4024NS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	4 UI, 0 DI, 2 AO, 4 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Onboard Pressure Sensor
PVL6436AS	Spyder Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVL6436AS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 6 DO	9 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Integrated Actuator & Pressure Sensor
PVL6438NS	Spyder Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Onboard Pressure Sensor
PVL6438NS-ILC	Spyder ILC Programmable VAV Controller	LonWorks	6 UI, 4 DI, 3 AO, 8 DO	5 VA	Pulse Width Modulation, Floating, Staged On/Off	0 C to 50 C	32 F to 122 F	Onboard Pressure Sensor

## Spyder Accessories

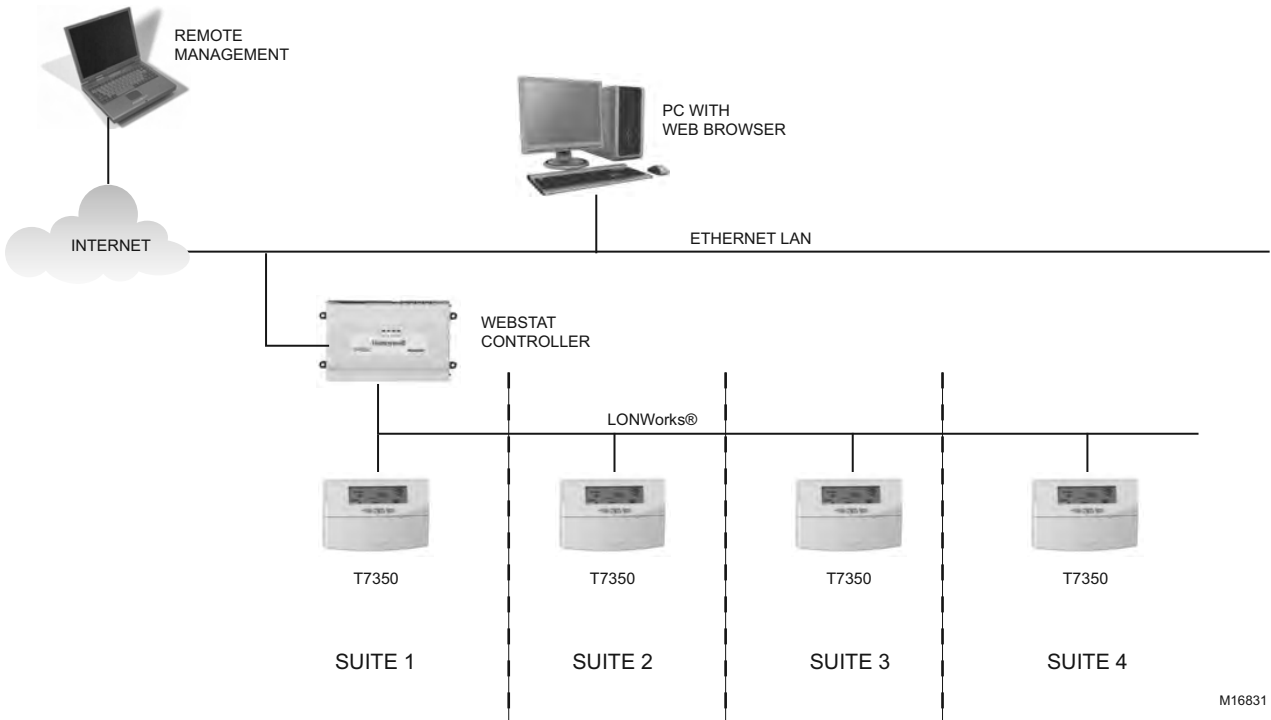
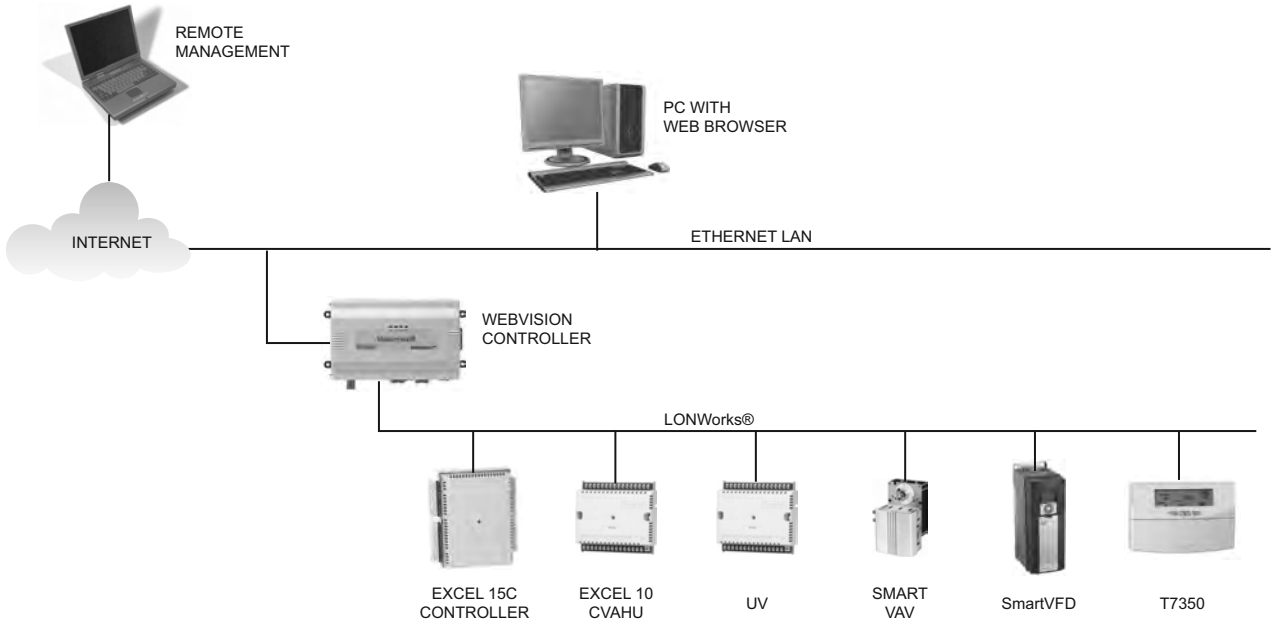


### Accessories for Spyder Controllers

**Dimensions, Approximate:** 183 mm high x 190 mm wide x 58 mm deep (7.20 in. high x 7.48 in. wide x 2.30 in. deep)

Product Number	Description	Used With
WB10707	Spyder Micro Wiring Box (must be ordered in multiple of 10)	Spyder Micro

# Building Automation Appliances



M16831



# Building Automation Appliances

## WebStat Controller



WebStat allows you to step up from standalone thermostat control to the automated T7350 communicating thermostat platform without incurring any excessive direct digital control (DDC) cost or complexity. Automation features include web control, alarming, trending, scheduling, network accessibility, and floor plans. Operational savings are enabled by remote monitoring, alarming, floor plan visuals and thermostat assignment privileges for tenants, facility managers and contractors. WebStat keeps control simple by allowing Internet accessibility and flexibility for assigning user privileges.

- Remote Monitoring
- Remote Programming
- Up to 20 T7350H Thermostats
- Plug-and-Play Setup
- Universal Programming, Commissioning and Graphics Tool
- Alarm Email Notification
- Trending
- Thermostat Self-Discovery
- Wiring Diagram Generation Tool

**Dimensions, Approximate:** 16.2 cm wide x 10.5 cm high x 6.4 cm deep (6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep)

**Application:** Controller

**Application Size:** Up to 20 T7350H Thermostats with free software upgrade

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Network Communications	Commissioning Software	Used With	Compatible with	Includes
W7350A1000	WebStat Controller	LonWorks	WebStat	LonWorks bus	T7350H Communicating Thermostats	Lon Card and Power Supply

## WebVision Controller



WebVision is a low cost building manager with remote monitoring and programming that allows complete HVAC system management from a single interface. It is a step-up from WebStat to extend the scope beyond automated T7350 communicating thermostats to support HVAC zone and unitary controllers. It also adds several new features such as Demand Limit Control (DLC) for energy savings. Without incurring any excessive direct digital control (DDC) cost or complexity, WebVision offers operational savings by Internet accessibility, remote monitoring, alarming, and device assignment privileges for tenants, facility managers and contractors.

- Web-based monitoring, control, commissioning and programming of up to 120 LON devices
- Easy installation (plug-and-play setup) of embedded software
- Single universal tool for device configuration and customization of graphics
- Alarms, Schedules and Trends to completely manage building automation system
- Demand Limit Control (DLC) and VAV Balancing
- Different user profiles - Contractor, Facility Manager and Tenant to give customized access

**Dimensions, Approximate:** 16.2 cm wide x 10.5 cm high x 6.4 cm deep (6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep)

**Application:** Building Automation Appliance; Controller

**Application Size:** Up to 120 LON devices, including EXCEL 10s, EXCEL 15C, T7350, and VFDs

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

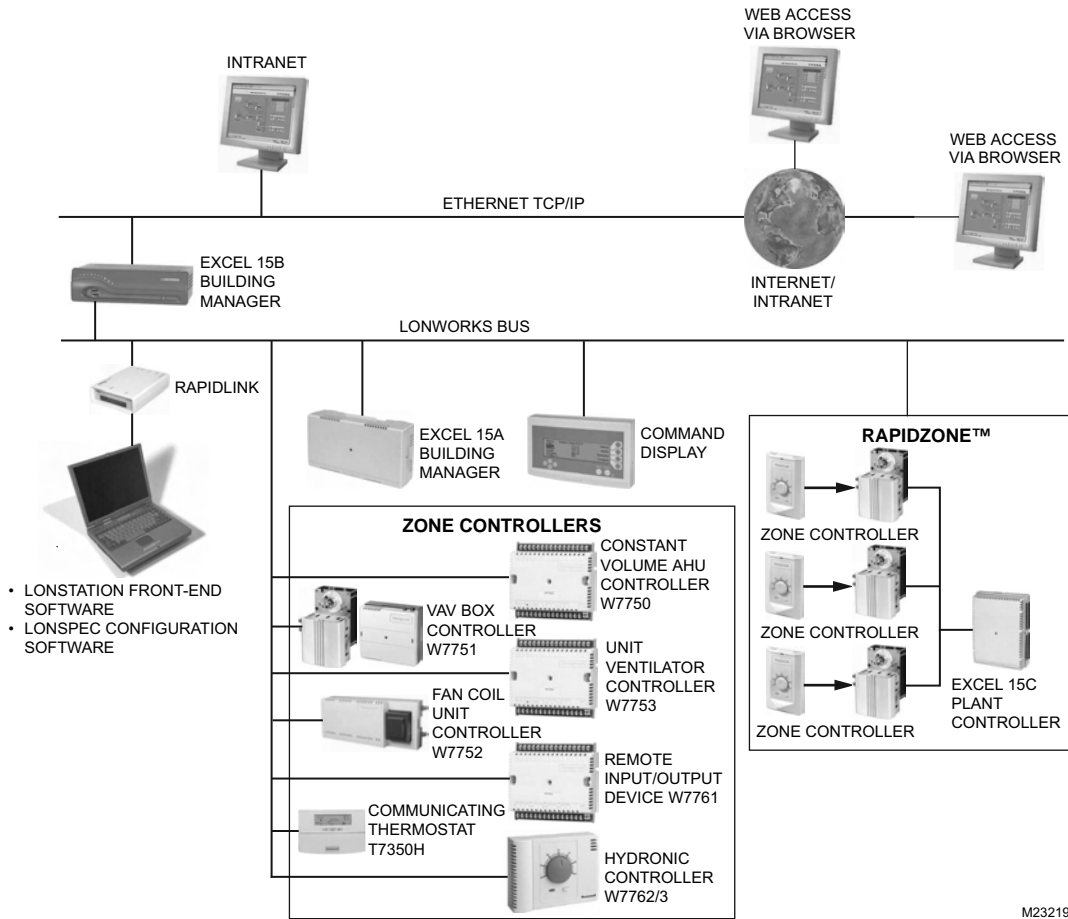
**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, cUL listed

Product Number	Description	Network Communications	Commissioning Software	Used With	Compatible with	Includes
WWS-VL1A1000	WebVision Controller	LonWorks	WebVision	LonWorks bus	Excel 10s; Excel 15C; T7350H Communicating Thermostats;	Pre-installed LON card and Power Supply

# Light Commercial Building Systems

## LIGHT COMMERCIAL BUILDING SYSTEMS ARCHITECTURE



M23219

## LonSpec Configuration Software



Excel LONSPEC is a windows based software application for the configuration, commissioning, check out, and monitoring of the Light Commercial Building Solution (LCBS). The LCBS includes the Excel 15A Building Manager, Excel 15C Plant Controller, Excel 10 Constant Volume Air Handling Unit (CVAHU), Excel 10 Variable Volume Air Handling Unit (VAV), Remote Input/Output (RIO) device, and Unit Vent (UV), Excel 15 Command Display (CD), the T7300F/ Q7300H Series 2000 Commercial Thermostats with Communicating Subbases, and T7350H Communication Thermostat, Q7790A

### Wireless LonWorks® Receiver with T7790C Wireless Wall Module and Honeywell Variable Frequency Drive.

- Easy-to-use drag-and-drop setup of LONWORKS® Networks and devices.
- Excel 10 application-specific controllers come pre-configured to the most common settings, yet allow quick modifications of parameters for your application.
- Easy and intuitive configuration of entire control loops.
- No line-by-line programming needed.
- Automatic and customizable data sharing between controllers on a network.
- On-line operation with monitoring and diagnostic and manual functions.
- Convenient right-click floating menus for quick access to LonSpec functions.
- On-line help includes a Quick Start tutorial for system startup.
- Quickly replicates multiple copies of controllers for repetitive applications.
- Remote access allows monitoring and diagnosis of system problems without the inconvenience and expense of service calls.
- Automatic discovery of nodes on a network reduces engineering time.

**Building Management Interface:** LonWorks Bus

**Application:** Software

**Network Communications:** LonWorks Bus

Product Number	Description	System Requirements	Used With	Comments
ZL7760A1020	LonSpec - Software 5.1.0	128 MB RAM, 100 MB disk drive, 500 MHz microprocessor, Microsoft Windows 2000 or XP	T7350H Thermostat, Excel 10 family of controllers, Excel 15 family of controllers	Excel LonSpec

## LonStation Software



### LONSTATION. Software is a Windows® based application / PC workstation used for monitoring and managing the Light Commercial Building Solution (LCBS) controllers.

- Easy-to-use drag and drop setup of LonWorks networks and devices.
- Configuration, monitoring and binding of LCBS devices.
- Familiar Windows platform user interface Training available through the Honeywell Authorized Trainer Program.

**Application:** Software

**Building Management Interface:** LonStation

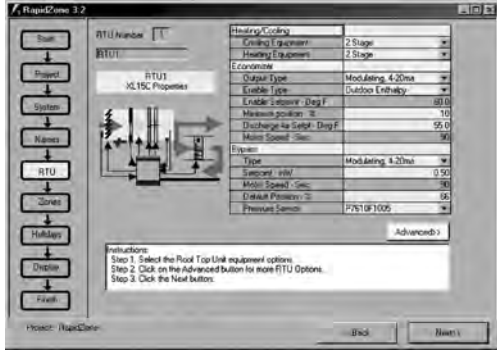
**Network Communications:** LonWorks Bus

**Comments:** Excel LonStation

Product Number	Description	Commissioning Software	Comments
ZL7762A1026	LonStation - Software 5.1.0	LonSpec	Excel LonStation

# Light Commercial Building Systems

## RapidZone Software



The RapidZone Solution configures constant volume single zone HVAC equipment and a series of dampers to maintain the desired temperature for up to 18 separate zones per roof top unit (RTU). Each project can have up to 50 RTU subsystems. Each zone is capable of having an adjustable setpoint, a programmable time-of-day schedule for each day of the week, and an independent unoccupied override input. The system satisfies the space temperature setpoints by first reading the space temperature

deviation from setpoint for each zone, then energizing heating or cooling in the HVAC unit and controlling the position of a supply damper ducted to each zone. Individual zone dampers modulate open and closed based on the zone temperature versus setpoint and the temperature of the RTU discharge air (heating or cooling).

- The fastest way to a commercial zoning system.
- Configure and commission an average multiple Rooftop unit job in less than 60 minutes.
- Ease of use allows a Controls “Novice” to successfully configure a commercial zoning system.
- Produces customized wiring diagrams that clearly define the wiring of every controller input and output.
- This reduces installation mistakes in the field and improves ease of future trouble-shooting.
- Flexibility to configure up to 10 different Rooftop systems with up to 18 zones per Rooftop unit, and up to 40 single-zone controllers.
- Roll over help text aids users in the configuration process.
- Ability to replicate similar Rooftop systems and/or Zones simplifies configuration process.
- Gives a complete materials checklist after the configuration process is completed.

**Application:** Software  
**Building Management Interface:** RapidZone  
**Network Communications:** LonWorks Bus

Product Number	Description	System Requirements
ZL7751A1029	RapidZone 3.0	16 MB RAM, 40 MB disk drive, 90MHz Pentium microprocessor, Microsoft Windows 2000 or XP

## Q7770 RapidLink



The Excel 10 Q7770A RapidLink device is a complete network interface unit for a FTT LonWorks® Bus network. RapidLink is equipped with an on-board modem that eliminates the requirement

for an on-site modem for remote connections. The Q7770A uses 9 to 24 Vac or Vdc, 9 Vdc power supply using removable screw terminals or a 9 Vdc barrel connector to perform network operations. A connector cable attaches the Q7770A to the LonWorks-Bus port on Excel 10 controllers or wall modules.

- High performance communications protocol provides for faster communication of data to your LonWorks network.
- Fixed 115,200 bits per second (bps) serial bit rate with auto-baud detection.
- Uses LonTalk® LonWorks® network protocol.
- 9 to 24 Vac or Vdc power input using removable screw terminals or a 9 Vdc barrel connector.
- Color-coded, removable screw terminals for network and power wiring.

**Building Management Interface:** LonWorks Bus  
**Network Communications:** LonWorks Bus

Product Number	Description	Application	Commissioning Software	Operating Temperature Range		Comments
				(C)	(F)	
Q7770A1001	RapidLink Dial Up Network Adapter	Interface	—	0 C to 38 C	32 F to 100 F	Transceiver Type: Transformer isolated, differential Manchester transceiver Display Two service LEDs indicate service request information for each segment; Status LED indicates when network traffic is occurring;
50000591-001	RapidLink Accessory Kit (U.S.)	Accessory or Replacement Part	LCBS	—	—	—

# Light Commercial Building Systems

## W7760A Excel 15 Controller



The Excel 15 W7760A Building Manager is a LonMark® compliant device that can be used to monitor and control HVAC equipment and other miscellaneous loads in a distributed network. The optional lithium battery (not included, purchased locally) allows continuous power so trend logs and alarms can be maintained for up to four continuous years. The W7760A Building Manager

**Dimensions, Approximate:** 156 mm high x 259 mm wide x 82 mm deep (6 5/32 in. high x 10 19/32 in. wide x 3 7/32 in. deep)

**Application:** Heat Pump Systems; Boiler; Chiller; Packaged RTU; Built-up AHU

**Application Size:** 20 Nodes

**Building Management Interface:** LonStation

**Network Communications:** LonWorks Bus

**Commissioning Software:** RapidZone; LonSpec

**Frequency:** 50 Hz; 60 Hz

communicates via the 78 kilobaud Echelon® LonWorks® Network, using a free topology transceiver (FTT).

- Programmable control of mechanical equipment and auxiliary points.
- Configurable inputs/outputs are expandable with up to three Excel 10 Remote Input/Output (RIO) devices.
- 6 General Purpose Configurable (PID) Control Loops.
- 6 General Purpose Configurable (Non-Linear) Control Loops.
- 8 Start/Stop Control Loops (max of 6 events per day).
- Easy Programming the LonSpec™ Software. Two piece construction for easy installation.
- Easy access to all I/O points for checkout while operations.
- LonTalk® Network communication protocol.
- LonWorks® Free Topology Transceiver (FFT).
- Adaptive Intelligent Recovery.
- Set-Point reset.
- Remote Equipment Monitoring and Control.
- 8 schedules of five different occupancy states (when used with a W7760A Building Manager).
- Demand Limit Control (from a W7760 Building Manager).

**Power Consumption:** 20 VA (with no digital outputs), 100 VA (with digital outputs)

**Operating Temperature Range:** 0 C to 45 C (32 F to 113 F)

**Shipping Temperature Range:** -20 C to +50 C (-4 F to +158 F)

**Approvals:**

**Federal Communications Commission:** FCC Listed Part 15 Subpart J. Class A EC Conforms to European Standards

**Underwriters Laboratories, Inc.** UL and cUL listed UL916 as a Class 2 device

Product Number	Description	I/O Count	Output Type	Used With	Comments
W7760A2011	Excel 15 building manager	4 DI, 8 AI, 8 DO, 2 AO	Analog/Modulating, Staged On/Off, Floating, Pulse Width Modulation	S7760A Command Display, LonWorks bus	Can also be used to provide time-keeping abilities to the Excel 15C

## W7760B Excel 15 Controller



The Excel 15 W7760B Building Manager is a Light Commercial Building Solution (LCBS) operator interface (network server) and LONWORKS® Bus supervisory device. As an operator interface, it connects the user to the Internet, local area network (LAN), or wide area network (WAN) providing multi-user access to web pages for Building Manager configuration and LCBS monitoring and command functions. As a building manager, it uses LONWORKS® to provide network wide alarm handling, scheduling, and trend logging for application specific XL10 controllers and Excel 15 W7760C Plant controllers. The W7760B is a network server/appliance equipped with a hard drive. The use of a hard drive greatly expands alarm handling, scheduling, and logging capabilities when compared to EPROM/RAM based control

**Dimensions, Approximate:** 156 mm high x 259 mm wide x 82 mm deep (6 5/32 in. high x 10 19/32 in. wide x 3 7/32 in. deep)

**Application:** Heat Pump Systems; Boiler; Chiller; Packaged RTU; Built-up AHU

**Application Size:** 120 nodes

**Building Management Interface:** Excel 15B

**Network Communications:** LonWorks Bus

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 20 VA

devices. The W7760B is configured using built-in utilities. It queries the LONWORKS® network to determine the devices installed and self-configures display pages for each supported device.

- Internet Network appliance with hard drive.
- Supports up to 120 Excel 10 and Excel 15 W7760C controllers.
- Self-discovery of devices (nodes) on the LONWORKS® network.
- Automatically creates a Device Status List (DSL).
- Automatically creates display pages for each supported Excel 10 and Excel 15 W7760C controller.
- Automatically configures Trends Log for supported Excel 10 and Excel 15 W7760C controller.
- Up to 100 user configured Trend Logs.
- Scheduling of Excel 10 devices and Excel 15 W7760C objects.
- Reports and logs alarm data.
- E-mails reports of alarm data.
- View Excel 10 and Excel 15 W7760C data, modify setpoints and command Occupied bypass.
- Real Time Clock (RTC) for time stamping with time synchronization.
- Multi-user access.

**Operating Temperature Range:** 5 C to 35 C (41 F to 95 F)

**Operating Humidity Range (% RH):** 10% to 85% noncondensing

**Shipping Temperature Range:** -20 C to +65 C (-4 F to +149 F)

**Approvals:**

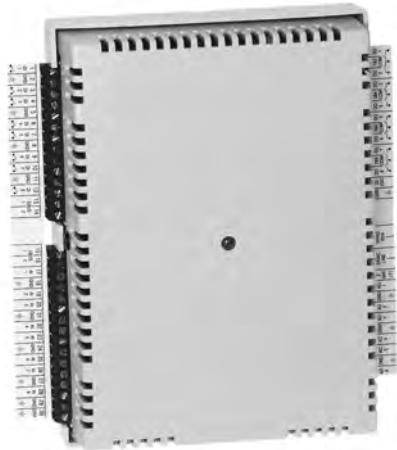
**Federal Communications Commission:** FCC Listed Part 15 Subpart J. Class A EC Conforms to European Standards

**Underwriters Laboratories, Inc.** UL and cUL listed UL916 as a Class 2 device

Product Number	Description	System Requirements	Output Type	Used With	Comments
W7760B2001	Excel 15 building manager	Internet Explorer 5.5 or higher	Staged On/Off, Graphical Interface, Floating, Pulse Width Modulation, Analog/Modulating	S7760A Command Display, LonWorks bus	Can also be used to provide time-keeping abilities to the Excel 15C

# Light Commercial Building Systems

## W7760C Excel 15 Controller



The Excel 15 W7760C Plant Controller is used to monitor and control HVAC equipment and other miscellaneous loads in a distributed network. The W7760C Plant Controller communicates via the 78 kilobaud LonWorks Network, using a free topology transceiver (FTT).

- Programmable control of mechanical equipment and auxiliary points.
- Configurable inputs/outputs are expandable with up to three Excel 10 Remote Input/Output (RIO) devices.
- Eight digital inputs, eight analog inputs.
- Eight optically isolated digital outputs, six 0-20 mA analog outputs.
- Easy programming with LonSpec software.
- Two-piece construction.
- Easy access to all I/O point for check-out while operational.
- LonTalk Network communication protocol.
- LonWorks Free Topology Transceiver (FTT).

**Dimensions, Approximate:** 191 mm high x 133 mm wide x 49 mm deep (7 1/2 in. high x 5 1/4 in. wide x 1 15/16 in. deep)

**Application:** Heat Pump Systems; Boiler; Chiller; Packaged RTU; Built-up AHU

**Building Management Interface:** LonStation

**Network Communications:** LonWorks Bus

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 18 VA max, with no digital outputs

**Operating Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Shipping Temperature Range:** -20 C to +50 C (-4 F to +122 F)

**Approvals:**

**Federal Communications Commission:** FCC Listed: Part 15 Subpart J, Class A; European Community Mark: Conforms to European Consortium standards

**Underwriters Laboratories, Inc.** UL/cUL Listed: UL916 (E14480)

Product Number	Description	Commissioning Software	I/O Count	Output Type	Used With	Comments
W7760C2017	Excel 15C Plant Manager	RapidZone LonSpec	8 AI, 6 AO, 8 DI, 8 DO	Analog/Modulating, Pulse Width Modulation, Staged On/Off	S7760A Command Display, LonWorks bus	Designed to be used with the Light Commercial building solution. Requires a W7760A be connected to the LonWorks bus in order to have scheduling information

## S7760 Excel 15 Command Display



The S7760A Command Display provides local display of system variables and alarms in a LonWorks® network. The S7760A

**Dimensions, Approximate:** 187 mm wide x 121 mm high x 40 mm deep; Subbase 86 mm wide x 86 mm high (7 3/4 in. wide x 4 3/4 in. high x 1 9/16 deep; Subbase 3 3/8 in. wide x 3 3/8 in. deep)

**Application:** LonWorks network

**Application Size:** Small (<20 I/O Points)

**Building Management Interface:** LonSpec; RapidZone

**Operating Temperature Range:** 0 C to 45 C (32 F to 120 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Command Display also allows the user to modify setpoints, schedules and basic system parameters and acknowledge alarms. Multi-level password protection prevents unauthorized access. Easy navigation between building and room views allow users to easily perform the most common tasks.**

- Attractive wall-mount packaging.
- Backlit LCD display; 8 lines high by 40 characters wide.
- Two-piece construction for easy installation.
- 10-key keypad for menu-item selection.
- Audible beep when keys are pressed.
- Several layers of display screens provide different views: Buildings, Rooms, Schedules and Setpoints.
- Local display allows setpoint and schedule changes and alarm acknowledgment. Password protected with View Only, Bypass, Setpoint and Schedule levels.
- Cost-effective interface to local HVAC system.
- Low-cost LonWorks® communications wiring using a Free Topology Transceiver (FTT).

**Approvals:**

**CE:** CE mark; EN50081-1; EN50082-1

**Federal Communications Commission:** Meets FCC part 15 class B requirements; Listed Part 15 Subpart J. Class A EC Conforms to European Standards

**Approvals, Underwriters Laboratories Inc.** UL and cUL listed UL916 as a Class 2 device

Product Number	Description	Network Communications	Used With
S7760A2031	Excel 15 Command Display	LonWorks Bus	Command Display; Excel 15 Controllers; Excel 10 Controllers

## W7750 Constant Volume Air Handling Unit



The W7750A, B, C are LonMark® compliant Constant Volume Air Handling Unit Controllers used to control single zone and heat pump air handlers.

- High side triac switching (B and C only).
- Freezestat protection for HVAC equipment (B and C only).
- Analog outputs (C only).
- Factory configured via EEPROM with critical user parameter default values.
- Uses LonTalk® network (E-Bus) communications protocol.
- High-speed 78 kilobit communications network.
- Conforms with Echelon® LonMark® HVAC Interoperability standard for Roof Top Unit controllers (profile number 8030).
- Free Topology Transceiver (FTT) network technology is insensitive to polarity, simplifying installation.
- Capable of stand-alone operation and has enhanced features available when using the E-Bus network communications.
- Designed for both staged heating/cooling control and modulating heating/cooling control.
- Uses either Series 60 Floating Control or PWM (W7750B only) providing modulating control for heating/cooling equipment.
- Supports two types of economizer control: modulating control and enable/disable control.
- Provides Proportional Integral Derivative (PID) temperature control.
- Uses an adaptive algorithm (patent pending) that continuously adjusts the discharge air setpoint as needed (W7750B only).
- Motion sensor interface for enhanced energy savings.
- Window sensor input for additional energy savings.

**Dimensions, Approximate:** 143 mm high x 152 mm wide x 54 mm deep (5 5/8 in. high x 6 in. wide x 2 1/8 in. deep)

**Application:** Heat Pump Systems; Packaged RTU

**Application Size:** 3 Heat / 3 Cool

**Network Communications:** LonWorks Bus

**Contact Ratings:** 7.5 A inrush @ 24 Vac; 1.5 A Run @ 24 Vac

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Setpoint Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Used With:** See Application Selection Guide (63-7046)

**Approvals:**

**CE:** CE Mark

**Federal Communications Commission:** FCC Meets FCC part 15

Class B requirements EC Conforms to EN50081-1 (CISPR 22 Class B) and EN50082-1

**Underwriters Laboratories, Inc.** Underwriters Laboratories Inc. UL 916 (E7741) and cUL (E87741)

Product Number	Description	Commissioning Software	I/O Count	Power Consumption	Output Type
W7750A2005	Constant Volume AHU Controller	LNS Plug-in; RapidZone; LonSpec; CARE	6 DI (relay), 3 AI, 3 DI	6 VA	Staged On/Off, Floating, Pulse Width Modulation
W7750B2011	Constant Volume AHU Controller	LNS Plug-in; RapidZone; LonSpec; CARE	6 AI, 5 DI, 8 DO (triac)	12 VA	Staged On/Off, Floating, Pulse Width Modulation
W7750C2001	Constant Volume AHU Controller	LNS Plug-in; RapidZone; LonSpec; CARE	3 AO, 6 AI, 5 DI, 5 DO (triac)	12 VA	Staged On/Off, Floating, Pulse Width Modulation

# Light Commercial Building Systems

## W7751 Variable Air Volume Controllers



W7751B



W7751D, F



W7751H, J

The W7751B,D and F are VAV II Controllers in the Excel 10 family product line. These VAV controllers provide pressure independent or pressure dependent air flow control and series and parallel (induction) fan control using single and dual duct applications. VAV systems generally provide cool air only to the zones. The W7751 controllers provide additional outputs that control VAV box reheat coils. The heaters can be staged electric or modulating hot water. Supply and exhaust pressurization control are provided on a zone basis. W7751H and J Smart VAV Actuator are factory-

**Application:** VAV Terminal Box

**Network Communications:** LonWorks Bus

**Voltage:** 24 Vac with a valid range of 20 to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**Output Type:** Pulse Width Modulation, Floating, Staged On/Off

**Operating Temperature Range:** 0 C to 51.66 C (32 F to 125 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Setpoint Temperature Range:** 7 to 37 C (45 to 99 F)

**integrated VAV Box Controllers with a 90 second ML6161B Direct-Coupled Actuator in the Excel 10 family product line.**

- Uses Echelon® LonWorks® protocol.
- W7751B,D,F use Free Topology Transceiver (FTT) networks and are compliant with VAV device object type number 8010 functional LonMark® profile.
- Energy saving setpoint reset for electrical demand limit control.
- Actuator included with W7751H mounts directly onto VAV box damper shaft and has up to 35 lb. in. torque, 90 degrees stroke, and 90 sec.
- Timing at 60 Hz.
- High speed 78 kilobit communications network.
- Capable of standalone operation, but uses E-Bus network communications.
- Easy user-access to the network communications jack.
- Uses enhanced microbridge-type airflow sensor with dual integral restrictor design.
- Easy user-access to airflow sensor inputs.
- Provides Proportional Integral Derivative (PID) temperature control.
- Designed for pressure independent Variable Air Volume (VAV) control.
- Floating hot water and three-stage electric or modulating hot water heat.
- Provides nonlinear floating algorithm for velocity control loops.
- Individual zone pressurization for supply and exhaust control.
- Factory configured via EEPROM with critical user parameters default values.
- Motion sensor interface for enhanced energy savings.
- Supports Terminal Regulated Air Volume (TRAV) concept.
- Pressurize and depressurize, night purge, and morning warm-up sequences supported.
- Wall module options for sensor, setpoint and bypass.
- Software selectable limits on remote setpoint adjustments.

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Compatible with:** See Application Selection Guide (63-7045)

**Approvals:**

**Canadian Standards Association:** Listed: File number LR95329-3

**Federal Communications Commission:** Meets FCC part 15 Class A requirements

**Underwriters Laboratories, Inc.** File number E87741

Product Number	Description	Commissioning Software	Power Consumption	Comments	Includes
W7751B2010	Excel 10 VAV II Controller Printed Wiring Board	LNS Plug-in; RapidZone LonSpec; CARE	10 VA	Mountable on Snaptrack, has UUKL approval for use on fire systems	—
W7751D2016	Excel 10 VAV II Controller	LNS Plug-in; RapidZone; LonSpec; CARE	10 VA	Internally wired subbase, UUKL approval for use on fire systems	—
W7751F2011	Excel 10 VAV II Controller	LNS Plug-in; RapidZone LonSpec; CARE	10 VA	Externally wired subbase, UUKL approval for use on fire systems	—
W7751H2025	Excel 10 Smart VAV Actuator	LNS Plug-in; RapidZone LonSpec; CARE	6 VA	UUKL approval for use on fire systems	ML6161 Actuator mounted directly on the VAV box
W7751J2004	Excel 10 Smart VAV Actuator	LNS Plug-in; RapidZone LonSpec; CARE	6 VA maximum	Does not have pressure sensor, supports pressure dependent only	ML6161 Actuator mounted directly on the VAV box

## W7751 Variable Air Volume Handling Unit

Product Number	Application	Description	Used With
206168B	XL10	Controller Assembly for W7751F or D, (Bulk pack only, must be purchased in packs of 10)	Excel 10 Controllers



## W7752 Fan Coil Unit Controllers



The W7752 Fan Coil Unit Controllers provide room temperature control for two and four pipe fan coil units with optional electric

**Dimensions, Approximate:** 101 mm high x 257 mm wide x 60 mm deep (4 1/8 in. high x 10 1/8 in. wide x 2 1/2 in. deep)

**Application:** Fan Coil Unit

**Application Size:** 3 Heat / 3 Cool; 2-pipe; 4-pipe

**Network Communications:** LonWorks Bus

**Commissioning Software:** LNS Plug-in; RapidZone; LonSpec; CARE

**Voltage:** 115 Vac (+10%, -15%)

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 30 VA maximum

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

heating coils and can control single, two or three speed fans. Timing and inter-lock features make the W7752 suitable for systems using electric heat and compressors.

- LonMark® Fan Coil Unit HVAC profile #8020.
- Stand-alone operation or on high-speed 78 kilobit Echelon® Bus (E-Bus) network direct connection of thermal actuators, fan switch, electric heat.
- Factory-configured default parameters.
- Wide range of supported valves and actuators.
- Interlocks and time delays to protect equipment.
- Slim design fits into narrow fan coil units.
- Terminations all on one side allow controller to be positioned at back of fan coil unit.
- Integral 115 Vac or 230 Vac transformer.

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Setpoint Temperature Range:** 0 C to 40 C (32 F to 104 F)

**Shipping Temperature Range:** -40 C to +70 C (-40 F to +150 F)

**Used With:** See Application Selection Guide (63-7043)

**Approvals:**

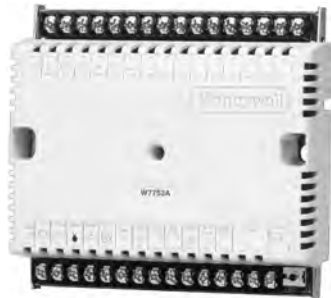
**CE:** CE mark; EN50081-1; EN50082-1

**Federal Communications Commission:** FCC: Meets FCC part 15 class B requirements

Product Number	Description	I/O Count	Output Type	Comments	Includes
W7752D2007	Fan Coil Unit Controllers	3 AI, 1 DI, 1 DO (3 speed fan control), 2 AO (H/C triacs), 1 DO	Staged On/Off, Floating, Pulse Width Modulation	115 Vac power with electric heat relay	250 Vac 10A electric reheat relay and 3 fan speed relays
W7752F2002	Fan Coil Unit Controllers	3 AI, 1 DI, 1 DO (3 speed fan control), 2 AO (H/C triacs), 1 DO	Staged On/Off, Floating, Pulse Width Modulation	115 Vac power with electric heat relay	250 Vac 10A electric reheat relay and 3 fan speed relays
W7752G2000	Fan Coil Unit Controllers	3 AI, 1 DI, 1 DO (3 speed fan control), 2 AO (H/C triacs), 1 DO	Staged On/Off, Floating, Pulse Width Modulation	115 Vac power without electric heat relay	3 fan speed relays

# Light Commercial Building Systems

## W7753 Unit Vent Controllers



**Dimensions, Approximate:** 143 mm high x 152 mm wide x 54 mm deep (5 5/8 in. high x 6 in. wide x 2 1/8 in. deep)

**Application:** Unit Ventilator

**Application Size:** 2 Heat / 2 Cool

**Network Communications:** LonWorks Bus

**Commissioning Software:** LNS Plug-in; RapidZone; Lon Spec; CARE

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 6 VA

**W7753A is a direct digital controller for unit ventilators with staged, floating, or pulse width modulation output using pre programmed heating, cooling, economizer, and ASHRAE cycles I, II, or III algorithms.**

- Uses standard Echelon® LonMark Unit Ventilator functional profile for openness and interoperability with Lon Mark devices.
- Applications include unit ventilators with up to two stages heat/cool; floating heat/cool/economizer, pulse width modulating (PWM) heat/cool/economizer; ASHRAE Cycles I, II, III.
- Two unused digital outputs can be used as free points controlled by the network for lighting, exhaust fan.
- Can be used for indoor air quality control using an external sensor/control and economizer minimum position reset.
- Provides optional energy-saving setpoints for heating/cooling in unoccupied/occupied and standby modes.
- Optional control sequence shutdown via window/door open digital input.
- On-board network jacks for quick commissioning and troubleshooting using the E-Vision configuration tool.
- On-board status LED.
- Free topology transceiver (FTT) for flexible installation.
- UL94-5V flame-retardant construction.

**Setpoint Temperature Range:** 13 C to 29 C (55 F to 85 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Used With:** See Application Selection Guide (63-7043)

**Approvals:**

**Federal Communications Commission:** FCC part 15 Class B requirements

**Underwriters Laboratories, Inc.** UL 916

Product Number	Description	I/O Count	Output Type	Comments
W7753A2002	Unit Ventilator Controller	8 DOs (triac), 2 AI (resistive), 2 AI (voltage), 4 DI	Staged On/Off, Floating, Pulse Width Modulation	One T7770 wall module input

## W7761 Remote Input/Output Device



**Dimensions, Approximate:** 143 mm high x 152 mm wide x 54 mm deep (5 5/8 in. high x 6 in. wide x 2 1/8 in. deep)

**Application:** Remote I/O

**Application Size:** 2 Heat/2 Cool

**Network Communications:** LonWorks Bus

**Voltage:** 24 Vac with a valid range of 20 to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 6 VA maximum

**Operating Temperature Range:** -40 C to +65 C; (-40 F to +150 F)

**The W7761 extends the distribution of input and output devices across an Echelon network.**

- Each input/output is individually controlled from the Zone Manager.
- Uses Echelon LonTalk® communication protocol.
- Free topology transceiver (FTT) for flexible installation.
- On-board network jacks.
- On-board status LED.
- Flame retardant construction (UL94-V5 rated).

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Approvals:**

**Canadian Standards Association:** CSA, TUV for Safety Compliance

**CE:** CE Mark

**Federal Communications Commission:** Listed under FCC Part 15 Level B for EMI compliance

**Underwriters Laboratories, Inc.** Listed 1784

Product Number	Description	Commissioning Software	I/O Count	Output Type	Comments
W7761A2010	Excel 10 Remote IOD	LNS Plug-in; RapidZone; LonSpec; CARE	2 AI (voltage), 4 AI (resistive), 4 DI, 8 DOs (triac)	Staged On/Off, Floating, Pulse Width Modulation	UUKL approval for use on fire systems

# Light Commercial Building Systems

## W7762; W7763 Hydronic Controller



The W7763 Hydronic controllers cover a wide range of control applications including radiators, induction units, fan coil units with manual fan switching, and simple VAV. They are suitable for unit mounting or wall mounting. Controllers operate standalone or as a part of a LonWorks bus network. Has connections for humidity sensor and chilled water temperature sensor. Includes temperature setpoint knob, internal sensor, and bypass button.

- High efficiency, low cost Heat/Cool valve application solution.
- Model with integrated or remote wall module LonWorks Open protocol: flexibility now and for the future.
- LonMark profile #8020.
- Direct connection of thermal actuators.
- Wide range of supported valves and actuators.

**Dimensions, Approximate:** 80 mm high x 110 mm wide x 42 mm deep  
(3 5/32 in. high x 4 11/32 in. wide x 1 21/32 in. deep)

**Application:** Hydronic Controller

**Application Size:** 3 Heat / 3 Cool; 2-pipe; 4-pipe

**Network Communications:** LonWorks Bus

**Voltage:** 24 Vac ± 20%

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 0.5 VA maximum (no load)

**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Setpoint Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Shipping Temperature Range:** -20 C to +70 C (-4 F to +158 F)

**Approvals:**

**Canadian Standards Association:** File No. LR95329-3

**Underwriters Laboratories, Inc.** Component Recognized: File No. SA481

Product Number	Description	Commissioning Software	Output Type	Comments	Includes
W7762B1027	Excel 10 Hydronic Controller	LNS Plug-in; RapidZone; LonSpec; CARE	Multi-stage Electric; Pulse Width Modulation; Floating; Staged On/Off	2 inputs and 2 control outputs	—
W7763C1016	Excel 10 Hydronic Controller	LNS Plug-in; RapidZone; LonSpec; CARE	Floating, Pulse Width Modulation, Staged On/Off, Multi-stage Electric	3 Inputs, 2 Control Outputs	An integral setpoint knob, sensor, bypass button, and LED
W7763C1032	Excel 10 Hydronic Controller	LNS Plug-in; CARE	Floating, Pulse Width Modulation, Staged On/Off, Multi-stage Electric	Relative Setpoint Adjustment	An integral setpoint knob, sensor, bypass button, and LED

## Y7751- W7751F VAV Unit Controller and ML6161B Actuator



The W7751F2003 VAV II Controller is from the Excel 10 family product line. VAV controllers provide pressure independent or pressure dependent air flow control and series and parallel (induction) fan control using single and dual applications. The W7751F controllers provide additional outputs that control VAV box reheat coils. The ML6161B2024 is used to control dampers in VAV terminal units and for mounting on ball valves.

- Uses Echelon LonWorks Protocol.
- High Speed 78 kilobit communications network.
- Easy user-access to the network communications jack.
- Easy user-access to the airflow sensor inputs.
- Provides Proportional Integral Derivative (PID) temperature control.
- Designed for pressure independent Variable Air Volume (VAV) control.
- Floating hot water and three-stage electric or modulating hot water heat.
- Provides nonlinear floating algorithm for velocity control loops.
- Factory configured via EEPROM with critical user parameters default values.
- ML6161B2024 is a Direct Couple, General Purpose, Non-Spring Return Actuator.
- Rated at 35 lb-in. torque with a 90 degree stroke.

**Building Management Interface:** EBI; SymmetrE; ACSELON

Product Number	Application	Description	Network Communications	Commissioning Software	Includes
Y7751F2001	VAV Controller with FFT base with enclosure and outward facing terminal strips	Package containing a W7751F VAV Controller and a ML6161 Actuator	LonWorks Bus	LNS Plug-in; RapidZone; LonSpec; CARE	One W7751F 2003 and one ML6161B 2024

# Legacy Building Systems

## Q667 Switching Subbase



**Provide manual switching for T7067 Thermostat/Transmitters.**

- Mount directly on wall or on vertical 2 x 4 in. outlet box.
- T7067 mounts on subbase with mounting screws which also complete electrical connections between thermostat/transmitter and subbase.
- When fan switch is set to AUTO, the fan is intermittent in HEAT and continuous in system AUTO or COOL.

**Dimensions, Approximate:** 121 mm high x 100 mm wide x 24 mm deep (4 3/4 in. high x 3 15/16 in. wide x 15/16 in. deep)

**Power Consumption:** 1A at 24 Vac Full Load

Product Number	Application	Switch Positions		Comments	Used With
		System	Fan		
Q667A1005	Heat Pump Systems, Split Systems	COOL/AUTO/HEAT/OFF	AUTO/ON	Number of stages of heating and cooling depends on the chosen Logic Panel	T7067
Q667B1004	Heat Pump Systems, Split Systems	COOL/AUTO/HEAT/OFF	AUTO/ON	Number of stages of heating and cooling depends on the chosen Logic Panel	T7067
Q667B1020	Heat Pump Systems, Split Systems	COOL/AUTO/HEAT/OFF	AUTO/ON	Provides intermittent fan operation in cooling when used with W974B	T7067

## T7067 Thermostat and Transmitter



**T7067A Thermostat and T7067B Transmitter control space temperature when used with W973 Logic Panel.**

- Separate heat and cool adjustable set point levers provide adjustable deadband from 3 F to 30 F (2 C to 17 C).
- Separate 1-16 Vdc voltage ramps provide independent heating and cooling signals to W973 Single Zone Logic Panel.
- Two light-emitting diodes (LEDs) under T7067 cover for system checkout.
- C7046A Discharge Air Sensor provides temperature anticipation.
- One T7067 can control up to 6 W973 panels in parallel.
- Mount on standard 2 x 4 in. vertical outlet box or on a non-conductive flat surface.
- All models include wiring plate and locking cover.

**Dimensions, Approximate:** 118 mm high x 71 mm wide x 32 mm deep (4 5/8 in. high x 2 13/16 in. wide x 1 1/4 in. deep)

**Application:** Module

**Voltage:** 20 Vdc from W973 panel

**Setpoint Temperature Range:** 13 C to 29 C (55 F to 85 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Compatible with:** Q667 subbase, W973 Logic Panel

**Approvals:**

**ASHRAE Guidelines:** Meets ASHRAE 90-75

**Department of Defense Guidelines:** Meets

**Accessories:**

**S963D1001** 2 Potentiometers that simulate the ramp signals of a T7067 Thermostat

Product Number	Application Size	Control System	Output Type	Description	Comments
T7067A1008	Depends on Logic Panel (W973)	W973 single zone	Voltage Ramp	Solid State Thermostat designed to be used with the W973 logic panel to control the operation of single zone packaged air conditioning equipment.	Integral temperature sensor without thermometer; Number of stages of heating and cooling depends on the chosen Logic Panel
T7067B1006	Depends on Logic Panel (W973)	W973 single zone	Voltage Ramp	Transmitter designed for use with a T7047C1025 or T7022A1010 remote temperature sensor	Must order T7047C,G remote temperature sensor or T7022A remote duct temperature sensor separately

## T7080 Electronic Dual Setpoint Thermostat



Used in W7080 control system to provide modulating space temperature control.

- Separate heat and cool adjustable set point levers provide adjustable deadband from 3 F to 30 F (2 C to 17 C).
- Single 2 to 22 Vdc voltage ramp provides heating/cooling signal to W7080 Load Analyzer.
- Outputs constant 12 Vdc when sensed temperature is within deadband range.
- Ramp output decreases on call for heat; increases on call for cooling.
- C7100B or C7046B Air Temperature Sensors are used to provide heating/cooling anticipation (one required for each zone thermostat) and can also be optionally used as remote return air temperature sensors with the T7080B transmitter.
- Operates on 24 Vdc supplied by W7080A Load Analyzer.
- Mounts on standard 2 x 4 in. outlet box or on nonconductive flat surface.

**Dimensions, Approximate:** 118 mm high x 71 mm wide x 32 mm deep (4 5/8 in. high x 2 13/16 in. wide x 1 1/4 in. deep)

**Voltage:** 24 Vdc (13 C to 29 C)

**Setpoint Temperature Range:** 13 C to 29 C (55 F to 85 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Approvals:**

**ASHRAE Guidelines:** Meets ASHRAE 90-75

**Department of Defense Guidelines:** Meets

Product Number	Application	Application Size	Control System	Output Type	Description
T7080A1019	Split System; Furnace; Packaged RTU	3 Heat / 3 Cool	W7080 control system	Voltage Ramp	Electronic Dual Setpoint Thermostat, 3 Heat/3 Cool
T7080B1017	Split System; Heat Pump Systems; Furnace; Packaged RTU	3 Heat / 3 Cool	W7080 control system	Voltage Ramp	Electronic Dual Setpoint Thermostat, 3 Heat/3 Cool

## W7080 Load Analyzer



Controls heating, cooling and space demand oriented economizer operation in the Honeywell Electronic Dual Set point Multizone control system.

- Controls 3 stages of on/off heating, modulated heating, modulated economizer, 3 stages of on/off cooling and modulated cooling.
- Responds to highest heating and cooling demand signal from up to 12 T7080 Zone Thermostat/Transmitters.
- Analyzer is short-circuit protected source of 24 Vdc power for zone thermostat/transmitter, sensor and W7081A Limit Controller Package.
- Switches all stages off when power is interrupted; switches stages on when power is restored.
- Compressor turn-on time delays must be incorporated for each compressor.
- No adjustment or calibrations required.
- Night setback and cooling shutdown for individual or all zones by addition of time-clock.
- Mounts with 4 No. 8 Screws (not provided) through holes in base.

**Dimensions, Approximate:** 159 mm high x 105 mm wide x 59 mm deep (6 1/4 in. high x 4 1/8 in. wide x 2 5/16 in. deep)

**Contact Ratings:**

NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac

NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Voltage:** 24 Vdc

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Approvals:**

**ASHRAE Guidelines:** Meets ASHRAE 90-75

**Canadian Standards Association:** Component Recognized

**Department of Defense Guidelines:** Meets

**Underwriters Laboratories, Inc.** Component Recognized

Product Number	Application	Application Size	Control System	Compatible with	Comments
W7080A1016	Split System; Furnace; Packaged RTU	3 Heat / 3 Cool	W7080 control system	T7080 Thermostat	Load analyzer provides control of On/Off and modulated cooling and modulated economizer functions

# Legacy Building Systems

## W7081 Limit Controller



**Dimensions, Approximate:** 159 mm high x 105 mm wide x 59 mm deep (6 1/4 in. high x 4 1/8 in. wide x 2 5/16 in. deep)

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Power Consumption:** 0.29 VA maximum

**Operating Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Used with W7080A Load Analyzer to provide cold deck low limit, hot deck high limit, and economizer/mixed air low limit functions.**

- Limits the maximum and minimum temperatures of the hot and cold deck and of the mixed air by supplying modified demand signals to the W7080A Load Analyzer and to the economizer.
- The positive limits stabilize deck temperatures under light load conditions providing greater comfort and reducing energy usage.
- Has jumper selectable set points for each of its 3 functions.
- Compact to fit easily in HVAC system control panel.
- Mounts with 4 No. 8 screws (not provided) through holes in base.

**Approvals:**

**ASHRAE Guidelines:** Meets ASHRAE 90-75

**Canadian Standards Association:** Component Recognized

**Department of Defense Guidelines:** Meets

**Underwriters Laboratories, Inc.** Component Recognized

Product Number	Application	Application Size	Control System	Compatible with	Description
W7081A1015	Split System; Heat Pump Systems; Furnace; Packaged RTU	Small (<20 I/O Points)	W7080 control system	W7080 Load analyzer	Limit Controller

## W7100A,C Discharge Air Temperature Controller



**Maintain an average discharge air temperature in variable air volume (VAV) systems, or other systems requiring discharge air**

**Dimensions, Approximate:** 219 mm high x 161 mm wide x 76 mm deep (8 5/8 in. high x 6 1/2 in. wide x 3 in. deep)

**Contact Ratings:**

- NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac
- NO 750 VA inrush @ 120/240 Vac, 75 VA running @ 120/240 Vac
- NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac
- NC 240 VA inrush @ 40 Vac, 30 VA running @ 24 Vac

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Voltage:** 20 to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**control of multistage cooling or heating. Reduce kilowatt demand and consumption by maintaining the minimum amount of heating or cooling capacity required to hold the discharge air set point.**

**Utilize economizer for free cooling when available.**

- W7100 Controller maintains an average discharge air temperature in variable air volume (VAV) cooling systems by modulating an economizer and sequencing stages of mechanical cooling.
- The W7100 can be applied to electric makeup air and other systems requiring discharge air control of multistage heating or cooling.
- Staging capacity of the W7100A,C can be extended six stages using a W7101A Satellite Sequencer.
- When power is interrupted, the system cycles to all stages off.
- When power is restored, the economizer will first be modulated open (if enthalpy is suitable), then stages of mechanical cooling will be sequenced on.
- If enthalpy is not suitable for economizer operation, the first stage of cooling or heating is energized within five minutes.
- Reset signal from either space sensor or outdoor air sensor.

**Power Consumption:** 12 VA at 24 Vac, 50/60 Hz (max).

**Operating Temperature Range:** 4 C to 32 C (40 F to 90 F)

**Setpoint Temperature Range:** 4 C to 32 C (40 F to 90 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Accessories:**

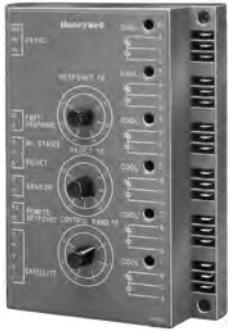
**S963B1037** Manual Potentiometer (480 ohm)

**S963B1078** Manual Potentiometer (500 ohm)

**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Application	Application Size	Control System	Output Type	Comments
W7100A1053	Discharge Air	0 Heat / 6 Cool	W7100 family	Staged On/Off	Additional stages of heating and cooling can be achieved by adding a W7101 Satellite Sequencer
W7100C1018	Discharge Air	2 Heat / 4 Cool	W7100 family	Staged On/Off	Additional stages of heating and cooling can be achieved by adding a W7101 Satellite Sequencer

## W7100G Discharge Water Temperature Controller



**Dimensions, Approximate:** 219 mm high x 161 mm wide x 76 mm deep (8 5/8 in. high x 6 1/2 in. wide x 3 in. deep)

**Contact Ratings:**

- NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac
- NO 750 VA inrush @ 120/240 Vac, 75 VA running @ 120/240 Vac
- NC 240 VA inrush @ 40 Vac, 30 VA running @ 24 Vac
- NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Voltage:** 20 to 30 Vac

**Controls discharge water temperature in reciprocating chiller and cooling tower applications.**

- The W7100G maintains average discharge water temperature by staging on and off compressors, unloaders of water tower fans as required.
- Provides up to six stages of cooling.
- Use W7101A for expanding up to 10 cooling stages.
- Advanced proportional plus integral microprocessor control algorithm minimizes droop.
- Soft start to minimize compressor cycling during system start up.
- Adjustable minimum on/off timing and time delay between stages of either 30 or 60 seconds.
- Reset of discharge water temperature based on either outdoor air or space sensor signal.
- Use C7170 Sensor for sensing water temperature.
- LEDs indicate which stages of cooling are energized.
- Use S963B Potentiometer for remote set point capability.

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 12 VA at 24 Vac, 50/60 Hz (max).

**Operating Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Accessories:**

- S963B1037 Manual Potentiometer (480 ohm)
- S963B1078 Manual Potentiometer (500 ohm)
- S963B1128 Manual Potentiometer (135 ohm)

Product Number	Application	Application Size	Control System	Output Type	Compatible with	Comments
W7100G1001	Chiller	0 Heat / 6 Cool	W7100 family	Staged On/Off	W7101 Satellite Expansion Module	4 additional stages of cooling can be added with W7101A

## W9076 Digital Temperature Indicator



**Dimensions, Approximate:** 116 mm high x 49 mm wide x 70 mm deep (4 9/16 in. high x 1 15/16 wide x 2 3/4 in. deep)

**Contact Ratings:** 49 mm dia, 70 mm long

**Voltage:** 24 Vac, +25%, -15%. For each volt above 26 Vac, derate ambient temperature by 5 F (2.8 C)

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +93 C (-40 F to +199 F)

**Accessories:**

- 107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long
- 121371A Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.

**The W9076 digital temperature indicator provides continuous led (light-emitting diode) digital display of temperature in commercial building applications. Display permits user selection of Fahrenheit or celsius readings in the range of -40 F to 199 F (-40 C to 93 C). Several locations can be monitored on the display through suitable switching of additional remote sensors.**

- Fahrenheit or Celsius display is field selectable.
- Solid state sensor provides fast response, accurate temperature readings.
- The 3-1/2 digit LED display has 0.3 inch numerals.
- Front mounting permits fast, easy installation.

**131524A** Capillary Holder Assembly., 8 3/8 in. long, duct insertion

**230038A** Replacement Faceplate Lens for use with W9076

**Replacement Parts:**

- 107324A Capillary Holder Assembly for duct insertion, 8 3/8 in. long
- 121371A Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.
- 121371E Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.
- 131524A Capillary Holder Assembly., 8 3/8 in. long, duct insertion

Product Number	Application	Description	Comments	Includes	Used With
W9076A1000	Monitors temperature is space or ducts, and fluid in hot or cold water pipes	Digital Temperature indicator that provides a continuous LED display for temperature (includes sensor)	Solid state sensor usable up to 300 ft (91 m)	194950E Sensor	T7047C1090 Case (for wall mounting the remote sensor), 121371A Immersion Well, 131524A/107324A/311266D Holders for duct mounting sensor, 107408 Heat-inductive compound
W9076A1018	Monitors temperature is space or ducts, and fluid in hot or cold water pipes	Digital Temperature indicator that provides a continuous LED display for temperature (does not include sensor)	Monitors temperature is space or ducts, and fluid in hot or cold water pipes	—	194950E Sensor, T7047C1090 Case (for wall mounting the remote sensor), 121371A Immersion Well, 131524A/107324A/311266D Holders for duct mounting sensor, 107408 Heat-inductive compound

# Legacy Building Systems

## W973 Logic Panel



**Dimensions, Approximate:** 159 mm high x 105 mm wide x 59 mm deep (6 1/4 in. high x 4 1/8 in. wide x 2 5/16 in. deep)

**Contact Ratings:** NO 240 VA inrush @ 24 Vac, 60 VA running @ 24 Vac

NC 75 VA inrush @ 24 Vac, 30 VA running @ 24 Vac

**Electrical Connections:** 1/4 in. quick-connect male terminals

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 8 VA

**Control heating, cooling and economizer operation in commercial air conditioning and heat pump equipment.**

- Proven, reliable temperature control.
- Many flexible versions to meet your application needs.
- Panels can be used with staged gas, oil, or electric heat; modulating gas, hot water, or steam heat; and direct expansion or modulating chilled water cooling.
- Control up to 3 on-off heat or cool stages or up to 10 on-off heat and/or cool stages using W975 Satellite Sequencers.
- Modulating dc current signal controls economizer heating or cooling valve motors.
- T7067 Dual Set Point Thermostat/Transmitter located in controlled space provides heating and cooling input signal based on space demand.
- C7046A sensor located in discharge air duct provides heating/cooling anticipation and economizer modulating low limit signal.
- System cycles all stages off on power interruption.
- When power is restored, system sequences required stages on with timed inter-stage delay.

**Control System:** W973 single zone

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Shipping Temperature Range:** -34 C to +65 C (-30 F to +150 F)

**Compatible with:** T7067 Thermostat with Q667 subbase

**Approvals:**

**Canadian Standards Association:** File No. LR95329-3

**Underwriters Laboratories, Inc.** Component Recognized: File No. SA481

Product Number	Application	Application Size	Output Type	Description	Comments
W973A1017	Split System; Heat Pump Systems; Furnace; Packaged RTU	2 Heat / 2 Cool	Staged On/Off	Logic Panel (use with T7067 and Q667), Stages 2 Heat/2 Cool	—
W973B1016	Split System; Heat Pump Systems; Furnace; Packaged RTU	3 Heat / 3 Cool	Staged On/Off	Logic Panel (use with T7067 and Q667), Stages 3 Heat/3 Cool	Provides modulating heating output and modulating cooling output
W973E1005	Split System; Heat Pump Systems; Furnace; Packaged RTU	0 Heat / 4 Cool	Staged On/Off	Logic Panel (use with T7067 and Q667), Stages 0 Heat/4 Cool	—
W973J1017	Split System; Heat Pump Systems; Furnace; Packaged RTU	4 Heat / 4 Cool	Staged On/Off	Logic Panel (use with T7067 and Q667), Stages 4 Heat/4 Cool	—

## Environmental Control Systems Accessories

Product Number	Description	Used With	
S963B1003	Manual Potentiometer (360 ohm)	T7022; T7023	
S963B1037	Manual Potentiometer (480 ohm)	—	
S963B1078	Manual Potentiometer (500 ohm)	—	
S963B1086	Manual Potentiometer (1000 ohm)	—	
S963B1128	Manual Potentiometer (135 ohm)	—	
S963B1136	Manual Potentiometer (270 ohm)	—	
S963B1177	Manual Potentiometer (480 ohm)	—	
S963D1001	2 Potentiometers that simulate the ramp signals of a T7067 Thermostat	—	



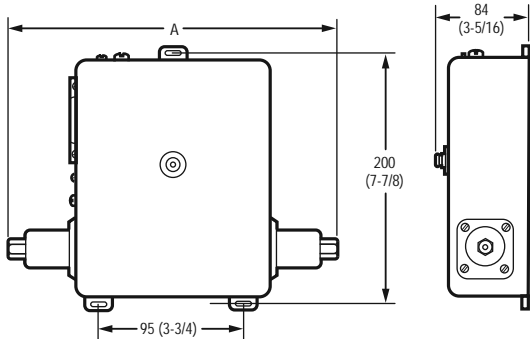
## P906 Differential Pressure Controllers



The P906 controllers respond to increases and decreases in pressure difference between high and low pressures in water or steam systems. The P906 provides proportional control in low voltage circuits and can be used to control a proportional valve to maintain desired pressure difference between two points in a system.

- P906 provides proportional control using a 135-ohm potentiometer.
- Adjustable main spring determines pressure difference at which controller operates and against which difference in high and low pressure must act.
- Three mounting lugs furnished on each device to facilitate installation.
- Blank scale supplied for marking as required.

Dimensions in millimeters (inches)



DIMENSION A MM (INCHES)	PRESSURE DIFFERENCE RANGE	
	PSI	kPa
291 (11-7/16)	0-10	0-69
246 (9-11/16)	0-45, 0-50, 0-70	0-310, 0-345, 0-483
240 (9-7/16)	10-300	69-2068

MC27433

**Application:** Water and Steam, Electric Control, Output: 135 Ohm

**Connection Size:** Includes (2) 1/4 x 1/2 in. NPT couplings for connecting to flexible steam hose (8 in. min)

**Output:** 135 Ohm

Product Number	Pressure Range		Differential Pressure Range		Comments
	(kPa)	(psi)	(kPa)	(psi)	
P906A1040	35 to 1551 kPa	5 to 225 psi	0 to 483 kPa	0 to 70 psi	Controls a proportional valve to maintain a selected pressure difference between two points.

# Refrigeration Controllers

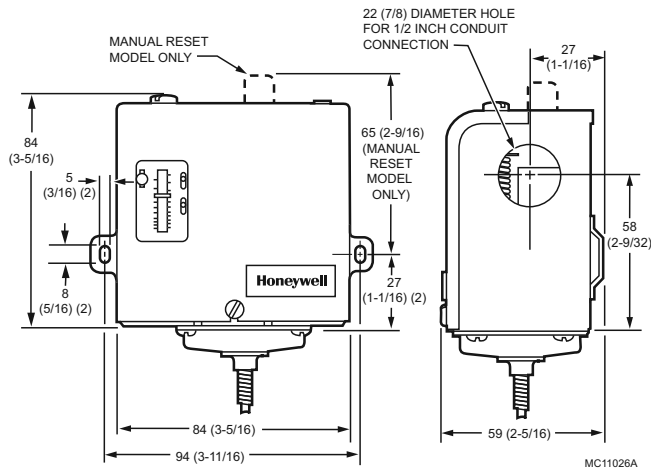
## L480; L482 Refrigeration Controller



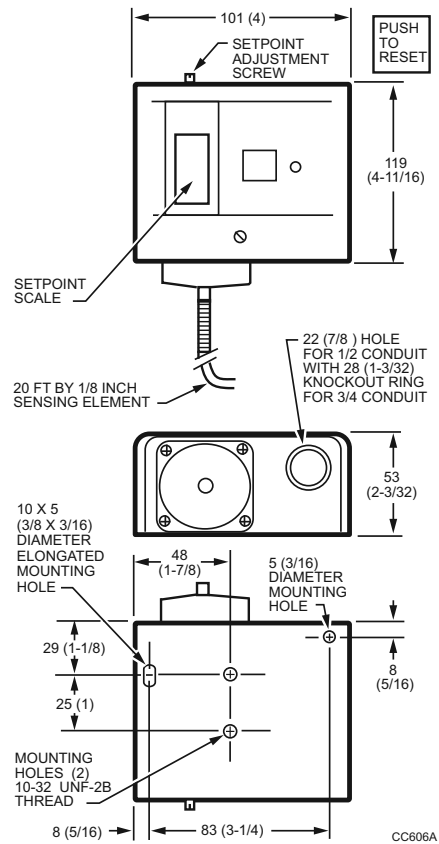
Used to limit or control temperature in air conditioning systems or refrigerated enclosures.

- Applications include freezer cabinets, display cases, beverage coolers, milk cooling tanks and air conditioners.
- Can act as a frost alarm operator in storehouses or orchards where frost would damage crops or equipment.
- Dual temperature scaleplate provided for both Fahrenheit and Celsius readings.

L480 Dimensions in millimeters (inches)



L482 Dimensions in millimeters (inches)



**Type:** Averaging element  
**Sensor Element:** Coldest point on the capillary  
**Capillary Length:** 6.1 m (20 ft.)  
**Voltage:** 120 Vac; 240 Vac  
**Frequency:** 50 Hz; 60 Hz

**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR95329-1  
**Underwriters Laboratories, Inc.** File: SA481, Guide: SDFY

	Contact Ratings (120 Vac)	Contact Ratings (240 Vac)
<b>L480</b>	10.2 AFL, 61.2 ALR	6.5 AFL, 39.0 ALR
<b>L482</b>	Aux: 6.0 AFL, 36.0 ALR Main: 8.0 AFL, 48.0 ALR	Aux: 3.0 AFL, 18.0 ALR Main: 5.1 AFL, 30.6 ALR

Product Number	Application	Setting Temperature Range		Differential Temperature		Maximum Operating Temperature		Switching	Comments
		(F)	(C)	(C)	(F)	(C)	(F)		
<b>L480B1239</b>	Acts as frost alarm in storehouses, orchards, or other locations where frost could damage crops or equipment.	20 F to 60 F	5.6 C	10 F	52 C	125 F	1 SPDT	—	
<b>L480G1044</b>	For temperature or limit control of air conditioning systems and refrigeration units.	20 F to 60 F	8 C	15 F	52 C	125 F	1 SPST	Manual reset	
<b>L482A1004</b>	Provides temperature or limit control of air conditioning systems by operating electric motors for dampers, valves, compressors, or fans.	15 F to 55 F	2.8 C	5 F	60 C	140 F	2 SPST, one N.O., one N.C.	Manual reset	

# Refrigeration Controllers

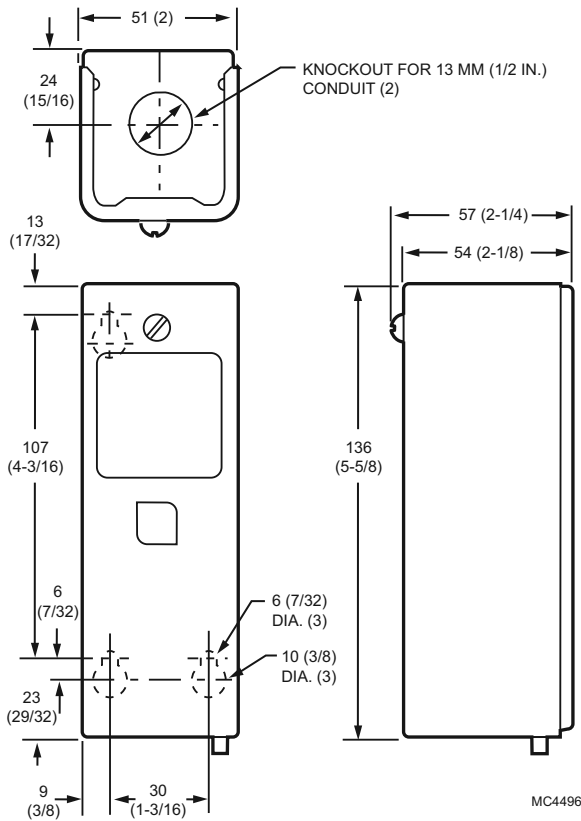
## T4031A; T6031A Refrigeration Temperature Controller



Provide limit or temperature control in refrigerated areas where remote mounting of sensing element is required.

- Liquid-filled copper elements provide rapid sensing to control the compressor system.
- Control temperature in a duct, tank, freezer or cooler.
- Controller element can be directly immersed in the controlled medium.
- Adjustable control setpoint.
- Ambient temperature compensation provides good temperature control.
- Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.

### Dimensions in millimeters (inches)



**Application:** Provides control of cooled or refrigerated space

**Type:** Remote bulb

**Sensor Element:** Copper bulb

**Bulb Size:** 10 mm diameter x 76 mm long (3/8 in. diameter x 3 in. long)

**Maximum Operating Temperature:** 52 C (125 F)

**Voltage:** 120 Vac; 240 Vac

**Contact Ratings (120 Vac):** 8.0 AFL, 48.0 ALR

**Contact Ratings (240 Vac):** 5.1 AFL, 30.6 ALR

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-1

**Underwriters Laboratories, Inc.** File: SA481, Guide: SDFY

Product Number	Setting Temperature Range		Differential Temperature		Switching	Capillary Length		Comments
	(C)	(F)	(C)	(F)		(m)	(ft)	
T4031A1073	—	-30 F to +50 F	1.9 C	3.5 F	1 SPST	2.44 m	8 ft.	—
T6031A1011	—	15 F to 90 F	1.9 C to 8.9 C	3.5 F to 16 F	1 SPDT	1.5 m	5 ft.	—
T6031A1029	—	-30 F to +90 F	1.9 C to 8.9 C	3.5 F to 16 F	1 SPDT	2.4 m	8 ft.	—
T6031A1052	—	-30 F to +90 F	1.9 C to 8.9 C	3.5 F to 16 F	1 SPDT	1.5 m	5 ft.	—
T6031A1060	—	-30 F to +90 F	1.9 C to 8.9 C	3.5 F to 16 F	1 SPDT	6.1 m	20 ft.	—
T6031A1086	-35 C to +30 C	—	1.9 C to 8.9 C	3.5 F to 16 F	1 SPDT	2.4 m	8 ft.	Celsius model
T6031A1136	—	-30 F to +90 F	1.9 C to 8.9 C	3.5 F to 16 F	1 SPDT	2.4 m	8 ft.	—
T6031A1219	-35 C to +30 C	—	—	—	1 SPDT	2.4 m	8 ft.	Celsius model, Bi-lingual French
T6031A1227	-35 C to +30 C	—	—	—	1 SPDT	1.5 m	5 ft.	Celsius model, Bi-lingual French
T6031A1235	-35 C to +30 C	—	—	—	1 SPDT	6.1 m	20 ft.	Celsius model, Bi-lingual French

# Sail Switches

## S437; S637 Sail Switch



The S437 and S637 Sail Switches respond to the air velocity in heating or warm air ducts, such as used in farm crop dryers. The switch completes a 24V or line voltage burner control circuit only when the blower or fan has produced a predetermined air velocity.

- Micro Switch SPDT snap switch is operated by metal sail inserted in an air stream.
- Has a set of normally closed contacts which can be used to energize a signal or warning circuit when the velocity drops off.
- Sail can be trimmed to one-half the original size to double the velocity required to close the snap switch contacts.
- Switch differential can be manually adjusted by turning a knurled knob on the snap switch.
- A conduit knockout is located on each end of the case for wiring convenience.

**Dimensions, Approximate:** 2 15/16 in. high x 3 3/4 in. wide x 2 in. deep (59 mm high x 95 mm wide x 51 mm deep)

**Insertion Length:** 3 1/2 in. (89 mm)

**Maximum Ambient Temperature:** 150 F (66 C)

**Operating Velocity:** 1900 fpm-2250 fpm (9.7 m/s-11.4 m/s)

**Approvals:**

**Canadian Standards Association:** CSA: Guide: MFHZ

**Underwriters Laboratories, Inc. UL:** File: MP2618

Product Number	Contact Ratings		Switching	Sail Dimensions	
	(AFL)	(ALR)		(mm)	(inch)
<b>S437A1009</b>	15.0 A @ 6 Vdc; 7.5 A @ 12 Vdc; 2.0 A @ 24 Vac; 8.0 A @ 120 Vac; 5.1 A @ 240 Vac	48.0 A @ 120 Vac; 30.6 A @ 240 Vac	1 SPST	25 mm x 76 mm	1 in. x 3 in.
<b>S437A1025</b>	15.0 A @ 6 Vdc; 7.5 A @ 12 Vdc; 2.0 A @ 24 Vac; 8.0 A @ 120 Vac; 5.1 A @ 240 Vac	48.0 A @ 120 Vac; 30.6 A @ 240 Vac	1 SPST	38 mm x 102 mm	1 1/2 in. x 4 in.
<b>S637A1004</b>	15.0 A @ 6 Vdc; 7.5 A @ 12 Vdc; 2.0 A @ 24 Vac; 8.0 A @ 120 Vac; 5.1 A @ 240 Vac	48.0 A @ 120 Vac; 30.6 A @ 240 Vac	1 SPDT	25 mm x 76 mm	1 in. x 3 in.

## T4031C; T6031C,D,F Ambistat Controller



**Ambient temperature compensated, high-limit controllers for agriculture and industrial applications.**

- Suitable for line-voltage, low voltage, or millivolt (Powerpile) control of bulk milk tanks, beverage dispensing machines, ice cube machines, dishwashers, crop drying, tobacco curing, and similar applications.
- Enclosed snap action switches available with SPST or SPDT action.
- Models available that make or break on temperature rise.
- Screwdriver adjustment for temperature setting; external knob option.
- Immersion well not included.

**Type:** Remote bulb

**Application:** Line-voltage, low-voltage or millivolt (Powerpile) control of bulk milk tanks, beverage dispensing machines, ice cube machines, dishwashers, crop drying, tobacco curing and similar applications.

**Bulb Size:** 73 mm long x 10 mm diameter  
(2 7/8 in. long x 3/8 in. diameter)

**Number of Sensor Inputs:** 1

**Output Type:** Relay

**Contact Ratings (120 Vac):** 8.0 AFL, 48.0 ALR

**Contact Ratings (240 Vac):** 5.1 AFL, 30.6 ALR

**Voltage:** 120 Vac or 240 Vac

**Frequency:** 50 Hz; 60 Hz

**Approvals:**

**Canadian Standards Association:** Listed

**Underwriters Laboratories, Inc.** Component Recognized

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Capillary Length		Output	Sensor Element	Comments
	(C)	(F)	(C)	(F)	(C)	(F)	(m)	(ft)			
T4031C1012	4 C to 82 C	40 F to 180 F	96 C	205 F	2.8 C	5 F	1.7 m	5.5 ft	1 SPST	Copper	Break on temperature rise
T6031C1058	38 C to 116 C	100 F to 240 F	130 C	265 F	1.1 C	2 F	1.5 m	5 ft	1 SPDT	Stainless steel bulb	—
T6031D1015	4 C to 82 C	40 to 180 F	—	—	2.8 C	5 F	1.7 m	5.5 ft	1 SPDT	Copper bulb	—
T6031D1031	-18 C to +21 C	0 F to 70 F	77 C	170 F	2.8 C	5 F	1.7 m	5.5 ft	1 SPDT	Copper bulb	—
T6031D1049	-1 C to +132 C	30 F to 270 F	152 C	305 F	3.9 C	7 F	1.7 m	5.5 ft	1 SPDT	Copper bulb	—

# Temperature Controllers

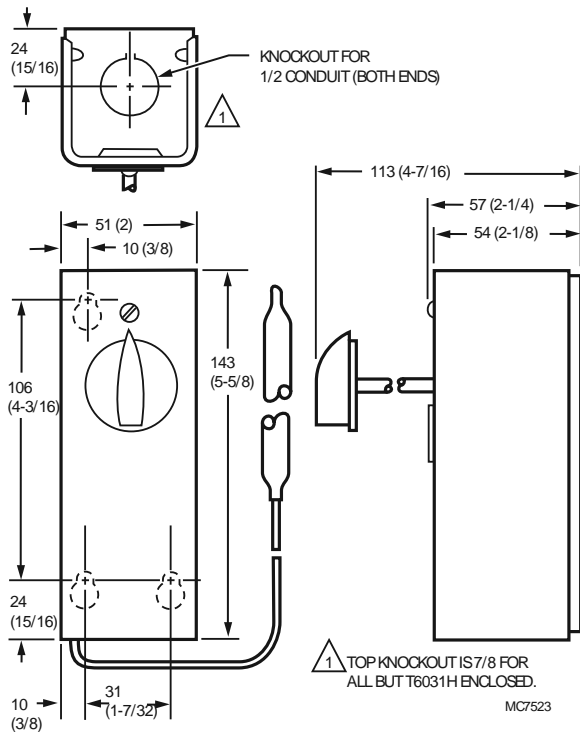
## T6031E Unit Thermostat



**Ambient temperature compensated, high-limit controllers for agriculture and industrial applications.**

- Suitable for line-voltage, low voltage, or millivolt (Powerpile) control of bulk milk tanks, beverage dispensing machines, ice cube machines, dishwashers, crop drying, tobacco curing, and similar applications.
- Enclosed snap action switches available with SPST or SPDT action.
- Models available that make or break on temperature rise.
- Screwdriver adjustment for temperature setting; external knob option.
- Immersion well not included.

### Dimensions in millimeters (inches)



**Type:** Remote bulb

**Application:** Remote bulb temperature control

**Dimensions, Approximate:** 143 mm high x 51 mm wide x 54 mm deep (5 5/8 in. high x 2 in. wide x 2 1/8 in. deep)

**Bulb Size:** 8 mm diameter x 297 mm long (5/16 in. diameter x 11 11/16 in. long)

**Sensor Element:** Copper bulb

**Color:** Gray

**Contact Ratings (120 Vac):** 3.2 AFL, 19.2 ALR

**Contact Ratings (240 Vac):** 1.6 AFL, 9.6 ALR

**Voltage:** 120 Vac or 240 Vac

**Frequency:** 50 Hz; 60 Hz

**Maximum Operating Temperature:** 66 C (150 F)

**Setpoint Temperature Range:** 13 C to 32 C (55 F to 90 F)

**Differential Temperature:** 0.8 C (1.5 F)

**Approvals:**

**Canadian Standards Association:** Listed

**Underwriters Laboratories, Inc.** Component Listed

Product Number	Capillary Length		Output	Output Type	Number of Sensor Inputs	Description
	(m)	(ft)				
T6031E1004	1.7 m	5.5 ft	1 SPDT	relay	1	Temperature Controller, Unit Thermostat, 55 F to 90 F

## T4054 Return Air Controller



Provides SPDT heavy-duty, line-voltage temperature control in ventilation, heating or cooling systems.

- Use in a variety of farm, industrial or commercial applications.
- Wall or duct mount in any position.
- Fast response, tin-plated element not affected by adverse environment.
- Rugged case.
- Mounts on flat surface with three screws.
- T6064 provides fast response with hydraulic temperature sensing elements mounted on the unit.

**Type:** Filled element

**Application:** Provides control in heating systems

**Dimensions, Approximate:** 194 mm high x 67 mm wide x 51 mm deep (7 5/8 in. high x 2 5/8 in. wide x 2 in. deep)

**Accuracy:**  $\pm 3.3$  C ( $\pm 6$  F)

**Sensor Element:** Fast response capillary

**Output Type:** relay

**Color:** Gray

**Contact Ratings (120 Vac):** 16.0 AFL, 96.0 ALR

**Contact Ratings (240 Vac):** 8.0 AFL, 48.0 ALR

**Voltage:** 120 Vac or 240 Vac

**Frequency:** 50 Hz; 60 Hz

**Maximum Operating Temperature:** 52 C (125 F)

**Approvals:**

**Canadian Standards Association:** CSA Listed: Report -1

**Underwriters Laboratories, Inc.** Listed: E4436, vol. 5, sec. 12, Guide XAPX

Product Number	Setpoint Temperature Range		Output	Differential Temperature		Number of Sensor Inputs	Comments
	(C)	(F)		(C)	(F)		
T4054A1000	2 C to 38 C	36 F to 100 F	1 SPST	1.9 C	3.5 F	1	Make R to B on temperature fall
T4054B1016	2 C to 38 C	36 F to 100 F	1 SPST	1.9 C	3.5 F	1	Make R to W on temperature rise

# Temperature Controllers

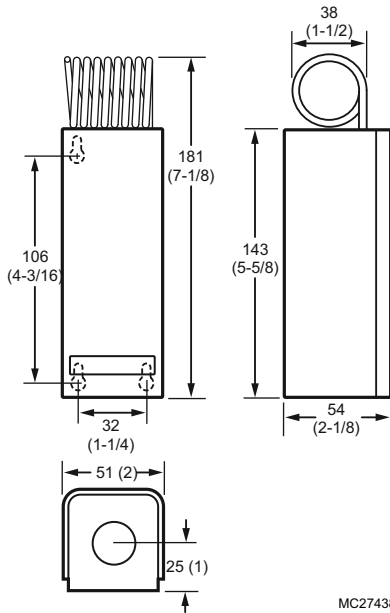
## T6054 Utility Line Voltage Thermostat



Provides SPDT heavy-duty, line-voltage temperature control in ventilation, heating or cooling systems.

- Use in a variety of farm, industrial or commercial applications.
- Wall or duct mount in any position.
- Fast response, tin-plated element not affected by adverse environment.
- Rugged case.
- Mounts on flat surface with three screws.

### Dimensions in millimeters (inches)



MC27438

**Type:** Filled element

**Application:** Provides control in ventilation, heating, cooling or heating-cooling systems

**Accuracy:** ±5.6 C (±10 F)

**Sensor Element:** Copper filled element

**Color:** Gray

**Contact Ratings (120 Vac):** 7.4 AFL, 44.4 ALR

**Contact Ratings (240 Vac):** 3.7 AFL, 22.2 ALR

**Voltage:** 120 Vac or 240 Vac

**Frequency:** 50 Hz; 60 Hz

**Maximum Operating Temperature:** 52 C (125 F)

**Approvals:**

**Canadian Standards Association:** CSA Listed: Report -1

**Underwriters Laboratories, Inc.** Listed: E4436, vol. 5, sec. 12, Guide XAPX

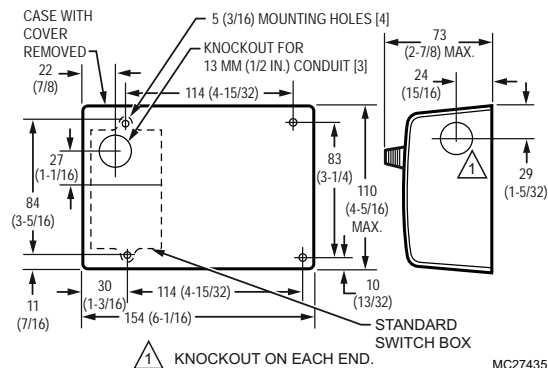
Product Number	Setting Temperature Range		Differential Temperature		Output	Output Type	Number of Sensor Inputs	Includes
	(C)	(F)	(C)	(F)				
* T6054A1005	-34 C to +43 C	-30 F to +110 F	1.9 C	3.5 F	1 SPDT	relay	1	Case
* TRADELINE models • SUPER TRADELINE models								



## T631A, B, C Farm Controllers



### Dimensions in millimeters (inches)



Provide line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas.

- Use in barns, poultry houses, hog barns, pump houses, milk houses and crop storage houses.
- Treated to resist corrosion.
- Slots in front and bottom of case provide maximum air circulation over the coiled sensing element.
- SPDT snap switches permanently sealed against corrosion.
- Easy mounting using screws through holes in back of case.

**Type:** Agricultural Temperature Controller

**Application:** Provide line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas

**Sensor Element:** Coiled Copper Tube

**Color:** Red finish

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Underwriters Laboratories, Inc.** File No. E4436 Vol.1 Sec. UL Guide XAPX

Product Number	Temperature								Output	Voltage	Contact Ratings		
	Setpoint Range		Maximum Operating		Differential		Interstage Differential				(24 Vac)	(120 Vac)	(240 Vac)
	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(F)					
T631A1006	—	35 F to 100 F	49 C	120 F	1.1 C	2 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1022	—	70 F to 140 F	67 C	150 F	1.1 C	2 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1030	—	0 F to 70 F	52 C	125 F	1.7 C	3 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1063	—	-10 F to +100 F	52 C	125 F	1.7 C	3 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1113	—	35 F to 100 F	50 C	120 F	1.9 C	3.5 F	—	—	1 SPDT (1 hp at 0.7 kW)	120 Vac or 240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631A1154	0 C to 40 C	—	50 C	120 F	1.1 C	2 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631A1162	—	35 F to 100 F	49 C	120 F	1.1 C	2 F	—	—	1 SPDT (1 hp at 0.7 kW)	24 Vac or 120/240 Vac	2.0A AFL	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631B1005	—	35 F to 100 F	50 C	120 F	1.1 C	2 F	1.9 C	3.5 F	2 SPDT	120 Vac or 240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631B1054	—	35 F to 100 F	50 C	120 F	1.1 C	2 F	0 C to 4 C adj.	0 F to 7 F adj.	2 SPDT (1 hp at 0.7 kW)	120 Vac or 240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631B1070	—	35 F to 100 F	49 C	120 F	1.1 C	2 F	0 C to 4 C adj.	0 F to 7 F adj.	2 SPDT (1 hp at 0.7 kW)	24 Vac or 120/240 Vac	2.0A AFL	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631C1012	—	20 F to 90 F	52 C	125 F	1.7 C	3 F	—	—	1 SPDT (1 hp at 0.7 kW)	120 Vac or 240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631C1020	—	70 F to 140 F	67 C	150 F	1.1 C	2 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631C1038	-10 C to +30 C	—	52 C	125 F	1.7 C	3 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631C1046	20 C to 60 C	—	67 C	150 F	1.1 C	2 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
T631C1053	—	35 F to 100 F	49 C	120 F	1.1 C	2 F	—	—	1 SPDT	120 Vac or 240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR
* T631C1103	—	-30 F to +100 F	52 C	125 F	2.8 C	5 F	—	—	1 SPDT (1 hp at 0.7 kW)	24 Vac or 120/240 Vac	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR
T631C1160	20 C to 60 C	—	67 C	150 F	1.1 C	2 F	—	—	1 SPDT	24 Vac or 120/240 Vac	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR

Commercial Components

# Temperature Controllers

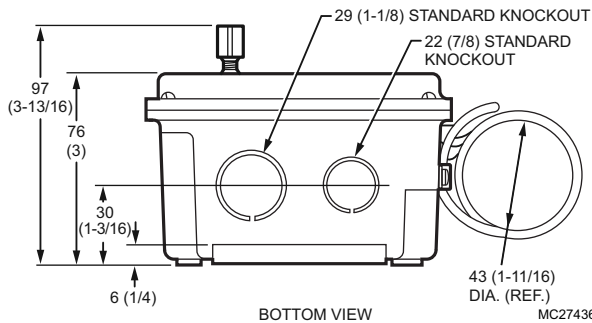
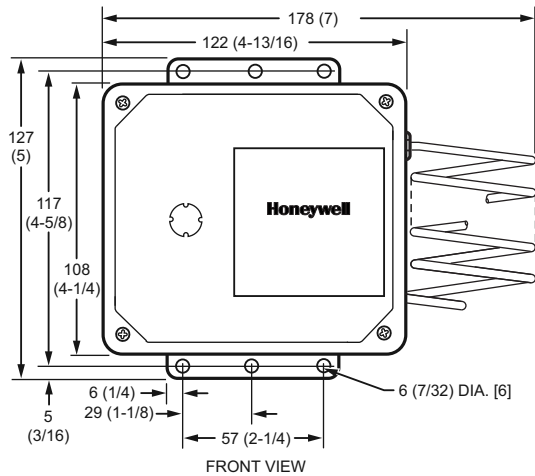
## T631F,G NEMA IV Controllers



Provide line voltage control of heating, cooling and ventilating systems in farm buildings, storage areas and industrial environments; watertight, dust-proof enclosure.

- Use in barns, brooder houses, poultry houses, hog barns, pump houses, milk houses, crop storage houses and industrial environments. NEMA 4X enclosure protects thermostat and wiring connections from oil, water, dust, and corrosion.
- Clear plastic cover reveals setpoint, discourages tampering.
- Sensing element externally mounted for fast response and tin plated to resist corrosion.
- Reliable snap switches sealed against contamination.
- Insulated case has internal grounding screw for safety.
- Meet National Electrical Code Article 547-4 requirements.
- Easy mounting with screws through holes in flanges on case.

### Dimensions in millimeters (inches)



**Type:** Agricultural Temperature Controller

**Application:** Provide line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas

**Sensor Element:** Coiled, Tin-plated Copper Tube

**Color:** Gray finish

**Frequency:** 50 Hz; 60 Hz

**Setpoint Temperature Range:** 35 F to 100 F

**Interstage Differential Temperature:** 0 C to 4 C adjustable (0 F to 7 F adjustable)

**Maximum Operating Temperature:** (145 F)

**Differential Temperature:** 1.1 C (2 F)

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Underwriters Laboratories, Inc.** File No. E4436 Vol.1 Sec. UL Guide XAPX

Product Number	Voltage	Output	Contact Ratings			Comments
			(24 Vac)	(120 Vac)	(240 Vac)	
T631F1068	24 Vac or 120/240 Vac	1 SPDT	2.0A AFL	7.4 AFL, 44.4 ALR	3.7 AFL, 22.2 ALR	Internal Setpoint Adjustment
T631F1092	120 Vac or 240 Vac	1 SPDT (1 hp)	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR	External Setpoint Adjustment
T631G1059	120 Vac or 240 Vac	2 SPDT (1 hp)	—	16.0 AFL, 96.0 ALR	8.0 AFL, 48.0 ALR	External Setpoint Adjustment

# Temperature Controllers

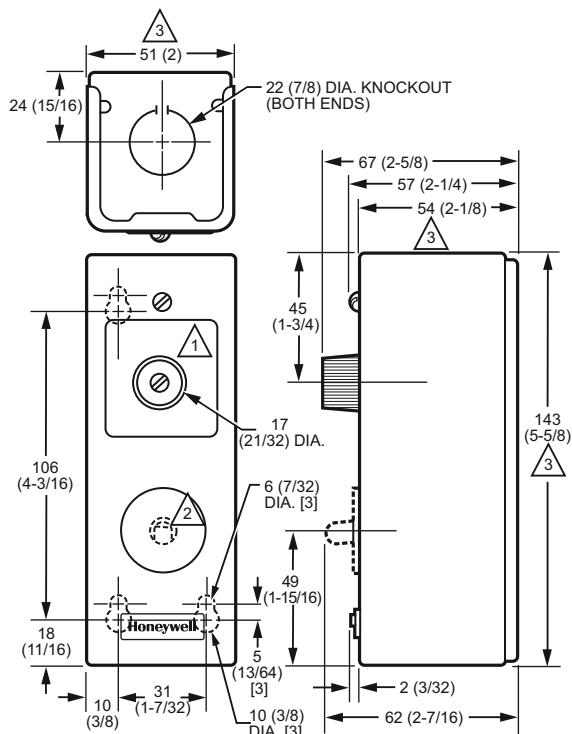
## T675A,B; T678A Remote Bulb Controllers



Remote bulb thermostats regulate temperature of air or liquids in ducts, pipes, tanks and boilers.

- Suitable for applications requiring temperature control of air or liquids where controller must be placed outside the sensing area.
- Typical uses include control of dampers and valves in heating, cooling and heating-cooling systems.
- Fast response models (available for use in return air duct) operate approximately four times faster than standard models.
- Controller can be mounted in any position. Ambient temperature compensation provides good temperature control.
- Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.
- T678 models have a maximum connected load of 2000 VA.

### Dimensions in millimeters (inches)



- ① T675B DOES NOT HAVE AN ADJUSTMENT KNOB.
- ② T675B HAS A MANUAL RESET BUTTON (INDICATED BY DASHED LINES).
- ③ TRADELINE MODELS T675A, T678A ONLY – NOREL COVER INCREASES THESE DIMENSIONS BY APPROXIMATELY 3 MM (1/8 IN.).

MC23928

**Type:** Remote bulb

**Application:** Control of dampers and valves in heating, cooling or heating-cooling systems

**Number of Sensor Inputs:** 1

**Voltage:** 120 Vac or 240/277 Vac

**Frequency:** 50 Hz; 60 Hz

**Output Type:** relay

**Approvals:**

**Canadian Standards Association:** CSA Listed: Report -1

**Underwriters Laboratories, Inc.** UL Listed: E4436, Vol. 4, Sec. 11, Guide XAPX

	Contact Ratings		
	(120 Vac)	(240 Vac)	(277 Vac)
<b>T675A with Adjustable Differential Temperature</b>	8.0 AFL, 48.0 ALR, 125 VA Pilot Duty	5.1 AFL, 30.6 ALR, 125 VA Pilot Duty	4.2 AFL, 25.2 ALR, 125 VA Pilot Duty
<b>T675A, B with Fixed Differential Temperature</b>	125 VA	125 VA	125 VA
<b>T675B</b>	125 VA	125 VA	125 VA
<b>T678A</b>	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR	4.2 AFL, 25.2 ALR

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Output	Sensor Element	Includes	Comments
	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)				
<b>T675A1003</b>	—	0 F to 100 F	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb		—
<b>T675A1029</b>	—	0 F to 100 F	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb		—
<b>T675A1045</b>	-18 C to +38 C	0 F to 100 F	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Stainless steel bulb		Stainless Steel Bulb

\* TRADELINE models • SUPER TRADELINE models

# Temperature Controllers

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Output	Sensor Element	Includes	Comments
	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)				
T675A1102	71 C to 127 C	160 F to 260 F	138 C	280 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	—
T675A1136	-18 C to +38 C	0 F to 100 F	52 C	125 F	0.6 C fixed	1 F fixed	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	—
T675A1169	-15 C to +35 C	—	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
T675A1243	75 C to 125 C	167 F to 257 F	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
T675A1425	13 C to 79 C	55 F to 175 F	52 C	125 F	2 C to 6.7 C	3.6 F to 12 F	—	—	13 mm x 90 mm	1/2 in. x 3 9/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	—
T675A1458	13 C to 79 C	55 F to 175 F	93 C	200 F	0.6 C fixed	1 F fixed	—	—	13 mm x 90 mm	1/2 in. x 3 9/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	—
T675A1466	15 C to 75 C	—	93 C	200 F	2 C to 6.6 C	3.6 F to 12 F	—	—	13 mm x 90 mm	1/2 in. x 3 9/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
T675A1474	15 C to 75 C	—	93 C	200 F	2 C to 6.6 C	3.6 F to 12 F	—	—	13 mm x 90 mm	1/2 in. x 3 9/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	Celsius model
* T675A1508	-18 C to +38 C	0 F to 100 F	93 C	200 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	107324A Duct Bulb holder	—
* T675A1516	-18 C to +38 C	0 F to 100 F	93 C	200 F	0.6 C fixed	1 F fixed	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	107324A Duct Bulb holder	—
T675A1524	13 C to 79 C	55 F to 175 F	93 C	200 F	0.6 C fixed	1 F fixed	—	—	13 mm x 90 mm	1/2 in. x 3 9/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	—
* T675A1532	71 C to 127 C	160 F to 260 F	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	107324A Duct Bulb holder	—
* T675A1540	13 C to 79 C	55 F to 175 F	52 C	125 F	2 C to 6.7 C	3.6 F to 12 F	—	—	13 mm x 90 mm	1/2 in. x 3 9/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	107324A Duct Bulb holder	—
* T675A1565	-18 C to +38 C	0 F to 100 F	93 C	200 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm x 90 mm	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	107324A Duct Bulb holder	—
* T675A1706	-18 C to +38 C	0 F to 100 F	138 C	280 F	1.7 C to 5.6 C	3 F to 10 F	—	—	coil 38.1 mm x 127 mm	coil 1 1/2 in. diameter x 5 in.	1.5 m	5 ft	1 SPDT	Fast response capillary	131524A duct bulb holder	Fast response model
T675A1771	13 C to 79 C	55 F to 175 F	93 C	200 F	0.6 C fixed	1 F fixed	—	—	coil 38.1 mm x 127 mm	coil 1 1/2 in. diameter x 5 in.	1.5 m	5 ft	1 SPDT	Fast response capillary	131524A duct bulb holder	Fast response model
* T675A2068	-15 C to +35 C	—	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
* T675A2076	-15 C to +35 C	—	52 C	125 F	0.6 C fixed	1 F fixed	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
* T675A2084	-15 C to +35 C	—	93 C	200 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	Celsius model
* T675A2100	15 C to 75 C	—	93 C	200 F	2 C to 6.6 C	3.6 F to 12 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
* T675A2118	75 C to 125 C	—	52 C	125 F	1.7 C to 5.6 C	3 F to 10 F	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	1 SPDT	Copper bulb	—	Celsius model
T675B1002	-1 C to +10 C	30 F to 50 F	52 C	125 F	Manual Reset	Manual Reset	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	3 m	10 ft	1 SPDT	Copper bulb	—	—
T675B1010	-1 C to +10 C	30 F to 50 F	52 C	125 F	Manual Reset	Manual Reset	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	1 SPDT	Copper bulb	—	—

\* TRADELINE models • SUPER TRADELINE models

# Temperature Controllers

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Output	Sensor Element	Includes	Comments
	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)				
<b>T675B1028</b>	-29 C to +10 C	-20 F to +50 F	52 C	125 F	Manual Reset	Manual Reset	—	—	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	3 m	10 ft	1 SPDT	Copper bulb	—	—
<b>T678A1015</b>	-18 C to +38 C	0 F to 100 F	52 C	125 F	1.7 C fixed	3 F fixed	1.7 C to 5.6 C adj.	3 F to 10 F adj.	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA
<b>T678A1155</b>	-15 C to +35 C	—	52 C	125 F	1.7 C	3 F	1.7 C to 5.6 C adj.	3 F to 10 F adj.	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA; Bilingual French; Celsius Model
<b>T678A1163</b>	-15 C to +35 C	5 F to 95 F	52 C	125 F	1.7 C fixed	3 F fixed	1.7 C to 5.6 C adj.	3 F to 10 F adj.	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	6.1 m	20 ft.	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA; Celsius model
<b>T678A1361</b>	13 C to 79 C	55 F to 175 F	52 C	125 F	2.0 C fixed	3.6 F fixed	2.0 C to 6.7 C adj.	3.6 F to 12 F adj.	13 mm x 90 mm	1/2 in. x 3 9/16 in.	6.1 m	20 ft.	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA
* <b>T678A1437</b>	-18 C to +38 C	0 F to 100 F	52 C	125 F	1.7 C fixed	3 F fixed	1.7 C to 5.6 C adj.	3 F to 10 F adj.	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA
* <b>T678A1445</b>	13 C to 79 C	55 F to 175 F	52 C	125 F	2.0 C fixed	3.6 F fixed	2.0 C to 6.7 C adj.	3.6 F to 12 F adj.	13 mm x 90 mm	1/2 in. x 3 9/16 in.	1.5 m	5 ft	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA
* <b>T678A1478</b>	-18 C to +38 C	0 F to 100 F	52 C	125 F	1.7 C fixed	3 F fixed	1.7 C to 5.6 C adj.	3 F to 10 F adj.	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	1.5 m	5 ft	2 SPDT switch contacts	Fast response capillary	—	maximum connected load = 2000VA; Fast response model
* <b>T678A1494</b>	13 C to 79 C	55 F to 175 F	93 C	200 F	2.0 C fixed	3.6 F fixed	2.0 C to 6.7 C adj.	3.6 F to 12 F adj.	13 mm x 90 mm	1/2 in. x 3 9/16 in.	1.5 m	5 ft	2 SPDT switch contacts	Fast response capillary	—	maximum connected load = 2000VA; Fast response model
<b>T678A1627</b>	-18 C to +38 C	0 F to 100 F	52 C	125 F	2.0 C fixed	3.6 F fixed	2.0 C to 6.7 C adj.	3.6 F to 12 F adj.	13 mm dia. x 106 mm long	1/2 in. x 4 3/16 in.	3 m	10 ft	2 SPDT switch contacts	Averaging capillary	—	maximum connected load = 2000VA
* <b>T678A1692</b>	15 C to 75 C	—	93 C	200 F	2.0 C	3.6 F	2.0 C to 6.7 C	3.6 F to 12 F	13 mm diameter x 102 mm long	1/2 in. x 4 in.	1.5 m	5 ft	2 SPDT switch contacts	Copper bulb	—	maximum connected load = 2000VA; Celsius model

\* TRADELINE models • SUPER TRADELINE models

# Temperature Controllers

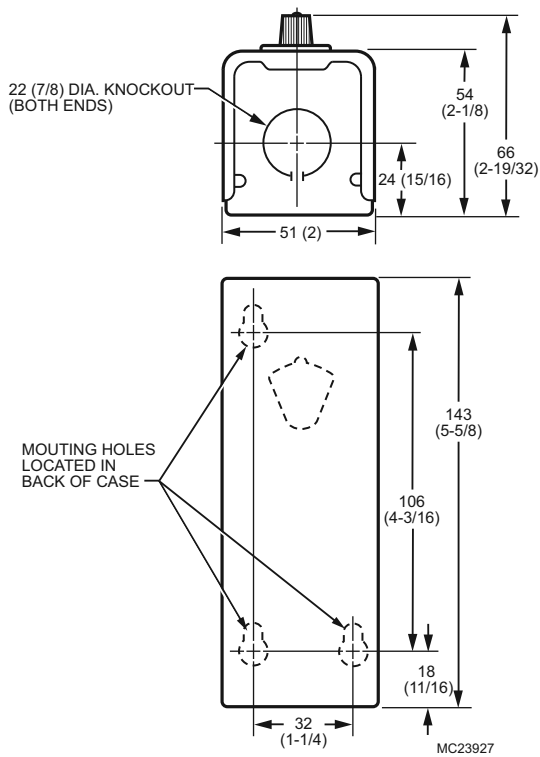
## T675F Crop-Trol Controller



Used to control an oil burning, portable crop dryer.

- Suitable for line-voltage, low-voltage or millivolt (Powerpile) switching.
- Mounts directly on dryer with sensing bulb in discharge air duct.
- Knob extends through case for manual control point adjustment.
- Differential setting wheel, located under cover, adjusts difference between cut-in and cut-out temperatures.

### Dimensions in millimeters (inches)



**Type:** Remote bulb

**Application:** Crop-trol, provides control of portable crop drying equipment.

**Bulb Size:** 10 mm x 76 mm (3/8 in. x 3 in.)

**Capillary Length:** 3 m (10 ft)

**Sensor Element:** Copper bulb

**Number of Sensor Inputs:** 1

**Contact Ratings (120 Vac):** 8.0 AFL, 48.0 ALR

**Contact Ratings (240 Vac):** 5.1 AFL, 30.6 ALR

**Contact Ratings (277 Vac):** 4.2 AFL, 25.2 ALR

**Voltage:** 120 Vac or 240/277 Vac

**Frequency:** 50 Hz; 60 Hz

**Approvals:**

Underwriters Laboratories, Inc. Component Listed

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Output	Output Type
	(C)	(F)	(C)	(F)	(C)	(F)		
T675F1032	27 C to 104 C	80 F to 220 F	118 C	245 F	2.8 C to 17 C	5 F to 30 F	1 SPDT	relay

# Temperature Controllers

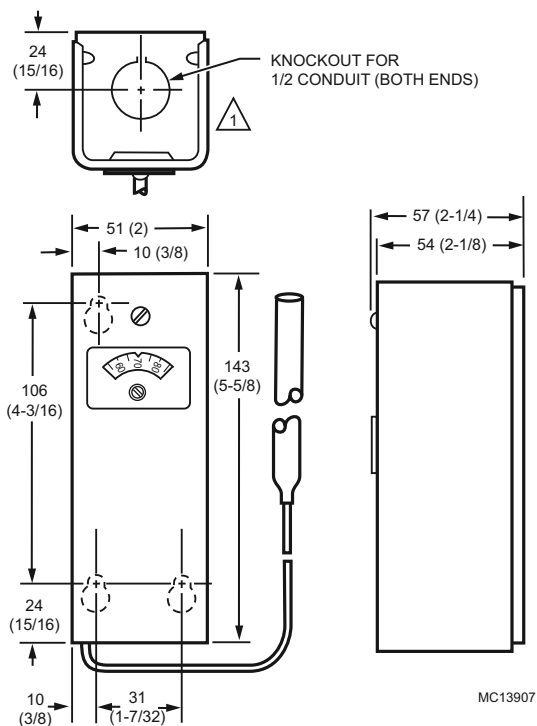
## T678C,E,F Changeover Temperature Controller



Remote bulb thermostats regulate temperature of air or liquids in ducts, pipes, tanks and boilers.

- Suitable for applications requiring temperature control of air or liquids where controller must be placed outside the sensing area.
- Typical uses include control of dampers and valves in heating, cooling and heating-cooling systems.
- Fast response models (available for use in return air duct) operate approximately four times faster than standard models.
- Controller can be mounted in any position. Ambient temperature compensation provides good temperature control.
- Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.
- T678 models have a maximum connected load of 2000 VA.

### Dimensions in millimeters (inches)



**Type:** Remote bulb

**Application:** Changeover temperature control

**Sensor Element:** Copper bulb

**Voltage:** 120 Vac or 240 Vac

**Frequency:** 50 Hz; 60 Hz

**Number of Sensor Inputs:** 1

**Output Type:** relay

**Output:** 2 SPDT switch contacts

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Differential Temperature		Interstage Differential Temperature		Bulb Size		Capillary Length		Contact Ratings	
	(C)	(F)	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)	(120 Vac)	(240 Vac)
T678C1005	13 C to 29 C	55 F to 85 F	96 C	205 F	2.8 C	5 F	—	—	10 mm x 76 mm	3/8 in. x 3 in.	1.7 m	5.5 ft	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR
T678E1003	4 C to 82 C	40 F to 180 F	99 C	210 F	1.1 C	2 F	3.9 C	7 F	3 mm x 1064 m	1/8 in. x 42 in.	5.2 m	17 ft.	Control: 2.6 AFL, 15.6 ALR; Hi Limit: 7.4 AFL, 44.4 ALR	Control: 1.3 AFL, 7.8 ALR; Hi Limit: 5.1 AFL, 30.6 ALR
T678F1002	13 C to 29 C	55 F to 85 F	54 C	130 F	1.1 C	2 F	—	—	8 mm x 297 mm	5/16 in. x 11 11/16 in.	1.7 m	5.5 ft	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR

# Temperature Controllers

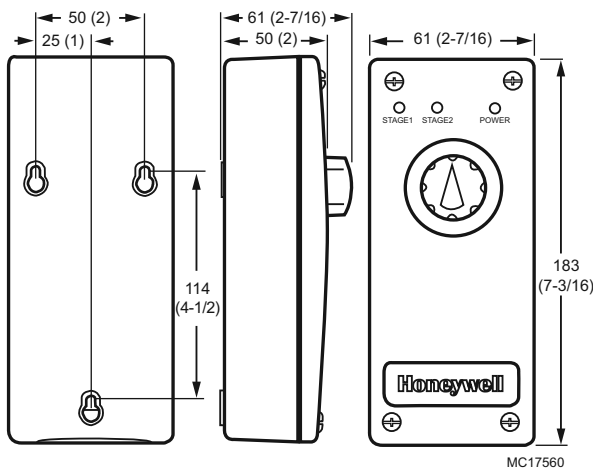
## T7079 Solid State Remote Temperature Controller



The T7079 Electronic Remote Sensor Temperature Controller is capable of providing on-off temperature control for ducts, tanks, heating and refrigeration units, greenhouses, animal confinement buildings and other applications where electronic accuracy in addition to remote sensing is desired.

- Switch selection of heat or cool mode.
- Temperature sensing up to 400 feet.
- Does not require field calibration.
- 10K NTC temperature sensor.
- Wide setpoint temperature range.
- LED annunciation for both power on and relay state.
- Dual setpoint scale (F and C). Isolation transformer for 24 Vac input.
- Single- or Dual-stage output.
- Dual-stage output models can be configured as two-heat, two-cool, or one-heat/one-cool.

### Dimensions in millimeters (inches)



**Application:** Heat or Cool

**Accuracy:**  $\pm 3.6$  C ( $\pm 2$  F)

**Sensor Element:** 10k @ 25 C NTC sensing element

**Maximum distance to sensor:** 122 m (400 ft)

**Contact Ratings (24 Vac):** 8.0A resistive

**Contact Ratings (120 Vac):** 9.8 AFL, 58.8 ALR, 125 VA Pilot Duty

**Contact Ratings (240 Vac):** 4.9 AFL, 29.4 ALR, 125 VA Pilot Duty

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Throttling Range:** -17 C to +1 C (1 F to 30 F)

**Number of Sensor Inputs:** 1

**Sensors Included:** 10K ohm NTC Sensor (32004800-001)

**Approvals:**

**Underwriters Laboratories, Inc.** Component Listed

### Accessories:

**107324A** Capillary Holder Assembly for duct insertion, 8 3/8 in. long

**121371A** Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.

**121371E** Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm).

Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.

**32004800-001** 10K sensor for use with T7079

**T7047C1090** Wall Mounted Remote Bulb Enclosure for T775 or T7079 remote sensing bulb.

Product Number	Setpoint Temperature Range		Voltage	Output Type	Description
	(C)	(F)			
T7079A1004	-32 C to +40 C	-25 F to +105 F	24 Vac	1 SPDT	Heat or Cool Controller
T7079A1012	38 C to 116 C	100 F to 240 F	24 Vac	1 SPDT	Heat or Cool Controller
T7079A1046	-32 C to +40 C	-25 F to +105 F	120 Vac or 230 V	1 SPDT	Heat or Cool Controller
T7079A1053	38 C to 116 C	100 F to 240 F	120 Vac or 230 V	1 SPDT	Heat or Cool Controller
T7079B1028	-32 C to +40 C	-25 F to +105 F	24 Vac	2 SPDT	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller
T7079B1036	38 C to 116 C	100 F to 240 F	24 Vac	2 SPDT	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller
T7079B1044	-32 C to +40 C	-25 F to +105 F	120 Vac or 230 V	2 SPDT	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller
T7079B1051	38 C to 116 C	100 F to 240 F	120 Vac or 230 V	2 SPDT	1 Heat and 1 Cool or 2 Heat and 2 Cool Controller



## T775 Series 2000 Stand-Alone Controllers



The T775 electronic remote temperature controllers are the next generation of commercial and agricultural controls capable of remote sensing of temperature and providing switched and/or proportional outputs to various types of loads.

- Save time on installations with the easy-to-use graphical interface, large display, and the intuitive programming.
- Use the time clock scheduler or digital input to control the setback and disable output options to help save energy.
- Protect equipment from freezing or overheating on models with the modulating high or low limit control option.
- Get pinpoint control on modulating outputs by setting the integral and derivative times (PI or PID).
- Configure models with reset in a few easy steps.
- Control floating actuators with floating outputs on select models.
- Eliminate the need for a separate time delay device and protect equipment with the minimum off time option.
- Sensor 50021579-001 included with non-NEMA 4X models.
- Sensor T775-SENS-WR included with NEMA-4X models.

**Setpoint Temperature Range:** -40 C to 120 C (-40 F to 248 F)

**Sensor Element:** 1097 ohms PTC at 77 F (25 C)

**Bulb Size:** 6.35 mm diameter x 50.8 mm (1/4 in. diameter x 2 in. long)

**Accuracy:** ±1 C at 25 C (±1 F at 77 F)

**Maximum distance to sensor:** up to 304 m (Up to 1,000 ft)

### Relay Contact Ratings

**(24 Vac):** 10.0A resistive

**(120 Vac):** 1/2 hp; 9.8 AFL, 58.8 ALR, 125 VA Pilot Duty

**(240 Vac):** 1/2 hp; 4.9 AFL, 29.4 ALR, 125 VA Pilot Duty

**Voltage:** 24 Vac or 120/240 Vac

**Frequency:** 50 Hz; 60 Hz

### Operating Ambient Temperature Range:

-40 C to 52 C @ 50 Hz (-40 F to 125 F @ 50 Hz)

-40 C to 60 C @ 60 Hz (-40 F to 140 F @ 60 Hz)

**Throttling Range:** 0.5 C to 66 C (1 F to 150 F)

**Differential Temperature:** 0.5 C to 66 C (1 F to 150 F)

**Analog Output Type:** 2-10 Vdc0-10 Vdc4-20 mA Electronic Series 90

### Approvals:

**C-Tick:** Approved

**Underwriters Laboratories, Inc.** Approved

**CE:** Approved

**Canadian Underwriters Laboratories, Inc.** Approved

**Other:** IP65: Approved

### Accessories:

**107324A** Capillary Holder Assembly for duct insertion, 8 3/8 in. long

**C7031D2003** 5 inch immersion sensor with well

**C7031J2009** 1097 ohm Electronic Temperature Sensor

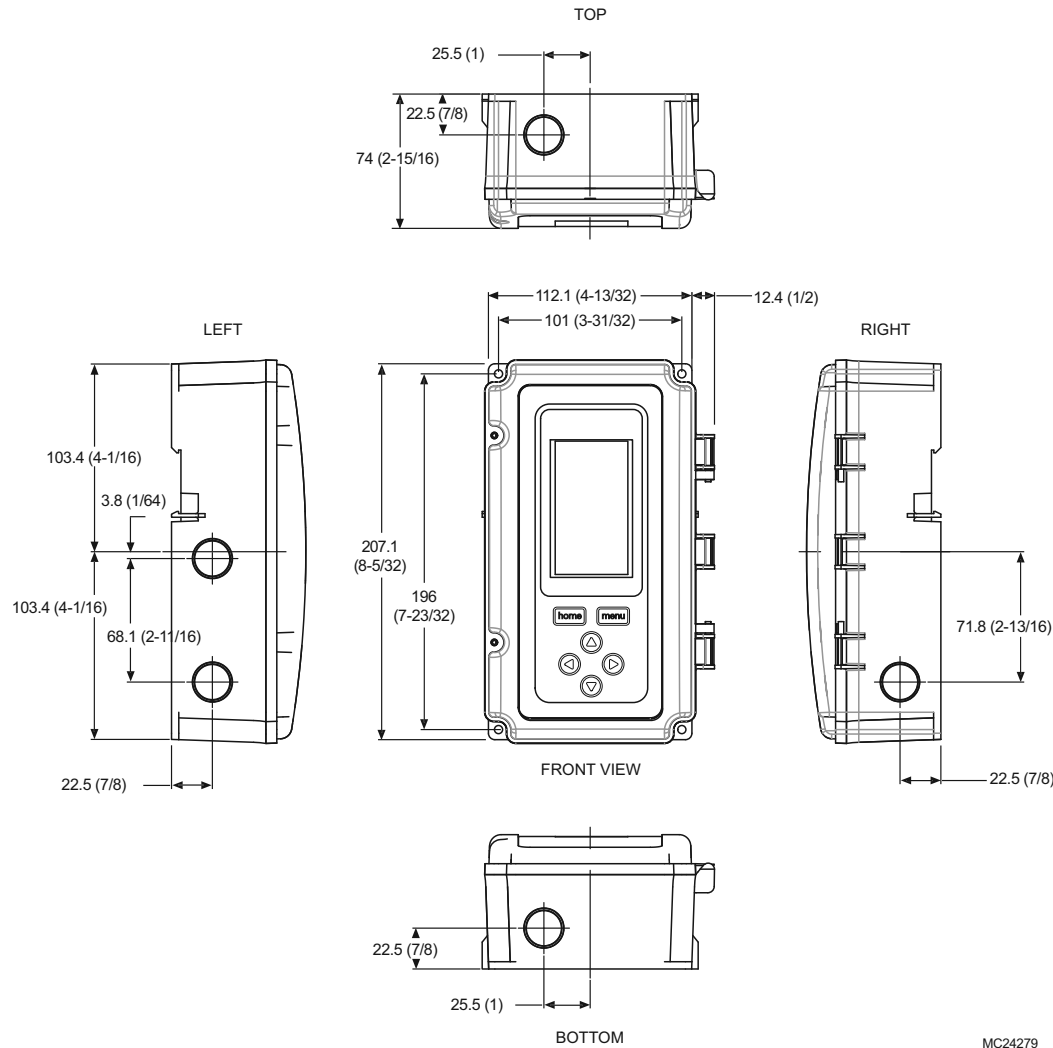
**C7100D1001** 12 inch Duct Averaging Temperature Sensor

**C7130B1009** Wall mount Room Sensor

Product Number	Analog Output	Relay Output	Sensor Inputs	Floating Output	Output Reset	Sensors Included (Qty)	Description	Replaces
T775A2009	—	1 SPDT	1	—	—	50021579-001 (1)	Standard	T775A1001
T775B2016	—	2 SPDT	2	1	—	T775-SENS-WR (1)	Standard- NEMA 4X	—
T775B2024	—	4 SPDT	2	2	—	T775-SENS-WR (1)	Standard- NEMA 4X	T775D1008; T775C1009
T775B2032	—	2 SPDT	2	1	—	50021579-001 (1)	Standard	T775B1000; T775A1019
T775B2040	—	4 SPDT	2	2	—	50021579-001 (1)	Standard	T775B1042; T775B1026; T775B1018; T775A1035; T775A1027
T775M2006	2	None	2	—	—	50021579-001 (1)	Modulating	—
T775M2014	2	4 SPDT	2	—	—	T775-SENS-WR (1)	Modulating-NEMA 4X	T775G1039; T775G1021; T775G1013; T775G1005
T775M2022	2	2 SPDT	2	—	—	T775-SENS-WR (1)	Modulating-NEMA 4X	—
T775M2030	2	4 SPDT	2	—	—	50021579-001 (1)	Modulating	T775F1089; T775F1055; T775F1022; T775E1114
T775M2048	2	2 SPDT	2	—	—	50021579-001 (1)	Modulating	T775E1098; T775E1064; T775E1056; T775E1023; T775E1015
T775R2001	—	4 SPDT	2	2	Yes	50021579-001 (2)	Reset Option	—
T775R2019	2	4 SPDT	2	—	Yes	50021579-001 (2)	Reset Option	—
T775R2027	2	2 SPDT	2	—	Yes	50021579-001 (2)	Reset Option	T775J1068; T775J1050; T775J1043
T775R2035	—	2 SPDT	2	1	Yes	50021579-001 (2)	Reset Option	T775J1076; T775J1001
T775R2043	2	—	2	—	Yes	50021579-001 (2)	Reset Option	T775J1035; T775J1027; T775J1019

# Temperature Controllers

Dimensions in millimeters (inches) T775



MC24279

## T775 Series 2000 Cross Reference

Item	Replacement	Comments
T775A1001	T775A2009	
T775A1019	T775B2032	
T775A1027	T775B2040	
T775A1035	T775B2040	
T775B1000	T775B2032	
T775B1018	T775B2040	
T775B1026	T775B2040	
T775C1009	T775B2024	
T775D1008	T775B2024	
T775E1015	T775M2048	
T775E1023	T775M2048	
T775E1056	T775M2048	
T775E1064	T775M2048	
T775E1098	T775M2048	
T775E1114	T775M2030	
T775F1022	T775M2030	
T775F1055	T775M2030	
T775F1089	T775M2030	
T775G1005	T775M2014	

Item	Replacement	Comments
T775G1013	T775M2014	
T775G1021	T775M2014	
T775J1001	T775R2035	
T775J1019	T775R2043	
T775J1027	T775R2043	
T775J1035	T775R2043	
T775J1043	T775R2027	
T775J1050	T775R2027	
T775J1068	T775R2027	
T775J1076	T775R2035	
H775A1006	T775U2006	
H775A1022	T775U2006	
H775A1048	T775U2006	T775U has only two relays, use two of them.
H775A1063	T775U2006	T775U has only two relays, use two of them.
H775B1005	T775U2006	
H775C1004	T775U2006	No duct limit reset, T775U has only two relays, use two of them.
H775D1003	T775U2006	No duct limit reset

## T775 Series 2000 Special Stand-Alone Controllers



The T775 electronic remote temperature controllers are the next generation of commercial and agricultural controls capable of remote sensing of temperature, humidity, pressure, etc., and providing switched and/or proportional outputs to various types of loads.

- Universal model (T775U) can control pressure, humidity, or any variable analog input.
- Special boiler model (T775P) for boiler control.
- Special Staged Sequencing Model (T775L) for sequence staging of relays with one or two setpoints.
- Special Expansion Model (T775S) for staging up to 12 relays with two setpoints (each T775S provides 4 relays).
- Save time on installations with the easy-to-use graphical Interface, large display, and the intuitive programming.
- Use the time clock scheduler or digital input to control the setback and disable output options to help save energy.
- Provide very fast or very fast response times on modulating outputs by adjusting the integral and derivative times (PI or PID).
- Configure models with reset in a few easy steps.
- Eliminate the need for a separate time delay device and protect equipment with the minimum off time option.
- Use the T775L and T775P to stage up to 12 relays (with optional T775S) from two independent heat or cool setpoints.
- Support for digital output alarm on the T775P configurable based on minimum, maximum, or differential temperature.

**Dimensions Diagram:** See page 364

**Setpoint Temperature Range:** -40 C to 120 C (-40 F to 248 F)

**Accuracy:** ±1 C at 25 C (±1 F at 77 F)

**Bulb Size:** (for T775L and T775P models) 6.35 mm diameter x 50.8 mm (1/4 in. diameter x 2 in. long)

**Sensor Element:** 1097 ohms PTC at 77 F (25 C)

**Maximum distance to sensor:** up to 304 m (Up to 1,000 ft)

**Relay Contact Ratings**

**(24 Vac):** 10.0A resistive

**(120 Vac):** 1/2 hp; 9.8 AFL, 58.8 ALR, 125 VA Pilot Duty

**(240 Vac):** 1/2 hp; 4.9 AFL, 29.4 ALR, 125 VA Pilot Duty

**Voltage:** 24 Vac or 120/240 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Ambient Temperature Range:**

-40 C to 52 C @ 50 Hz (-40 F to 125 F @ 50 Hz)

-40 C to 60 C @ 60 Hz (-40 F to 140 F @ 60 Hz)

**Throttling Range:** 0.5 C to 66 C (1 F to 150 F)

**Differential Temperature:** 0.5 C to 66 C (1 F to 150 F)

**Analog Output Type:** (all models with Analog output) 2-10 Vdc, 0-10 Vdc, 4-20 mA, Electronic Series 90

**Approvals:**

**C-Tick:** Approved

**Underwriters Laboratories, Inc.** Approved

**CE:** Approved

**Canadian Underwriters Laboratories, Inc.** Approved

**Other:** IP65: Approved

**Accessories:**

**107324A** Capillary Holder Assembly for duct insertion, 8 3/8 in. long

**H7655A1001** Humidity Transmitter, 5% RH accuracy, wall mount, without temp output

**H7655B1009** Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output

**P7640A1000** Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, panel mount, with display

**P7640A1018** Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, panel mount, without display

**P7640A1026** Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, panel mount, with display

**P7640B1032** Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, duct mount, without display

**P7640B1024** Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, duct mount, with display

**P7640B1016** Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, duct mount, without display

**P7640A1034** Differential Pressure Transmitter, 0-10, 0-5, 0-2.5, 0-1.0 in. w.c., uni- or bi-directional, panel mount, without display

**P7640B1008** Differential Pressure Transmitter, 0-1.0, 0-0.5, 0-0.25, or 0-0.1 in. w.c., uni- or bi-directional, duct mount, with display

Product Number	Analog Output	Relay Output	Stages Loop Control	Sensor Inputs	Digital Output	Output Reset	Sensors Included (Qty)	Expandable	Description	Replaces
T775L2007	—	4 SPDT	Yes	2		Yes	50021579-001 (1)	Add 1 or 2 T775Ss (4 relays ea)	Stage sequencer with reset option	—
T775P2003	—	4 SPDT	Yes	3	1	Yes	50021579-001 (3)	Add 1 or 2 T775Ss (4 relays ea)	Special boiler with reset option	—
T775S2008	—	4 SPDT	—	—		—	None	—	Relay Expansion Module	—
T775U2006	2	2 SPDT	—	2 (Sensor B used for reset only)		Yes	None	—	Universal - humidity, pressure, etc.	H775E1002; H775D1003; H775C1004; H775B1005; H775A1063; H775A1048; H775A1022; H775A1006
T775U2016	2	2 SPDT	—	2		Yes	None	—	Universal-Control to sensor A (universal input) and Sensor B (temp) independently	—

Commercial Components

# Temperature Controllers

## T915 Proportional Temperature Controller



**Proportional remote bulb controllers for ducts, tanks, boilers, pipes and other heat exchangers.**

- Provide proportioning control of three-wire, low-voltage valve or damper motors.
- Used to regulate temperatures of either air or liquids.
- All models ambient compensated. Ambient temperature compensation provides good temperature control. Refer to T775 Electronic Remote Temperature Controller where more exact control is required and/or remote controller location is preferred.
- Temperature setting scale markings in both Fahrenheit and Celsius. Steel case has a clear plastic cover to make setting readily visible.
- Surface mount using two screws through back of case.

**Type:** Remote bulb

**Application:** Used with Series 90 Modutrol Motors for proportional control of valves and dampers

**Dimensions, Approximate:** 140 mm high x 114 mm wide x 70 mm deep (5 1/2 in. high x 4 1/2 in. wide x 2 3/4 in. deep)

**Number of Sensor Inputs:** 1

**Color:** Gray

**Output Type:** analog

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Throttling Range		Bulb Size		Capillary Length		Analog Output	Sensor Element
	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)		
T915C1407	-10 C to +32 C	15 F to 90 F	93 C	200 F	3.9 C to 21.1 C	7 F to 38 F	13 mm diameter x 102 mm long	1/2 in. diameter x 4 in. long	6.1 m	20 ft.	One 135 Ohm Potentiometer	Copper bulb, fadeout fill
T915C1928	27 C to 99 C	80 F to 210 F	110 C	230 F	3.3 C to 17.8 C	6 F to 32 F	13 mm diameter x 102 mm long	1/2 in. diameter x 4 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	Copper bulb, high temperature fill
T915C1936	27 C to 99 C	80 F to 210 F	110 C	230 F	3.3 C to 17.8 C	6 F to 32 F	13 mm diameter x 102 mm long	1/2 in. diameter x 4 in. long	6.1 m	20 ft.	One 135 Ohm Potentiometer	Copper bulb, high temperature fill
* T915D1091	-10 C to +32 C	15 F to 90 F	54 C	130 F	3.9 C to 21.1 C	7 F to 38 F	17 mm diameter x 368 mm long	11/16 in. diameter x 14 1/2 in. long	6.1 m	20 ft.	Two 135 Ohm Potentiometers	Copper bulb, cross ambient fill

\* TRADELINE models • SUPER TRADELINE models

# Temperature Controllers

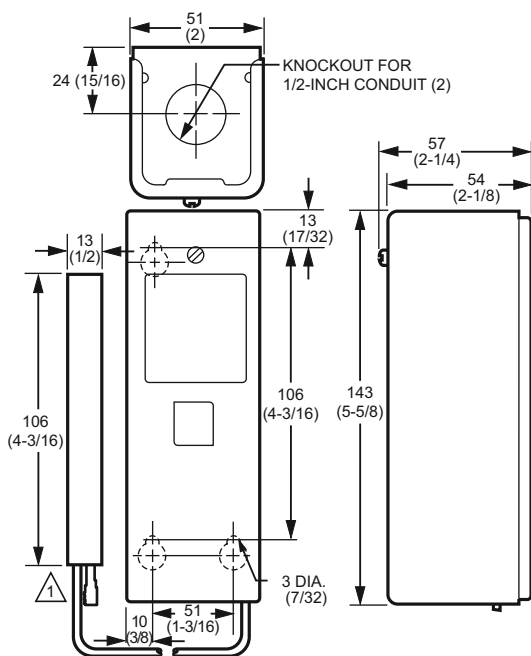
## T991A Proportional Temperature Controller



For modulating control of water or air temperature in ducts, tanks and similar applications.

- Fast response models (for duct mounting) have coiled sensing element giving at least four times faster response than standard models.
- Ambient temperature compensated for the case and tubing.
- Sensing element capillary tubing allows remote mounting of sensing element.
- Setpoint may be read and adjusted through cover.
- Throttling dial inside case adjusts proportional throttling range.

### Dimensions in millimeters (inches)



▲ BULB LENGTH IS 91 (3-9/16) ON 15 TO 75 C AND 55 TO 175 F RANGE  
MC2388

**Type:** Modulating Remote bulb

**Application:** Provide modulating control of water or air temperature in ducts or tanks

**Number of Sensor Inputs:** 1

**Color:** Gray

**Voltage:** 24 Vac to 30 Vac

**Frequency:** 50 Hz; 60 Hz

Product Number	Setpoint Temperature Range		Throttling Range		Maximum Operating Temperature		Bulb Size		Capillary Length		Analog Output	Output	Output Type	Sensor Element	Comments
	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)					
T991A1004	-18 C to +38 C	0 F to 100 F	1.7 C to 16.7 C	3 F to 30 F	52 C	125 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	—
T991A1012	-18 C to +38 C	0 F to 100 F	1.7 C to 16.7 C	3 F to 30 F	52 C	125 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	6.1 m	20 ft.	One 135 Ohm Potentiometer	—	analog	Copper bulb	—
T991A1061	71 C to 127 C	160 F to 260 F	1.7 C to 16.7 C	3 F to 30 F	138 C	280 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	—
T991A1079	71 C to 127 C	160 F to 260 F	1.7 C to 16.7 C	3 F to 30 F	138 C	280 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	6.1 m	20 ft.	One 135 Ohm Potentiometer	—	analog	Copper bulb	—
T991A1095	-15 C to +35 C	5 F to 95 F	1.7 C to 16.7 C	3 F to 30 F	52 C	125 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	Celsius scale
T991A1103	-15 C to +35 C	—	1.7 C to 16.7 C	3 F to 30 F	52 C	125 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	6.1 m	20 ft.	One 135 Ohm Potentiometer	—	analog	Copper bulb	Celsius scale
T991A1152	-15 C to +35 C	—	1.7 C to 16.7 C	3 F to 30 F	138 C	280 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	Celsius scale

\* TRADELINE models • SUPER TRADELINE models

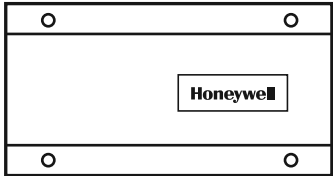
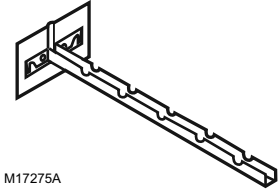
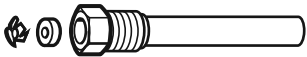
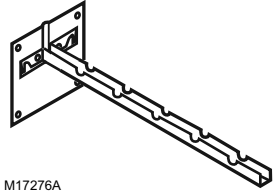
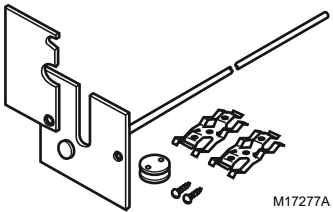
Commercial Components

# Temperature Controllers

Product Number	Setpoint Temperature Range		Throttling Range		Maximum Operating Temperature		Bulb Size		Capillary Length		Analog Output	Output	Output Type	Sensor Element	Comments
	(C)	(F)	(C)	(F)	(C)	(F)	(mm)	(inch)	(m)	(ft)					
T991A1186	13 C to 79 C	55 F to 175 F	1.7 C to 16.7 C	3 F to 30 F	93 C	200 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	
T991A1194	13 C to 79 C	55 F to 175 F	1.9 C to 20 C	3.5 F to 36 F	93 C	200 F	13 mm dia. x 90 mm long	1/2 in. dia. x 3 9/16 in. long	6.1m	20 ft.	One 135 Ohm Potentiometer	—	analog	Copper bulb	
T991A1210	15 C to 75 C	59 F to 167 F	1.7 C to 16.7 C	3 F to 10 F	93 C	200 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	Celsius scale
T991A1244	13 C to 79 C	55 F to 175 F	1.9 C to 20 C	3.5 F to 36 F	93 C	200 F	13 mm dia. x 90 mm long	1/2 in. dia. x 3 9/16 in. long	1.5m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper bulb	Includes 107324A Duct Bulb holder
T991A1269	13 C to 79 C	55 F to 175 F	1.9 C to 20 C	3.5 F to 36 F	93 C	200 F	13 mm dia. x 90 mm long	1/2 in. dia. x 3 9/16 in. long	6.1m	20 ft.	One 280 Ohm Potentiometer	—	analog	Copper bulb	280 ohm
T991A1343	13 C to 79 C	55 F to 175 F	1.9 C to 20 C	3.5 F to 36 F	93 C	200 F	13 mm dia. x 90 mm long	1/2 in. dia. x 3 9/16 in. long	1.5m	5 ft	One 280 Ohm Potentiometer	—	analog	Copper bulb	Includes 107324A Duct Bulb holder
T991A1350	13 C to 79 C	55 F to 175 F	1.9 C to 20 C	3.5 F to 36 F	93 C	200 F	2.8 mm dia. x 7.3 m long	7/64 in. dia. x 24 ft. long	7.3 m	24 ft.	One 135 Ohm Potentiometer	1 SPST	analog and relay	Copper averaging element	
T991A1426	-18 C to +38 C	0 F to 100 F	1.7 C to 16.7 C	3 F to 10 F	52 C	125 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	1 SPST	analog and relay	Copper bulb	Includes 107324A Duct Bulb holder
T991A1715	-18 C to +38 C	0 F to 100 F	1.7 C to 16.7 C	3 F to 10 F	52 C	125 F	3 mm dia. x 1.9 m long	1/8 in. dia. x 76 3/8 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	1 SPST	analog and relay	Copper fast response element	Includes 131524A duct coil holder
T991A1756	13 C to 79 C	55 F to 175 F	1.9 C to 20 C	3.5 F to 36 F	93 C	200 F	3 mm dia. x 1.9 m long	1/8 in. dia. x 76 3/8 in. long	1.5 m	5 ft	One 135 Ohm Potentiometer	—	analog	Copper fast response element	Includes 131524A duct coil holder
T991A1764	-18 C to +38 C	0 F to 100 F	1.7 C to 16.7 C	3 F to 30 F	52 C	125 F	2.8 mm dia. x 7.3 m long	7/64 in. dia. x 24 ft. long	7.3 m	24 ft.	One 135 Ohm Potentiometer	—	analog	Copper averaging element	
T991A2069	-18 C to +38 C	0 F to 100 F	1.7 C to 16.7 C	3 F to 30 F	52 C	125 F	3 mm dia. x 1.9 m long	1/8 in. dia. x 76 3/8 in. long	6.1 m	20 ft.	One 135 Ohm Potentiometer	—	analog	Copper fast response element	Includes 131524A duct coil holder
T991A2218	—	160 F to 260 F	1.7 C to 16.7 C	3 F to 30 F	138 C	280 F	13 mm dia. x 107 mm long	1/2 in. dia. x 4 3/16 in. long	2 m	6.5 ft.	One 135 Ohm Potentiometer	—	analog	Copper bulb	—

\* TRADELINE models • SUPER TRADELINE models

## Remote Bulb Controller Accessories

Product Number	Description	
107323A	Remote Bulb Shield Assembly, 3/8 in. diameter bulbs, < 5 in. long	 M17284A
107324A	Capillary Holder Assembly for duct insertion, 8 3/8 in. long	 M17275A
107408	Heat Conductive Compound, 4 ounces	
112620AA	Well Assembly., 3 3/4 in. (95 mm) insertion, 3/8 in. (10 mm) diameter, copper	 M17401A
112620BB	Well Assembly., 5 1/2 in. (140 mm) insertion, 3/8 in. (10 mm) diameter, copper	
112622AA	Well Assembly., 4 in. (102 mm) insertion, 1/2 in. (13 mm) diameter, copper	
112624AA	Well Assembly., 4 3/4 in. (121 mm) insertion, 1/2 in. (13 mm) diameter, stainless steel	
112628AA	Well Assembly., 4 3/4 in. (121 mm) insertion, 1/2 in. (13 mm) diameter, stainless steel	
112630AA	Well Assembly., 4 1/4 in. (108 mm) insertion, 1/2 in. (13 mm) diameter, copper	
112632AA	Well Assembly., 4 1/4 in. (108 mm) insertion, 1/2 in. (13 mm) diameter, stainless steel	
112634AA	Well Assembly., 4 1/4 in. (108 mm) insertion, 1/2 in. (13 mm) diameter, copper	
131524A	Capillary Holder Assembly., 8 3/8 in. long, duct insertion	 M17276A
193987GA	Encapsulated platinum sensing element used with the T7075 and T775. 2 5/8 in long, 3/8 in diameter, 6 in. leads.	
198212CA	Encapsulated platinum sensing element used with the T7075 and T775. Water resistant, 60 in. leads.	
203401B	Encapsulated platinum PT3000 sensing element used with the T7075 and T775. Water tight, 20 in. leads, requires 1/2 in. diameter well.	
311266D	Bulb Holder Assembly., T4031, use with copper elements only	 M17277A
7617M	Compression Fitting, brass 1/2 in. NPT plug	
7617P	Compression Fitting, brass 3/4 in. NPT plug	
7640HX	Mounting Kit, controller and averaging element	
Q615A1004	Splash proof enclosure	

# Temperature Controllers

## Remote Bulb Controller Parts

Product Number	Description
112719	Packing Ring, Remote Bulb Well
124186	Replacement Knob for T4054, T675, or T678
203531A	Panel Mount Kit for T775A,B,E,F, or J Electronic Temperature Controller with tamper resistant window
34886A	Sun shield for remote bulb controllers, T475, T991B, T678B, T675A
7617ABY	Compression Fitting, brass 1/2 in. NPT plug
801737A	140 ohms Potentiometer and Bracket Assembly for use with T991A

## Remote Temperature Controller Accessories

Product Number	Description	Used With
32004800-001	10K sensor for use with T7079	T7079
801534/0638	Calibration wrench for T991, T631, T675, T678, T6031, T475, T4031, T4054, T6054, T6064	—



# Commercial Round Dampers

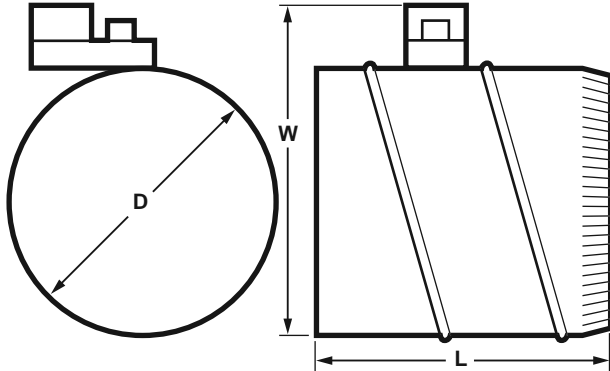
## D690 Low-Leakage, Single-Blade, Round Dampers



The D690 Round Damper is used in conventional air handling systems to control airflow in a round duct. The damper is designed for use with Honeywell ML6161 and ML7161 Direct Coupled Actuators.

- Neoprene seal for tight closing and low leakage.
- Oilite bearings for long life.
- 90 degree damper travel for a variety of applications.

Dimensions in millimeters (inches)



**Application:** heating, cooling, ventilating

**Type of Blade:** Single-blade, round

**Temperature Range:** 0 C to 54 C (32 F to 130 F)

**Integral Actuator:** None

**Input Signal:** none

**Used With:** ML6161; ML7161; W7751 VAV Controller

DAMPER DIAMETER (D)		WIDTH (W)		LENGTH (L)	
MM	IN.	MM	IN.	MM	IN.
152	6	241	9-1/2	305	12
203	8	292	11-1/2	305	12
254	10	343	13-1/2	305	12
305	12	394	15-1/2	330	13
356	14	445	17-1/2	381	15
406	16	495	19-1/2	432	17

MC17412

Product Number	Diameter		Maximum Approach Velocity (ft/ min)	Description
	(mm)	(inch)		
* D690A1002	152 mm diameter	6 in. diameter	2500 ft/min	6 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1010	203 mm diameter	8 in. diameter	2500 ft/min	8 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1028	254 mm diameter	10 in. diameter	2500 ft/min	10 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1036	305 mm diameter	12 in. diameter	2500 ft/min	12 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1044	356 mm diameter	14 in. diameter	2500 ft/min	14 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller
* D690A1051	406 mm diameter	16 in. diameter	2500 ft/min	16 inch, Single Blade Round Damper, for use with ML6161 and ML7161 actuators or W7751 VAV Controller

\* TRADELINE models • SUPER TRADELINE models

# Commercial Round Dampers

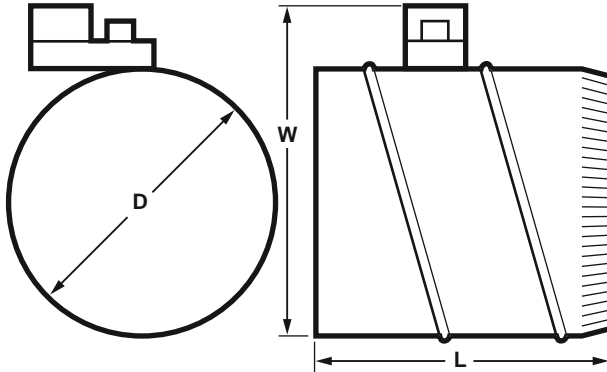
## DM7600 Commercial Zone Damper



The DM7600 Commercial Zone Damper is used in zoning systems to control airflow in a round duct. A Honeywell ML6161 or ML7161 Direct Coupled Actuator is factory mounted to the damper to simplify field installation.

- Neoprene seal for tight closing and low leakage.
- Oilite bearings for long life.
- 90 degree damper travel for a variety of applications.
- Magnetic coupling requires no limit switches or mechanical stops.

Dimensions in millimeters (inches)



**Application:** heating, cooling, ventilating

**Type of Blade:** Single-blade, round

**Temperature Range:** 0 C to 54 C (32 F to 130 F)

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

DAMPER DIAMETER (D)		WIDTH (W)		LENGTH (L)	
MM	IN.	MM	IN.	MM	IN.
152	6	241	9-1/2	305	12
203	8	292	11-1/2	305	12
254	10	343	13-1/2	305	12
305	12	394	15-1/2	330	13
356	14	445	17-1/2	381	15
406	16	495	19-1/2	432	17

MC17412

Product Number	Diameter		Integral Actuator	Maximum Approach Velocity (ft/ min)	Input Signal	Timing (sec, min.)
	(mm)	(inch)				
DM7600A1005	152 mm diameter	6 in. diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1013	203 mm diameter	8 in. diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1021	254 mm diameter	10 in. diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1047	356 mm diameter	14 in. diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600A1054	406 mm diameter	16 in. diameter	2 to 10 Vdc or 4 to 20 mA, ML7161A2008	2500 ft/min	2 to 10 Vdc or 4 to 20 mA	90 sec
DM7600B1004	152 mm diameter	6 in. diameter	SPDT Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1012	203 mm diameter	8 in. diameter	SPDT Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1020	254 mm diameter	10 in. diameter	SPDT Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1038	305 mm diameter	12 in. diameter	SPDT Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1046	356 mm diameter	14 in. diameter	SPDT Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec
DM7600B1053	406 mm diameter	16 in. diameter	SPDT Floating, ML6161A2009	2500 ft/min	SPDT Floating	90 sec

# Direct Coupled Actuators—Spring Return

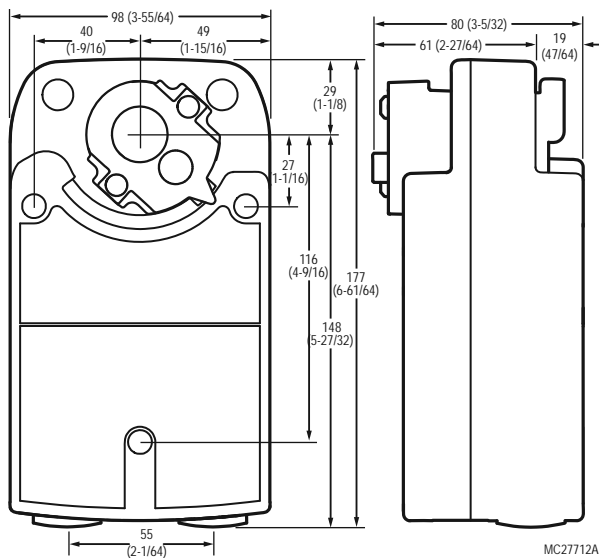
## S03 Series: MS4103; MS7403; MS7503; MS8103 Spring Return Direct Coupled Actuator, 27 lb-in



MS4103, MS7403, MS7503, and MS8103 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection on all models
- Self-centering shaft adaptor (shaft coupling) for wide range of shaft sizes
- Models available for use with two-position, SPST, line- (Series 40) or low- (Series 80) voltage controls
- Models available for use with floating or switched SPDT (Series 60) controls
- Models available for use with proportional current or voltage (Series 70) controls
- Models available with combined floating and modulating control in a single device
- Models available with an internal end switch
- Access cover to facilitate connectivity
- Durable plastic housing with built-in mechanical end limits
- Spring return direction field selectable
- Shaft position indicator and scale
- UL (cUL) listed and CE compliant
- All models are plenum rated per UL873

### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve  
**Rotational Stroke:** 95 ±3 degrees  
**Fail Safe Mode:** Spring Return  
**Torque:** 3 Nm (27 lb-in.)  
**Spring Return Torque:** 3 Nm (27 lb-in)

**External Auxiliary Switches Available:** No

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2

**Ingress Protection Rating:** IP54

**Frequency:** 50 Hz; 60 Hz

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 50

**Rotation to Open:** By switch

**Rotational Stroke Adjustment:** Mechanically limited 5 degree increments

**Compatible Damper Shafts:**

9mm to 16mm round or 6mm to 13mm square  
 (3/8 in. to 5/8 in. round or 1/4 in. to 1/2 in. square)

**Shaft Adapter Type:** Self-centering clamping

**Spring Return Direction:** By orientation

**Materials:** Plenum rated plastic housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -40 C to +65 C (-40 F to +149F)

-30 C to +65 C (-22 F to +149F) for two-position actuators only

**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150F)

**Storage Temperature Range:** -40 C to +65 C (-40 F to +150F)

**Weight:** 1.6 kg (3.5 lb)

**Includes:** Mounting bracket, self-centering shaft adapter

**Approvals:**

CE: EMC 2004/108/EC,

Certification Low Voltage Directive 2006/95/EC,

IEC 60730-1 and Part 2-14

C-Tick: N314

Underwriters Laboratories, Inc. UL 873

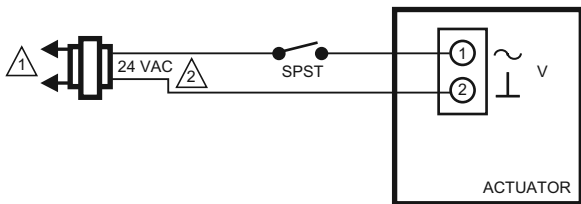
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

# Direct Coupled Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (sec)		Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Type of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return						
MS4103A1030	Two position; SPST	—	45 sec	25 sec	10 VA	100 to 250 Vac	—	0	—	—
MS4103A1130	Two position; SPST	—	45 sec	25 sec	10 VA	100 to 250 Vac	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS7403A2030	3 kOhm; 2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Three position	2-10 Vdc	90 sec	25 sec	7 VA	24 Vac/dc	Min. 95 kOhm	0	Min. Pos.	—
MS7503A2030	(0)2-10 Vdc (4-20 mA w/ 500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	7 VA	24 Vac/dc	Min. 95 kOhm	0	—	—
MS7503A2130	(0)2-10 Vdc (4-20 mA w/ 500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	7 VA	24 Vac/dc	Min. 95 kOhm	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS8103A1030	Two position; SPST	—	45 sec	25 sec	7 VA	24 Vac/dc	—	0	—	—
MS8103A1130	Two position; SPST	—	45 sec	25 sec	7 VA	24 Vac/dc	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)

\* TRADELINE models • SUPER TRADELINE models

## Wiring for low-voltage two-position control

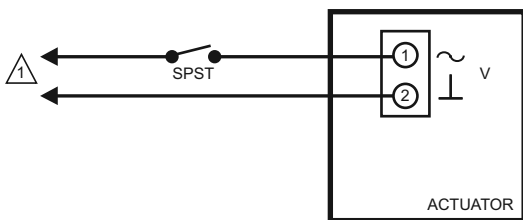


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

M29512

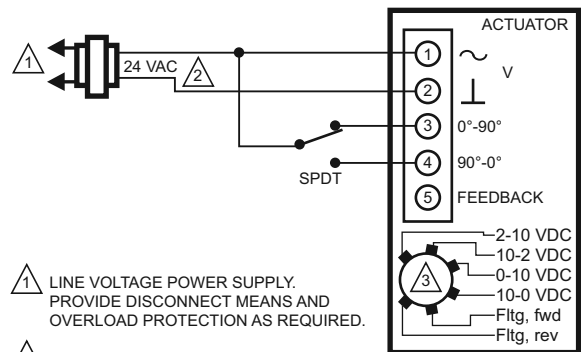
## Wiring for line-voltage two-position control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M29513

## Wiring for SPDT on/off control



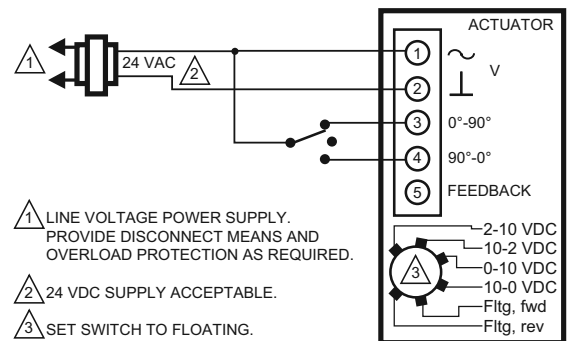
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29514

## Wiring for floating control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

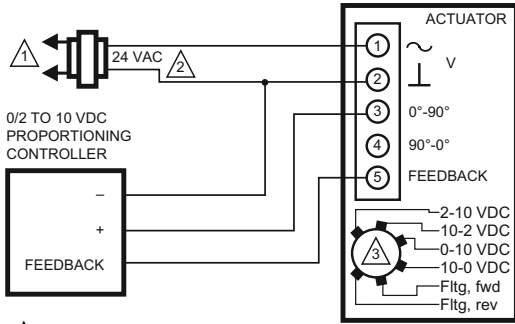
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29515

# Direct Coupled Actuators—Spring Return

## Wiring for (0)2-10 VDC proportioning controllers



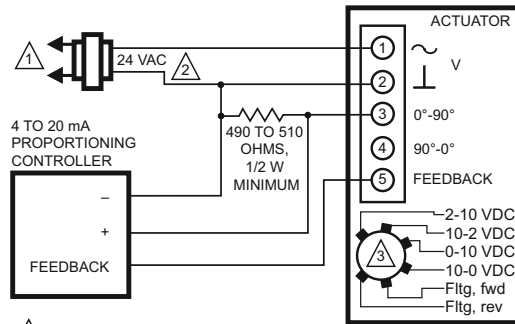
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29516

## Wiring for 4-10 mA proportioning controllers



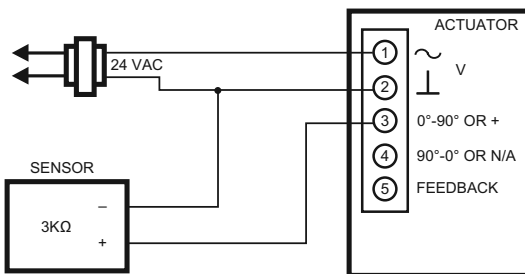
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29508

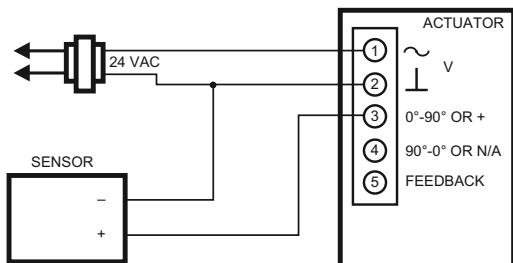
## Wiring for 3 kOhm Economizer controllers



1 EXTERNAL MINIMUM POSITION POT CAN BE APPLIED TO TERMINAL 4 90°-0°.

M29510

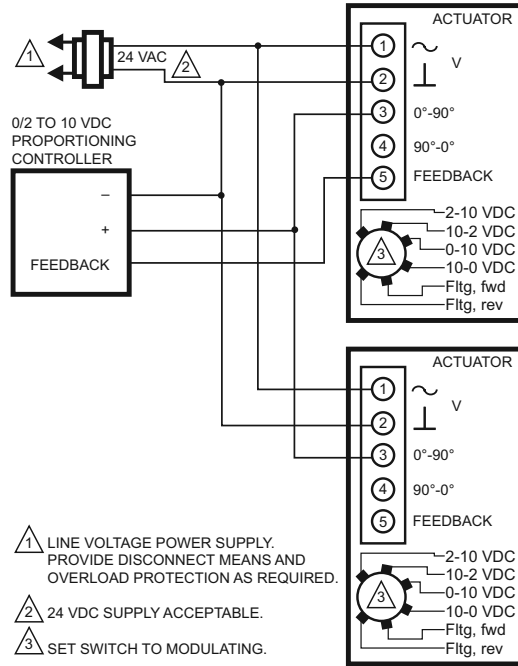
## Wiring for 3 position Economizer controllers



1 EXTERNAL MINIMUM POSITION POT CAN BE APPLIED TO TERMINAL 4 90°-0°.

M29511

## Wiring for (0)2-10 Vdc proportioning controller operating multiple actuators



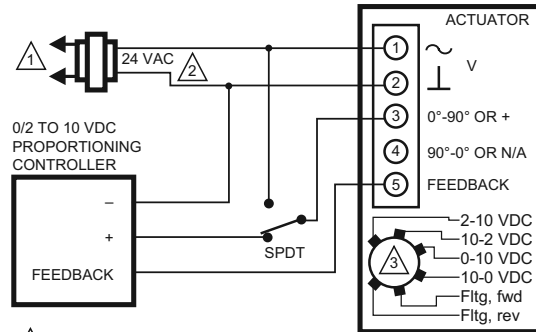
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29509

## Override to full open



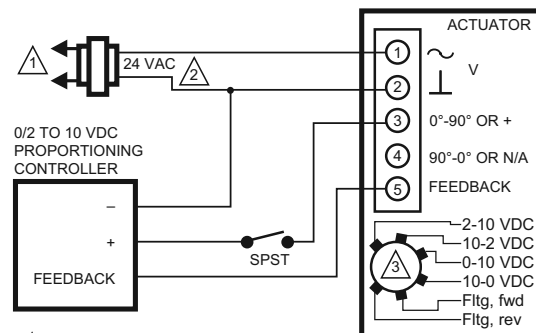
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27827

## Override to full closed



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27828

# Direct Coupled Actuators—Spring Return

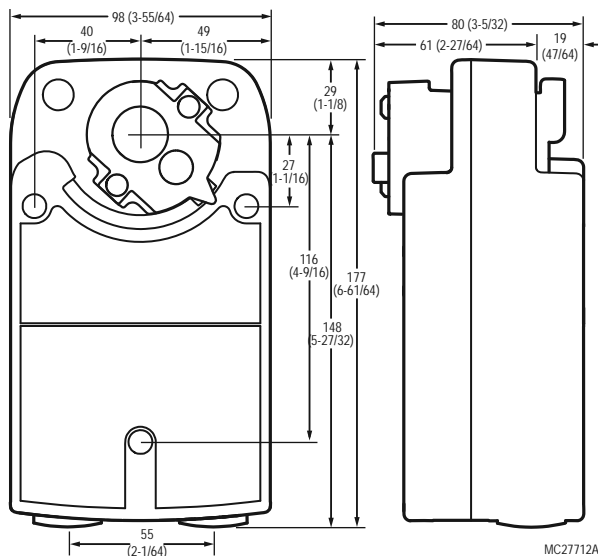
## S05 Series: MS4105; MS7405; MS7505; MS8105 Spring Return Direct Coupled Actuator, 44 lb-in



MS4103, MS7403, MS7503, and MS8103 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection on all models
- Self-centering shaft adaptor (shaft coupling) for wide range of shaft sizes
- Models available for use with two-position, SPST, line- (Series 40) or low- (Series 80) voltage controls
- Models available for use with floating or switched SPDT (Series 60) controls
- Models available for use with proportional current or voltage (Series 70) controls
- Models available with combined floating and modulating control in a single device
- Models available with an internal end switch
- Access cover to facilitate connectivity
- Durable plastic housing with built-in mechanical end limits
- Spring return direction field selectable
- Shaft position indicator and scale
- UL (cUL) listed and CE compliant
- All models are plenum rated per UL873

### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve  
**Rotational Stroke:** 95 ±3 degrees  
**Fail Safe Mode:** Spring Return  
**Torque:** 5 Nm (44 lb-in.)  
**Spring Return Torque:** 5 Nm (44 lb-in.)  
**External Auxiliary Switches Available:** No

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2

**Ingress Protection Rating:** IP54

**Frequency:** 50 Hz; 60 Hz

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 50

**Rotation to Open:** By switch

**Rotational Stroke Adjustment:** Mechanically limited 5 degree increments

**Compatible Damper Shafts:**

9mm to 16mm round or 6mm to 13mm square  
 (3/8 in. to 5/8 in. round or 1/4 in. to 1/2 in. square)

**Shaft Adapter Type:** Self-centering clamping

**Spring Return Direction:** By orientation

**Supply Voltage:** 100 to 250 Vac

**Materials:** Plenum rated plastic housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -40 C to +65 C (-40 F to +149F)

-30 C to +65 C (-22 F to +149F) for two-position actuators only

**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150F)

**Storage Temperature Range:** -40 C to +65 C (-40 F to +150F)

**Weight:** 1.6 kg (3.5 lb)

**Includes:** Mounting bracket, self-centering shaft adapter

**Approvals:**

**CE:** EMC 2004/108/EC,  
 Certification Low Voltage Directive 2006/95/EC,  
 IEC 60730-1 and Part 2-14

**C-Tick:** N314

**Underwriters Laboratories, Inc.** UL 873

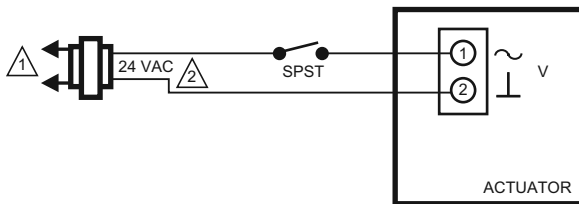
**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

# Direct Coupled Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (sec)		Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Type of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return						
MS4105A1030	Two position; SPST	—	45 sec	25 sec	11 VA	100 to 250 Vac	—	0	—	—
MS4105A1130	Two position; SPST	—	45 sec	25 sec	11 VA	100 to 250 Vac	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS7405A2030	3 kOhm; 2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Three position	2-10 Vdc	90 sec	25 sec	8 VA	24 Vac/dc	Min. 95 kOhm	0	Min. Pos.	—
MS7505A2030	(0)2-10 Vdc (4-20 mA w/ 500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	8 VA	24 Vac/dc	Min. 95 kOhm	0	—	—
MS7505A2130	(0)2-10 Vdc (4-20 mA w/ 500 ohm resistor); Floating	(0)2-10 Vdc	90 sec	25 sec	8 VA	24 Vac/dc	Min. 95 kOhm	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)
MS8105A1030	Two position; SPST	—	45 sec	25 sec	8 VA	24 Vac/dc	—	0	—	—
MS8105A1130	Two position; SPST	—	45 sec	25 sec	8 VA	24 Vac/dc	—	1	adjustable 0-95 degrees	250 Vac, 8 A res (5 A ind)

\* TRADELINE models • SUPER TRADELINE models

## Wiring for low-voltage two-position control

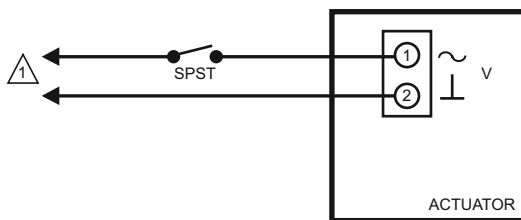


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

M29512

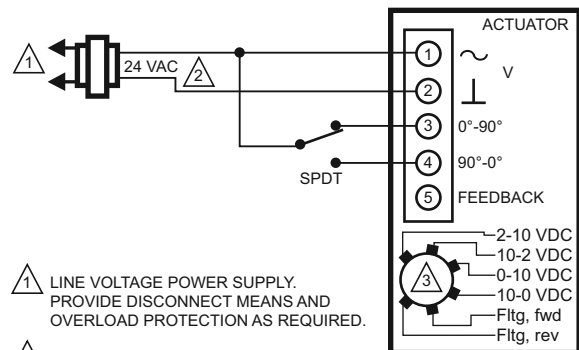
## Wiring for line-voltage two-position control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M29513

## Wiring for SPDT on/off control



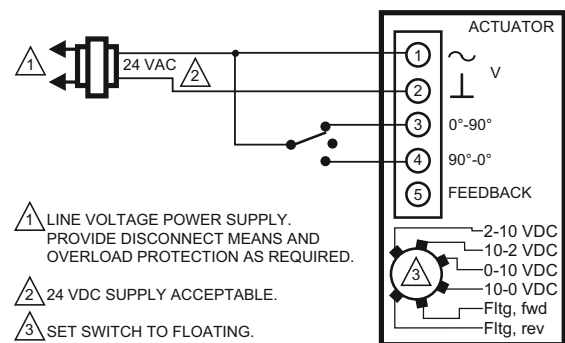
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29514

## Wiring for floating control



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

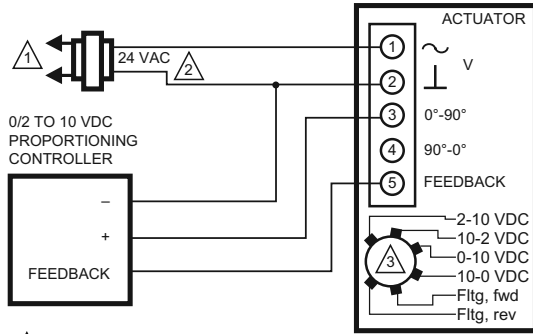
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M29515

# Direct Coupled Actuators—Spring Return

## Wiring for (0)2-10 VDC proportioning controllers



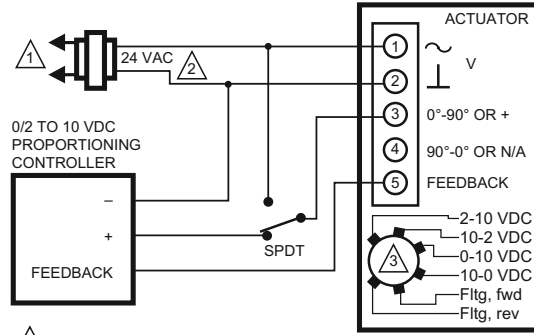
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29516

## Override to full open



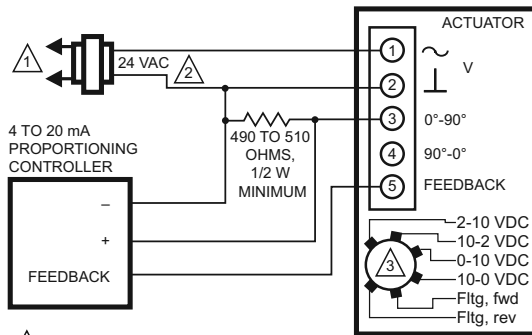
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27827

## Wiring for 4-10 mA proportioning controllers



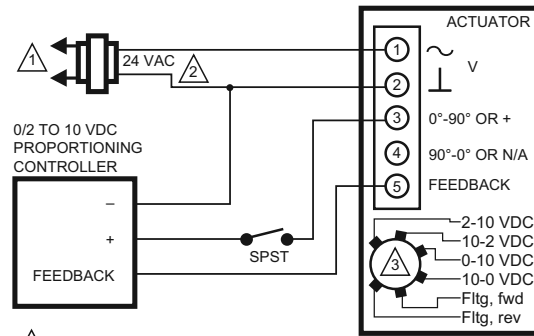
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29508

## Override to full closed



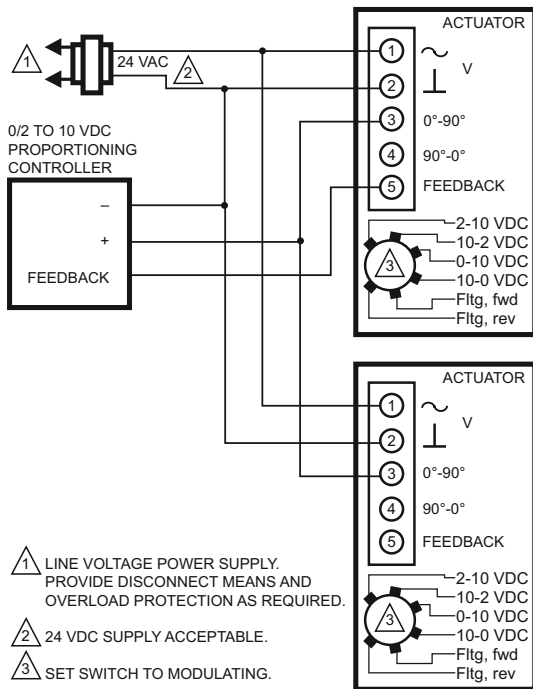
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M27828

## Wiring for (0)2-10 Vdc proportioning controller operating multiple actuators



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M29509



# Direct Coupled Actuators—Spring Return

## S10 Series: MS4110; MS7510; MS8110

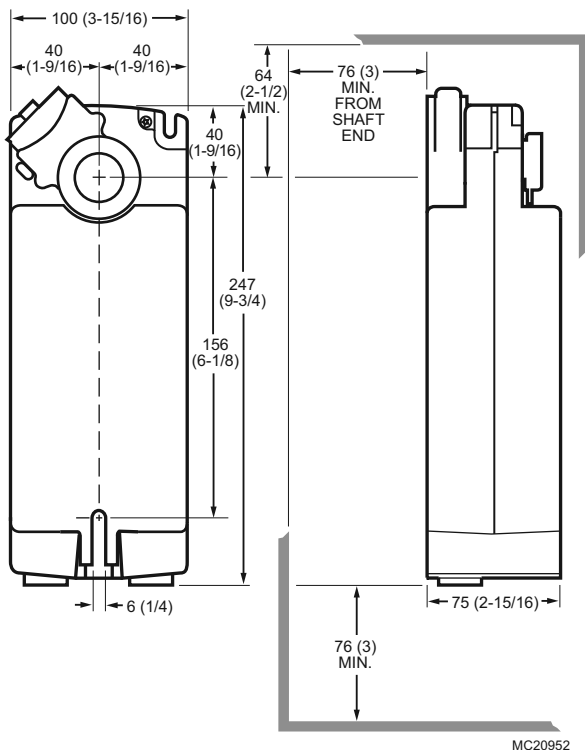
### Spring Return Direct Coupled Actuator, 88 lb-in



MS4110, MS7510, MS8110 S10 Series Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

- Brushless DC submotor with electronic stall protection for floating/modulating models.
- Brush DC submotor with electronic stall protection for 2-position models.
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes.
- Models available for use with two-position, single pole single throw (spst), line- (Series 40) or low- (Series 80) voltage controls.
- Models available for use with floating or switched single-pole, double-throw (spdt) (Series 60) controls.
- Models available for use with proportional current or voltage (Series 70) controls.
- Models available with combined floating/modulating control in a single device.
- Models available with adjustable zero and span.
- Models available with line-voltage internal end switches.
- Access cover to facilitate connectivity.
- Metal housing with built-in mechanical end limits.
- Spring return direction field-selectable.
- Shaft position indicator and scale.
- Manual winding capability with locking function.
- UL (cUL) listed and CE compliant.
- All Models are plenum-rated per UL873.

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Spring Return

**Torque:** (10 Nm (88 lb-in.))

**Spring Return Torque:** 10 Nm (88 lb-in.)

**External Auxiliary Switches Available:** Yes, SW2-US

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2

**Frequency:** 50 Hz; 60 Hz

**Manual operation:** Manual crank

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 40

**Rotational Stroke Adjustment:** Mechanically limited 5 degree increments

**Compatible Damper Shafts:**

10 to 27 mm round or 10 to 18 mm square  
(3/8 to 1.06 in. round or 3/8 to 11/16 in. square)

**Shaft Adapter Type:** Self-centering clamping

**Spring Return Direction:** By orientation

**Supply Voltage:** 100 to 250 Vac

**Materials:** Aluminum housing, Plenum rated plastic access cover

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -40 C to +60 C (40 F to +140 F)

**Storage Temperature Range:** -40 C to +70 C (40 F to +158 F)

**Weight:** 2.72 kg (6 lb)

**Includes:** Mounting bracket, self-centering shaft adapter, 3mm crank

**Comments:** Integral 1/2 in. NPSM conduit connection.

**Approvals:**

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

Underwriters Laboratories, Inc. UL873, Plenum Rated

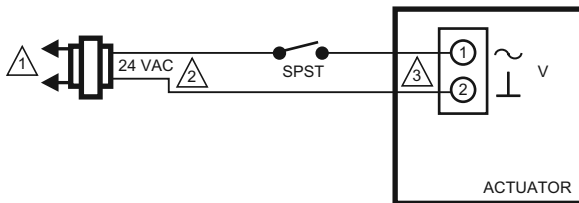
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

# Direct Coupled Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (sec)		Power Consumption		Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding				
MS4110A1002	Two position; SPST	—	45 sec	20 sec	45 VA	13 VA	100 to 250 Vac	—	0	—
MS4110A1200	Two position; SPST	—	45 sec	20 sec	45 VA	13 VA	100 to 250 Vac	—	2	250 Vac, 5 A res (3 A ind)
MS7510A2008	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	14 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	0	—
MS7510A2206	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	14 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS7510H2209	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	14 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS8110A1008	Two position; SPST	—	45 sec	20 sec	30 VA	8 VA	24 Vac ±20%	—	0	—
MS8110A1206	Two position; SPST	—	45 sec	20 sec	30 VA	8 VA </tr				

\* TRADELINE models • SUPER TRADELINE models

## Wiring for on/off control

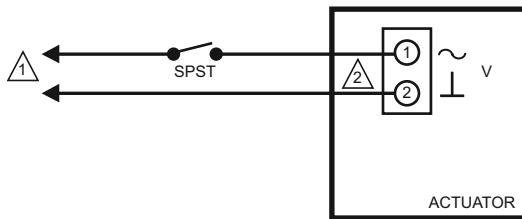


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M19718C

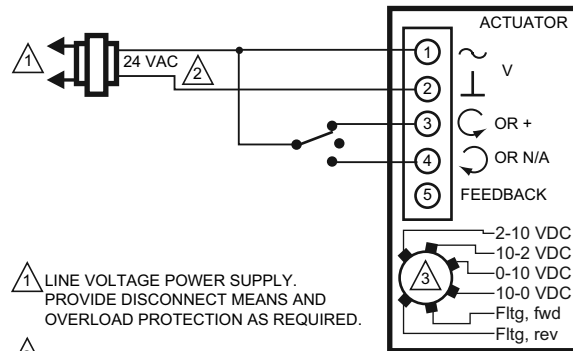


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M22289A

## Wiring for floating control (floating mode setting)



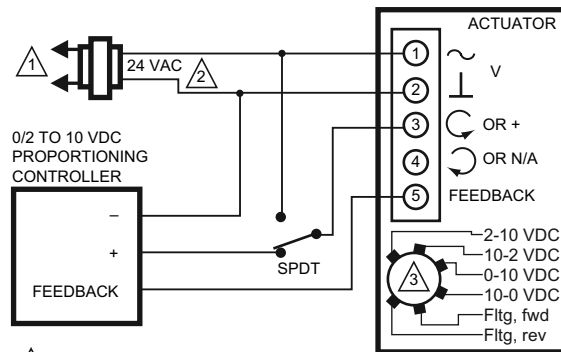
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M19573A

## Override to full open (modulating mode setting)



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

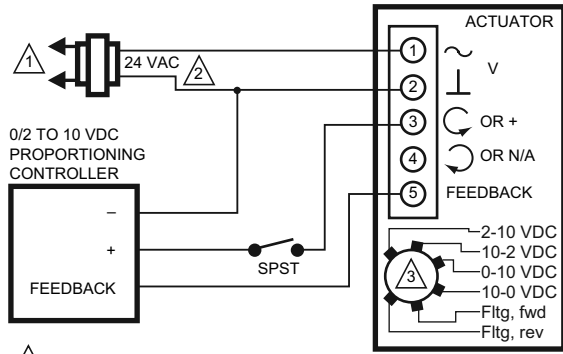
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19576A

# Direct Coupled Actuators—Spring Return

## Override to full closed (modulating mode setting)



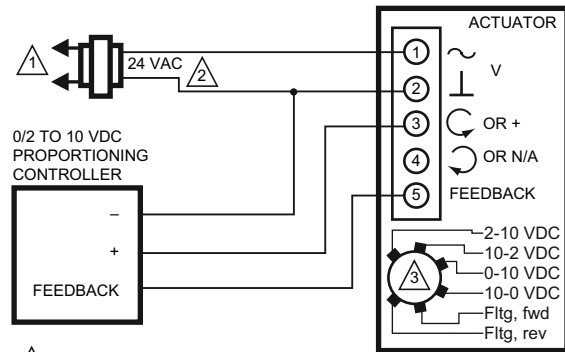
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19577A

## Wiring for proportioning controllers (modulating mode setting)

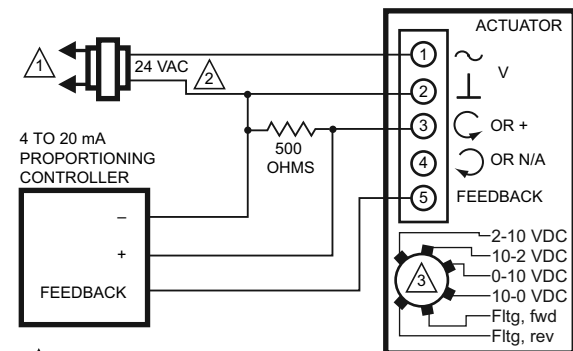


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19574A



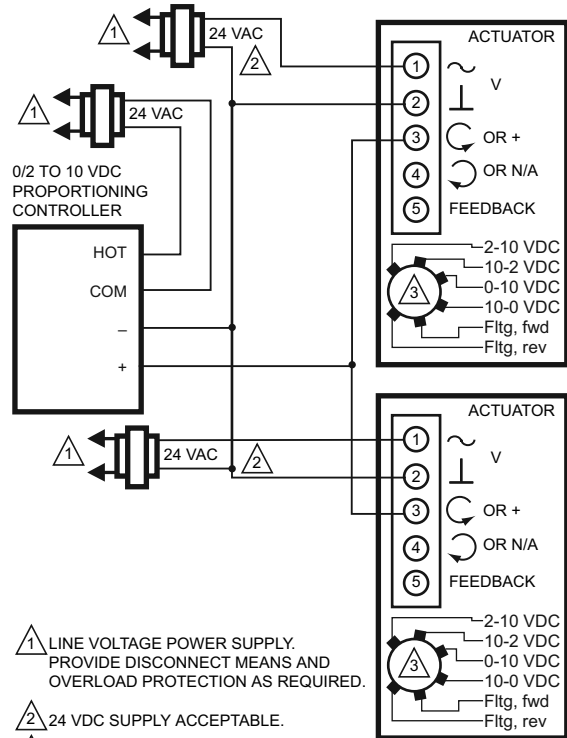
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M22282

## Wiring for proportioning controllers operating multiple actuators (modulating mode setting)



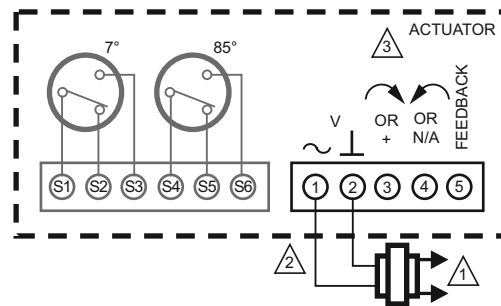
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M22288

## Terminal block details



1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 THE INTERNAL AUXILIARY SWITCHES MUST BE CONNECTED TO THE SAME POWER SOURCE; OR THE AUXILIARY SWITCHES SHALL BE CONNECTED TO THE SAME POLE OF THE SAME SUPPLY CIRCUIT, CONNECTED IN A SAME POLARITY MANNER.

3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M19571B

# Direct Coupled Actuators—Spring Return

## S20 Series: MS4120; MS7520; MS8120

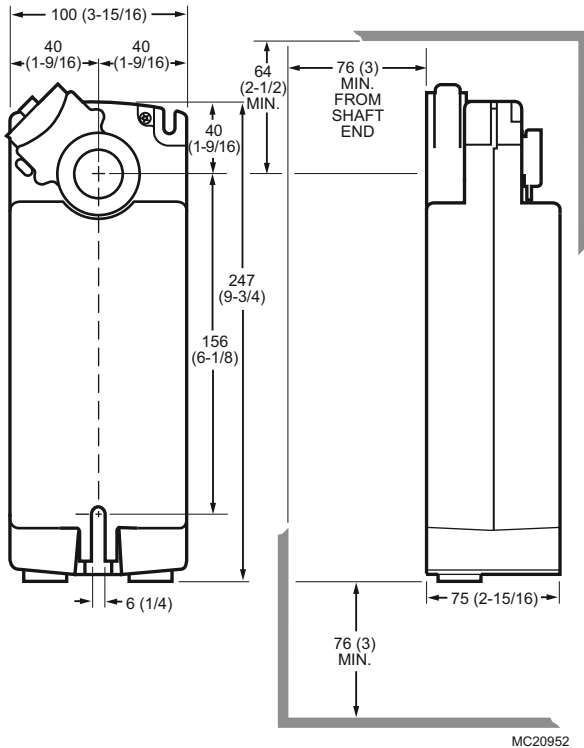
### Spring Return Direct Coupled Actuator, 175 lb-in



**MS4120, MS7520, MS8120 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.**

- Brushless DC submotor with electronic stall protection for floating/modulating models.
- Brush DC submotor with electronic stall protection for 2-position models.
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes.
- Models available for use with two-position, single pole single throw (spst), line- (Series 40) or low- (Series 80) voltage controls.
- Models available for use with floating or switched single-pole, double-throw (spdt) (Series 60) controls.
- Models available for use with proportional current or voltage (Series 70) controls.
- Models available with combined floating/modulating control in a single device.
- Models available with adjustable zero and span.
- Models available with line-voltage internal end switches.
- Access cover to facilitate connectivity.
- Metal housing with built-in mechanical end limits.
- Spring return direction field-selectable.
- Shaft position indicator and scale.
- Manual winding capability with locking function.
- UL (cUL) listed and CE compliant.
- All models are plenum-rated per UL873.

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve  
**Rotational Stroke:** 95 ±3 degrees  
**Fail Safe Mode:** Spring Return  
**Torque:** 20 Nm (175 lb-in.)  
**Spring Return Torque:** 20 Nm (175 lb-in.)  
**External Auxiliary Switches Available:** Yes, SW2-US  
**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)  
**Environmental Rating:** NEMA2  
**Frequency:** 50 Hz; 60 Hz  
**Manual operation:** Manual crank  
**Mounting:** Direct Coupled  
**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)  
**Maximum Noise Rating, Driving (dBA @ 1m):** 40  
**Rotational Stroke Adjustment:** Mechanically limited 5 degree increments  
**Compatible Damper Shafts:**  
 10 to 27 mm round or 10 to 18 mm square  
 (3/8 to 1.06 in. round or 3/8 to 11/16 in. square)  
**Shaft Adapter Type:** Self-centering clamping  
**Spring Return Direction:** By orientation  
**Supply Voltage:** 100 to 250 Vac  
**Materials:** Aluminum housing, Plenum rated plastic access cover  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Ambient Temperature Range:** -40 C to +60 C (40 F to +140 F)  
**Storage Temperature Range:** -40 C to +70 C (40 F to +158 F)  
**Weight:** 2.72 kg (6 lb)  
**Includes:** Mounting bracket, self-centering shaft adapter, 3mm crank  
**Approvals:**  
**CE:** 89/336/ECC, 73/23/EEC  
**C-Tick:** N314  
**Underwriters Laboratories, Inc.** UL873, Plenum Rated  
**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Timing (sec)		Power Consumption		Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding				
MS4120A1001	Two position; SPST	—	45 sec	20 sec	60 VA	13 VA	100 to 250 Vac	—	0	—
MS4120A1209	Two position; SPST	—	45 sec	20 sec	60 VA	13 VA	100 to 250 Vac	—	2	250 Vac, 5 A res (3 A ind)

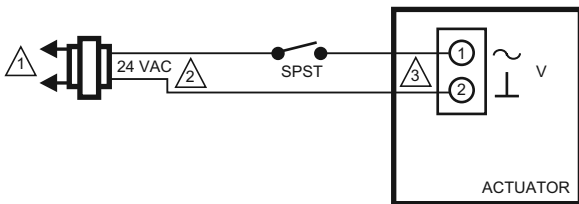
\* TRADELINE models • SUPER TRADELINE models

# Direct Coupled Actuators—Spring Return

Product Number	Control Signal	Feedback	Timing (sec)		Power Consumption		Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding				
MS7520A2007	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	16 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	0	—
MS7520A2205	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	16 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS7520H2208	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating	2-10 Vdc (max. output: ±1.0 mA)	90 sec	20 sec	16 VA	5 VA	24 Vac ±20%	Min. 95 kOhm	2	250 Vac, 5 A res (3 A ind)
MS8120A1007	Two position; SPST	—	45 sec	20 sec	40 VA	8 VA	24 Vac ±20%	—	0	—
MS8120A1205	Two position; SPST	—	45 sec	20 sec	40 VA	8 VA	24 Vac ±20%	—	2	250 Vac, 5 A res (3 A ind)

\* TRADELINE models • SUPER TRADELINE models

## Wiring for on/off control

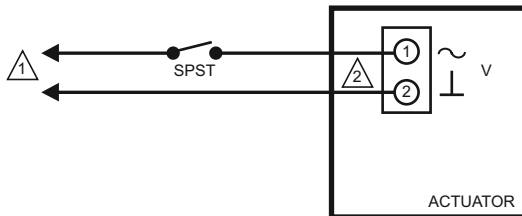


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M19718C

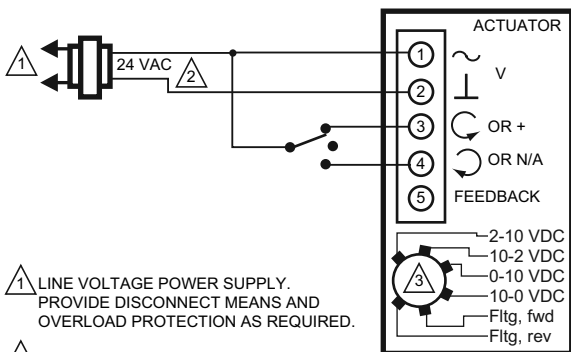


1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 ENSURE PROPER GROUNDING OF ACTUATOR CASE.

M22289A

## Wiring for floating control (floating mode setting)



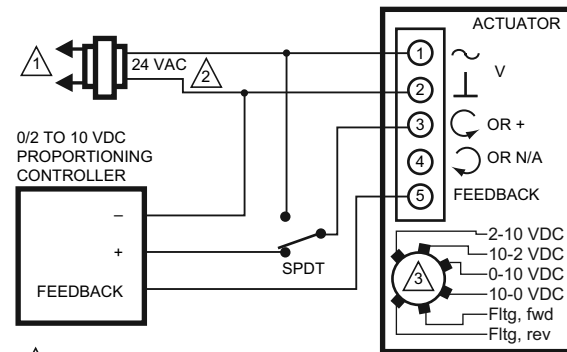
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO FLOATING.

M19573A

## Override to full open (modulating mode setting)



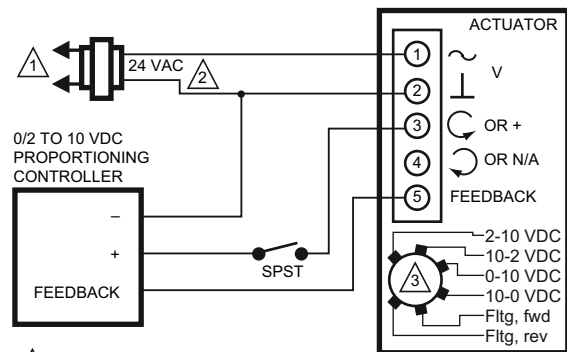
1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

M19576A

## Override to full closed (modulating mode setting)



1 LINE VOLTAGE POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

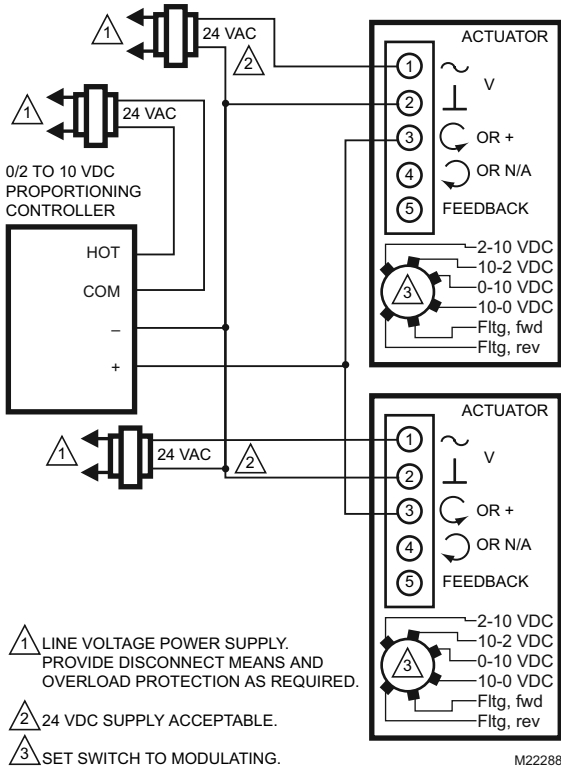
2 24 VDC SUPPLY ACCEPTABLE.

3 SET SWITCH TO MODULATING.

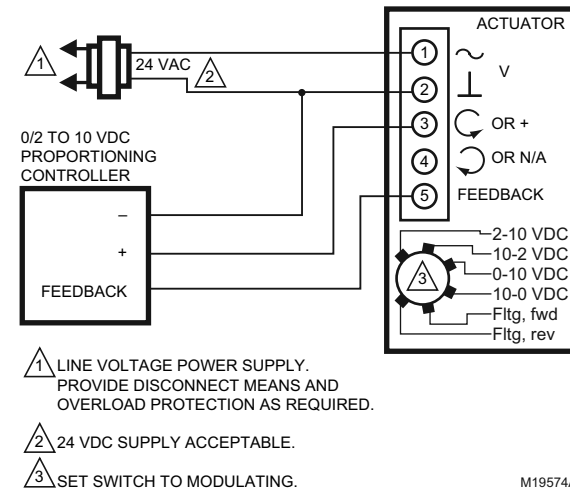
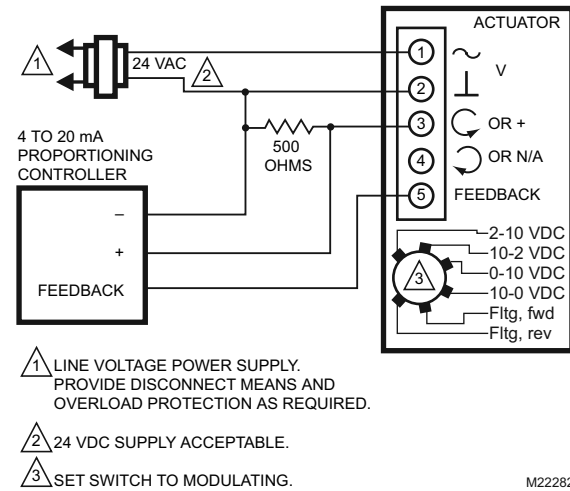
M19577A

# Direct Coupled Actuators—Spring Return

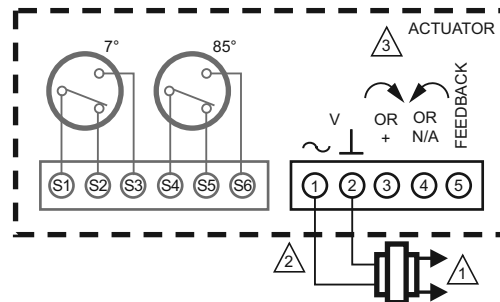
## Wiring for proportioning controllers operating multiple actuators (modulating mode setting)



## Wiring for proportioning controllers (modulating mode setting)



### Terminal block details



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
  - 2 THE INTERNAL AUXILIARY SWITCHES MUST BE CONNECTED TO THE SAME POWER SOURCE; OR THE AUXILIARY SWITCHES SHALL BE CONNECTED TO THE SAME POLE OF THE SAME SUPPLY CIRCUIT, CONNECTED IN A SAME POLARITY MANNER.
  - 3 ENSURE PROPER GROUNDING OF ACTUATOR CASE.
- M19571B

# Direct Coupled Actuators—Spring Return

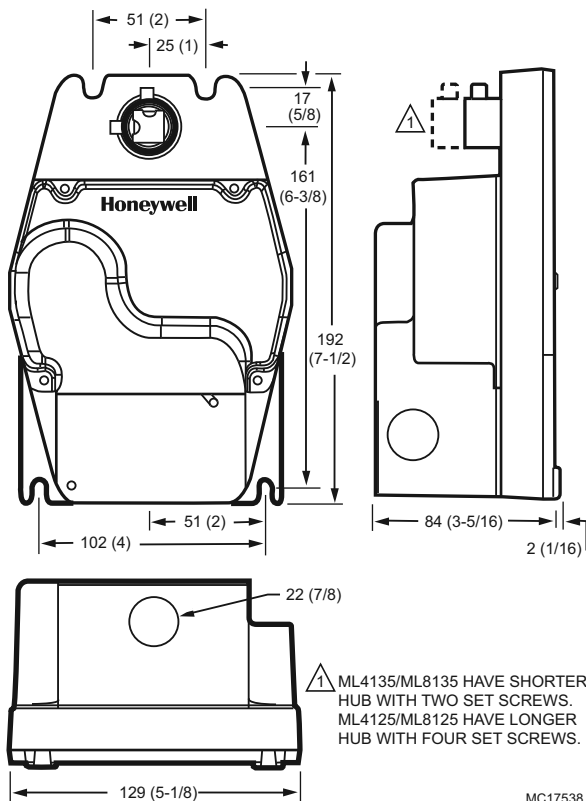
## ML4135; ML8135 HVAC, Fast-Acting, Two-Position Actuators, 40 lb-in



The ML8135 Fast-Acting, Two-Position Actuators are spring return direct coupled actuators (DCA) with an integral junction box for on/off damper control.

- Integral spring return.
- -40 C to 130 F (-40 C to 54 C) operating temperature range.
- No audible noise during holding.
- Electronic circuitry provides efficient operation while eliminating the need for limit switches.
- Ninety-five degree angle of rotation.
- Die-cast aluminum housing. Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.
- Direct mounting to 3/8 or 1/2 in. round or square shaft.
- Not intended for smoke control systems.

### Dimensions in millimeters (inches)



**Actuator Type:** Damper

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Spring Return

**Torque:** 4.5 Nm (40 lb-in.)

**Spring Return Torque:** 4.5 Nm (40 lb-in.)

**External Auxiliary Switches Available:** Yes, 32003532-005

**Electrical Connections:** Two color-coded leads

**Electrical Connection Length:** 406 mm (16 in.)

**Environmental Rating:** NEMA1

**Frequency:** 60 Hz

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 65

**Compatible Damper Shafts:** 10 to 13 mm square/round (3/8 to 1/2 inch square or round)

**Shaft Adapter Type:** Aluminum Hub, four set screws

**Supply Voltage:** 120 Vac ±10%

**Materials:** Aluminum housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -18 C to +55 C (-40 F to +130 F)

**Storage Temperature Range:** -18 C to +60 C (-40 F to +140 F)

**Weight:** 2.72 kg (6 lb)

**Includes:** Mounting bracket, ground screw

**Comments:** Integral junction box with three 7/8 in. conduit openings (fittings not included)

**Approvals:**

**Underwriters Laboratories, Inc.** UL873, Plenum Rated

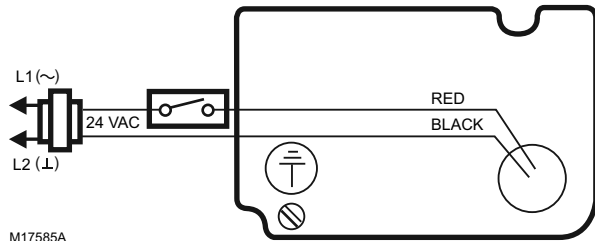
**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

# Direct Coupled Actuators—Spring Return

Product Number	Control Signal	Timing (sec)			Power Consumption		Supply Voltage	Spring Return Direction	Number of Internal Auxiliary Switch	Includes
		Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding				
ML4135A1007	Two position; SPST	25 sec	20 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	CCW	0	Mounting bracket, ground screw
ML4135B1006	Two position; SPST	25 sec	20 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	CW	0	Mounting bracket, ground screw
ML8135A1003	Two position; SPST	25 sec	20 sec	15 sec	18 VA	8.5 VA	24 Vac +20%, -10%	CCW	0	Mounting bracket
ML8135B1002	Two position; SPST	25 sec	20 sec	15 sec	18 VA	8.5 VA	24 Vac +20%, -10%	CW	0	Mounting bracket

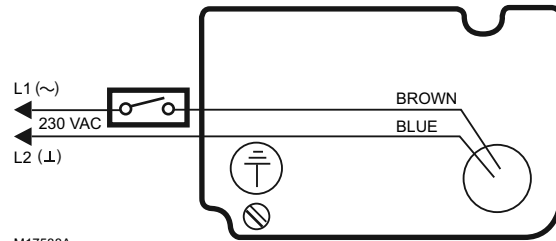
\* TRADELINE models • SUPER TRADELINE models

Typical 24 Vac wiring



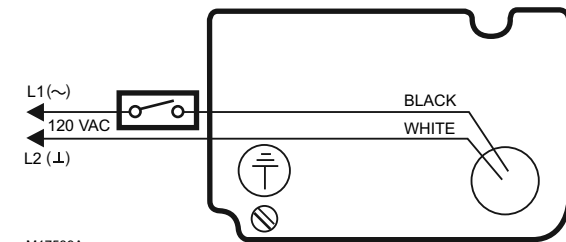
M17585A

Typical 230 Vac wiring



M17588A

Typical 120 Vac wiring



M17589A



# Direct Coupled Actuators—Spring Return

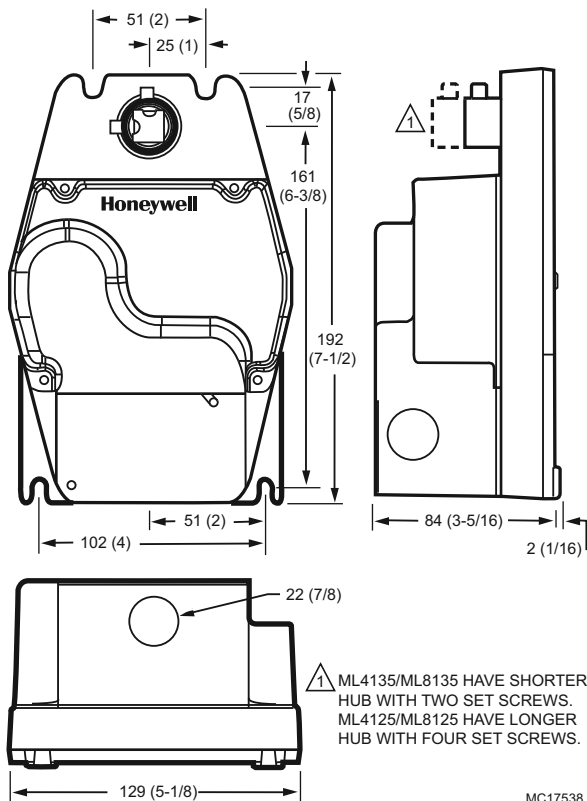
## ML4125; ML8125; HVAC, Fast-Acting, Two-Position Actuators, 100 lb-in



The ML8125 Fast-Acting, Two-Position Actuators are spring return direct coupled actuators (DCA) with an integral junction box for on/off damper control.

- Integral spring return.
- -40 C to 130 F (-40 C to 54 C) operating temperature range.
- No audible noise during holding.
- Electronic circuitry provides efficient operation while eliminating the need for limit switches.
- Ninety-five degree angle of rotation.
- Die-cast aluminum housing. Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.
- Direct mounting to 3/8 or 1/2 in. round or square shaft.
- Not intended for smoke control systems.

Dimensions in millimeters (inches)



**Actuator Type:** Damper

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Spring Return

**Torque:** 11.3 Nm (100 lb-in.)

**Spring Return Torque:** 11.3 Nm (100 lb-in.)

**External Auxiliary Switches Available:** Yes, 32003532-005

**Electrical Connections:** Two color-coded leads

**Electrical Connection Length:** 406 mm (16 in.)

**Environmental Rating:** NEMA1

**Frequency:** 60 Hz

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 65

**Compatible Damper Shafts:** 10 to 13 mm square/round (3/8 to 1/2 inch square or round)

**Shaft Adapter Type:** Aluminum Hub, two set screws

**Supply Voltage:** 120 Vac +10%, -15%

**Materials:** Aluminum housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -40 C to +55 C (-40 F to +130 F)

**Storage Temperature Range:** -40 C to +60 C (-40 F to 140 F)

**Weight:** 2.72 kg (6 lb)

**Comments:** Integral junction box with three 7/8 in. conduit openings (fittings not included)

**Approvals:**

Underwriters Laboratories, Inc. UL873, Plenum Rated

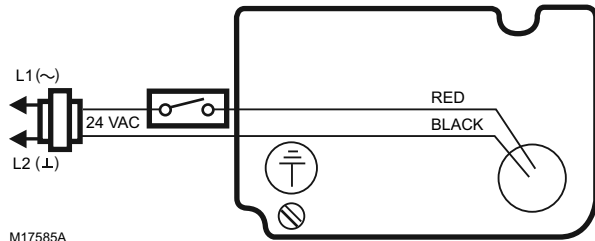
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

# Direct Coupled Actuators—Spring Return

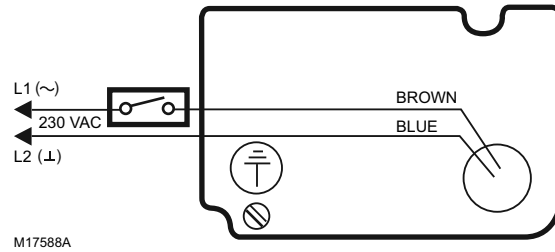
Product Number	Control Signal	Timing (sec)			Power Consumption		Supply Voltage	Spring Return Direction	Number of Internal Auxiliary Switch	Includes
		Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding				
ML4125A1008	Two position; SPST	40 sec	25 sec	25 sec	0.16A, 15W	0.10A, 5W	120 Vac +10%, -15%	CCW	0	Ground Screw
ML4125B1007	Two position; SPST	40 sec	25 sec	25 sec	0.16A, 15W	0.10A, 5W	120 Vac +10%, -15%	CW	0	Ground Screw
ML4125C1006	Two position; SPST	40 sec	25 sec	25 sec	0.12A, 18.6W	0.10A, 7W	230 Vac ±10%	CCW	0	Mounting bracket
ML4125D1005	Two position; SPST	40 sec	25 sec	25 sec	0.12A, 18.6W	0.10A, 7W	230 Vac ±10%	CW	0	Mounting bracket
ML8125A1004	Two position; SPST	40 sec	25 sec	25 sec	15.6 VA	4 VA	24 Vac +20%, -10%	CCW	0	Mounting bracket
ML8125B1003	Two position; SPST	40 sec	25 sec	25 sec	15.6 VA	4 VA	24 Vac +20%, -10%	CW	0	Mounting bracket

\* TRADELINE models • SUPER TRADELINE models

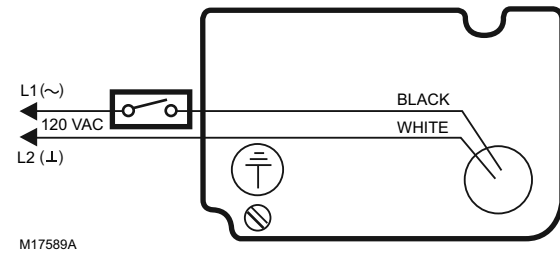
Typical 24 Vac wiring



Typical 230 Vac wiring



Typical 120 Vac wiring



## M447 Direct Drive Damper Actuator

**Actuator Type:** Damper  
**Rotational Stroke:** 90 degrees  
**Fail Safe Mode:** Spring Return  
**Torque:** 0.34 Nm (48 in-oz)  
**Cable Entry:** Molded strain relief  
**Dimensions, Approximate:**  
 88 mm high x 89 mm wide x 60 mm in deep  
 (3.5 in. high x 3.5 in. wide x 2.38 in. deep)  
**Electrical Connections:** Cable

**Electrical Connection Length:** 1 m (39 in.)  
**Frequency:** 50 Hz  
**Mounting:** Direct Coupled  
**Shaft Adapter Type:** Fixed size Hub, one set screw  
**Spring Return Direction:** CCW (when viewed from the shaft end)  
**Supply Voltage:** 24 Vac, 50Hz  
**Materials:** Aluminum cover, zinc plated steel  
**Ambient Temperature Range:** 5 C to 60 C (40 F to 140 F)

Product Number	Control Signal	Timing (sec)		Power Consumption		Supply Voltage	Number of Internal Auxiliary Switch
		Nominal Driving @ 60 Hz	Spring Return (Nominal)	Driving	Holding		
M847B1014	Two position; SPST	30 sec	20 sec	7.7 VA	7.7 VA	24 Vac, 50Hz	0

\* TRADELINE models • SUPER TRADELINE models

# Direct Coupled Actuators—Non-Spring Return

ML6161; ML7161

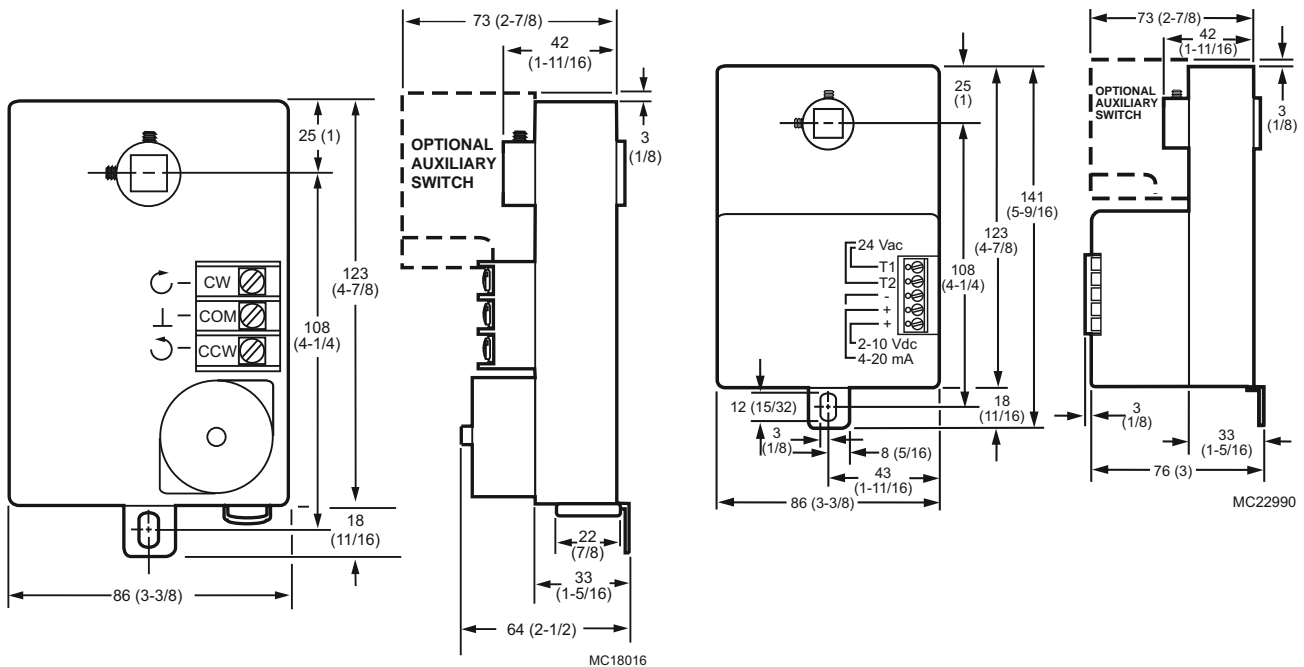
## Non-Spring Return Direct Coupled Damper Actuators, 35 lb-in



Used to control dampers in applications such as variable air volume (VAV) terminal units and for mounting on ball valves; suitable for use with SPDT or floating thermostats or building automation controls.

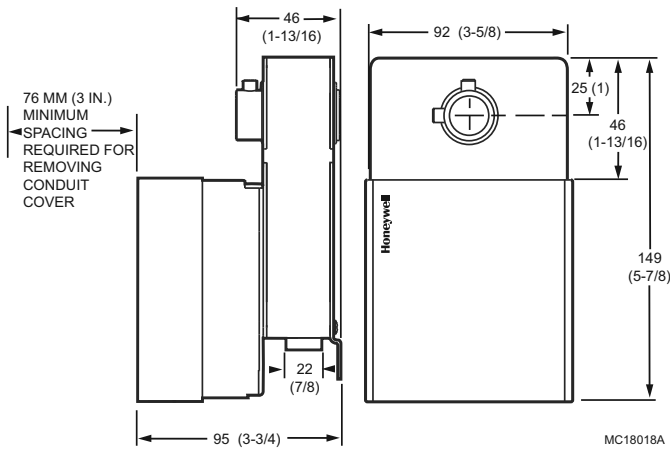
- Control for air damper applications with up to 10 sq.ft. assuming 3.5 in-lb per sq.ft. of damper area, velocity independent.
- Superior A/C synchronous submotor for consistent timing and actuator longevity.
- Eliminate need for limit switches or mechanical stops by providing magnetic coupling.
- All models include manual declutch lever, and bag assembly with two minimum position setscrews.
- Mount directly on 3/8 inch or 1/2 inch square or round damper shaft.
- Selectable 45, 60, and 90 stroke in either clockwise or counterclockwise direction.

Dimensions in millimeters (inches)



Commercial  
Components

# Direct Coupled Actuators—Non-Spring Return



**External Auxiliary Switches Available:** Yes, 201052B  
**Electrical Connections:** Screw terminals  
**Environmental Rating:** NEMA1  
**Frequency:** 50 Hz; 60 Hz  
**Manual operation:** Declutch mechanism  
**Mounting:** Direct Coupled  
**Maximum Noise Rating, Driving (dBA @ 1m):** 45  
**Rotation to Open:** By wiring  
**Rotational Stroke Adjustment:** Mechanically limited at 45 or 60 degrees in cw or ccw directions  
**Compatible Damper Shafts:** 10 to 13 mm square/round (3/8 to 1/2 inch square or round)  
**Shaft Adapter Type:** Aluminum Hub, two set screws  
**Supply Voltage:** 24 Vac  $\pm 20\%$   
**Materials:** Steel plate and Plenum rated plastic  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Ambient Temperature Range:** -18 C to +50 C (20 F to 125 F)  
**Storage Temperature Range:** -18 C to +54 C (20 F to 130 F)  
**Weight:** 0.68 kg (1.5 lb)  
**Includes:** 4074ENY Bag Assembly

**Actuator Type:** Damper  
**Rotational Stroke:** 90 degrees  
**Fail Safe Mode:** Non-Spring Return  
**Torque:** 4 Nm (35 lb-in.)

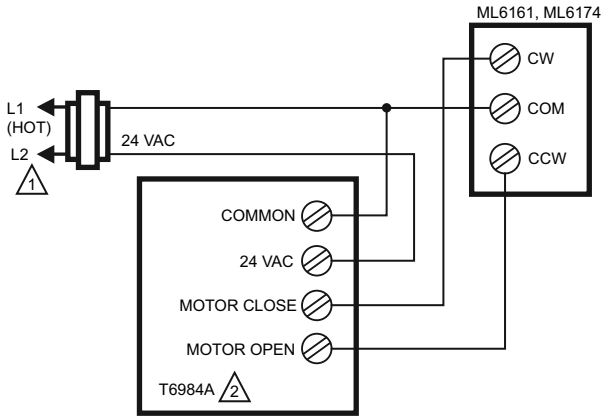
**Approvals:**  
**CE:** 89/336/ECC, 73/23/EEC  
**C-Tick:** N314  
**Underwriters Laboratories, Inc.** UL873, Plenum Rated  
**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Timing (sec)	Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Comments
			Nominal Driving @ 60 Hz					
* ML6161A2009	SPDT; Floating	With accessory	90 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	—
ML6161A2017	SPDT; Floating	With accessory	420 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	—
* ML6161A2025	SPDT; Floating	With accessory	180 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	—
* ML6161B2024	SPDT; Floating	—	90 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	—
* ML6161B2032	SPDT; Floating	—	420 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	—
* ML6161B2073	SPDT; Floating	—	180 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	—
ML6161C2007	SPDT; Floating	With accessory	90 sec	1.8 VA	24 Vac $\pm 20\%$	—	0	Includes two 5/8 x 7/8 in. double knock-out conduit openings
ML7161A2008	2 to 10 Vdc (4-20 mA w/500 ohm resistor)	—	90 sec	5.4 VA	24 Vac $\pm 20\%$	45K ohm (2-10 Vdc signal), 536 ohm (4-20 mA signal)	0	—

\* TRADELINE models • SUPER TRADELINE models

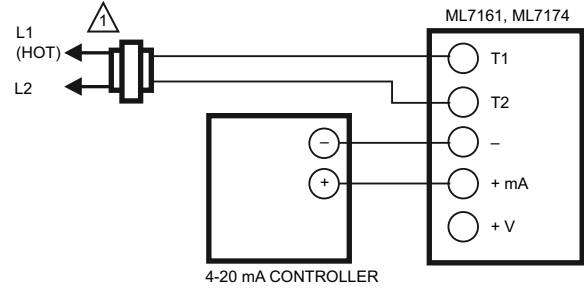
# Direct Coupled Actuators—Non-Spring Return

Typical wiring of ML6161 using electronic floating T6984 Thermostat



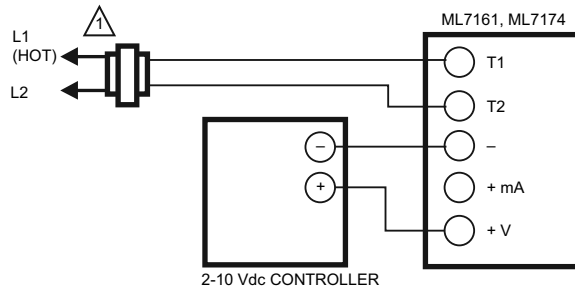
- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION, AS REQUIRED.
  - 2 T6984A SHOWN WIRED FOR COOLING ONLY. TO WIRE FOR HEATING ONLY, REVERSE OPEN AND CLOSE CONTACTS.
- M18023

ML7161 used with 4-20 mA control



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- M18071

ML7161 used with 2-10 Vdc control



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- M18072

# Direct Coupled Actuators—Non-Spring Return

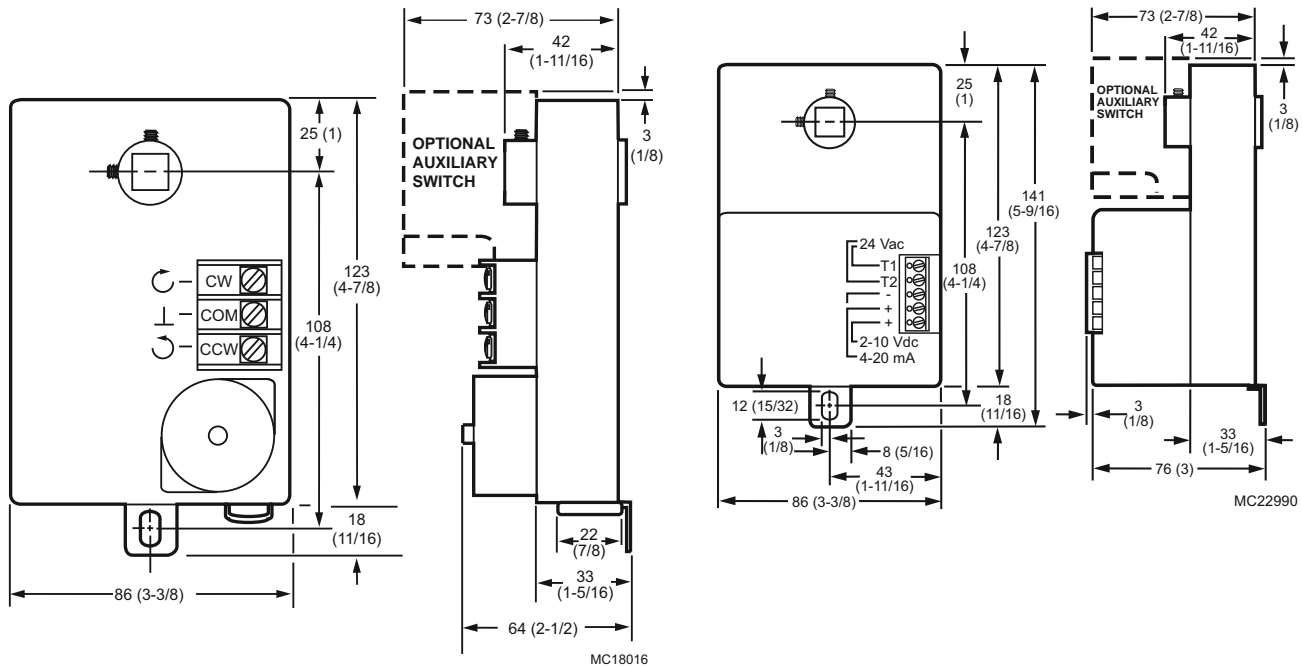
## ML6174; ML7174, Non-Spring Return Direct Coupled Damper Actuators, 70 lb-in

Used to control dampers in applications such as variable air volume (VAV) terminal units and for mounting on ball valves; suitable for use with SPDT or floating thermostats or building automation controls.

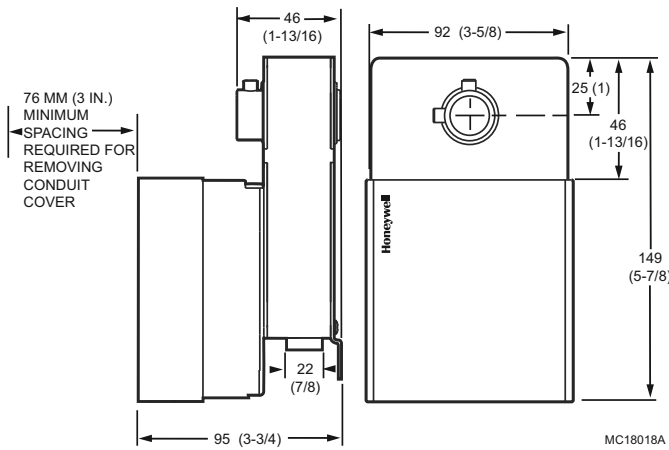
- Control for air damper applications with up to 20 sq.ft. assuming 3.5 in.-lb per sq.ft. of damper area, velocity independent.
- Magnetic coupling eliminates the need for mechanical stops or limit switch adjustments by limiting stall torque to 130 lb-in. maximum.
- Mount directly on 3/8 to 1/2 in. round and square damper shafts. All models include manual declutch lever for ease of mounting, and bag assembly with two minimum position setscrews. 90 second timing models are suitable for use with pressure independent VAV systems.
- Selectable 45, 60, and 90 degree stroke in either clockwise or counterclockwise direction.



Dimensions in millimeters (inches)



# Direct Coupled Actuators—Non-Spring Return



**Torque:** 8 Nm (70 lb-in.)  
**External Auxiliary Switches Available:** Yes, 201052B  
**Electrical Connections:** Screw terminals  
**Environmental Rating:** NEMA1  
**Feedback:** With accessory  
**Frequency:** 50 Hz; 60 Hz  
**Manual operation:** Declutch mechanism  
**Mounting:** Direct Coupled  
**Maximum Noise Rating, Driving (dBA @ 1m):** 45  
**Rotation to Open:** By wiring  
**Rotational Stroke Adjustment:** Mechanically limited at 45 or 60 degrees in cw or ccw directions  
**Compatible Damper Shafts:** 10 to 13 mm square/round (3/8 to 1/2 inch square or round)  
**Shaft Adapter Type:** Aluminum Hub, two set screws  
**Supply Voltage:** 24 Vac  $\pm 20\%$   
**Materials:** Steel plate and Plenum rated plastic  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Ambient Temperature Range:** -18 C to +50 C (20 F to 125 F)  
**Storage Temperature Range:** -18 C to +54 C (20 F to 130 F)  
**Weight:** 0.68 kg (1.5 lb)  
**Includes:** 4074ENY Bag Assembly

**Actuator Type:** Damper  
**Rotational Stroke:** 90 degrees  
**Fail Safe Mode:** Non-Spring Return

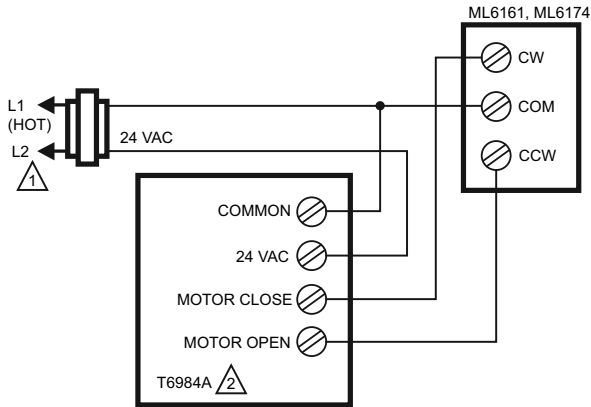
**Approvals:**  
**Underwriters Laboratories, Inc.** UL873, Plenum Rated  
**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Timing (sec)	Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Comments
			Nominal Driving @ 60 Hz					
* ML6174A2002	SPDT; Floating	With accessory	90 sec	2.4 VA	24 Vac $\pm 20\%$	—	0	—
* ML6174A2010	SPDT; Floating	With accessory	180 sec	2.4 VA	24 Vac $\pm 20\%$	—	0	—
* ML6174B2019	SPDT; Floating	—	90 sec	2.4 VA	24 Vac $\pm 20\%$	—	0	—
ML6174D2009	SPDT; Floating	—	90 sec	2.4 VA	24 Vac $\pm 20\%$	—	0	Includes two 5/8 x 7/8 in. double knock-out conduit openings
ML7174A2001	2 to 10 Vdc (4-20 mA w/500 ohm resistor)	—	90 sec	5.4 VA	24 Vac $\pm 20\%$	45K ohm (2-10 Vdc signal), 536 ohm (4-20 mA signal)	0	—
ML7174A2019	2 to 10 Vdc (4-20 mA w/500 ohm resistor)	—	90 sec	5.4 VA	24 Vac $\pm 20\%$	45K ohm (2-10 Vdc signal), 536 ohm (4-20 mA signal)	0	—

\* TRADELINE models • SUPER TRADELINE models

# Direct Coupled Actuators—Non-Spring Return

Typical wiring of ML6174 using electronic floating T6984 Thermostat

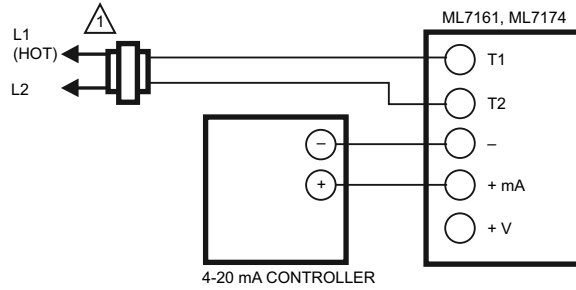


⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION, AS REQUIRED.

⚠ T6984A SHOWN WIRED FOR COOLING ONLY. TO WIRE FOR HEATING ONLY, REVERSE OPEN AND CLOSE CONTACTS.

M18023

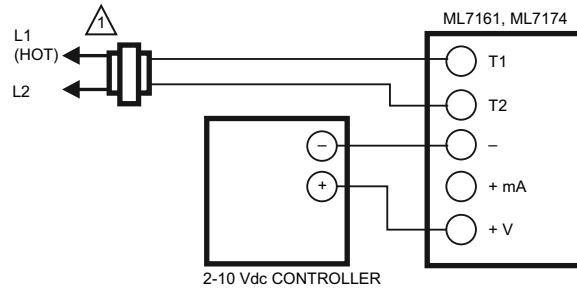
ML7174 used with 4-20 mA control



⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18071

ML7174 used with 2-10 Vdc control



⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18072



# Direct Coupled Actuators—Non-Spring Return

## N05 Series: MN6105; MN7505

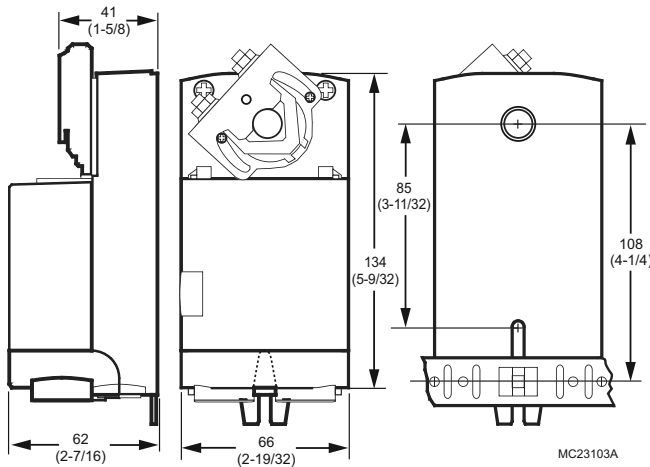
### Non-Spring Return Direct Coupled Actuator, 44 lb-in



This non-spring return direct-coupled damper actuator provides modulating and floating/2-position control for: air dampers, air handlers, ventilation flaps, louvers, and reliable control for air damper applications with up to 10 sq. ft./ 44lb.-in. (5 Nm) and 20 sq. ft./88 lb.-in. (10 Nm) (seal-less damper blades; air friction-dependent).

- Declutch for manual adjustment
- Adjustable mechanical end limits
- Removable access cover for direct wiring
- Mountable in any orientation
- Function selection switch for selecting modulating or floating/2-position control

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve  
**Rotational Stroke:** 95 ±3 degrees  
**Fail Safe Mode:** Non-Spring Return  
**Torque:** (5 Nm (44 lb-in.))  
**External Auxiliary Switches Available:** Yes, SSW2-1M

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2

**Frequency:** 50 Hz; 60 Hz

**Manual operation:** Declutch mechanism

**Mounting:** Direct Coupled

**Maximum Noise Rating, Driving (dBA @ 1m):** 35

**Rotation to Open:** By switch

**Rotational Stroke Adjustment:** Dual Integral Adj. Stops (3 degree increments)

**Compatible Damper Shafts:** 6 to 13 mm square or 8 to 16 mm round (1/4 to 1/2 inch square or 3/8 to 5/8 inch round)

**Shaft Adapter Type:** U-bolt clamp

**Supply Voltage:** 24 Vac +20%, -15%, 24 Vdc

**Materials:** Plenum rated plastic housing

**Ingress Protection Rating:** IP54

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** (-20 C to +60 C (-5 F to +140 F))

**Storage Temperature Range:** -30 C to +80 C (-22 F to +176 F)

**Weight:** 0.45 kg (1 lb)

**Approvals:**

**CE:** 89/336/ECC, 73/23/EEC

**C-Tick:** N314

**Underwriters Laboratories, Inc.** UL873, Plenum Rated

**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

**Includes:** Mounting bracket, screws, shaft adapter, water-tight strain-relief cable fittings

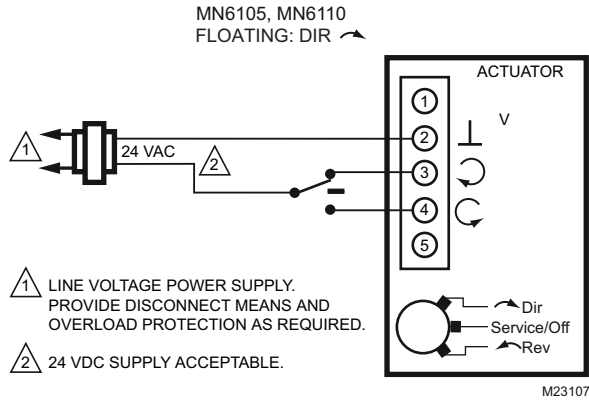
**Comments:** Integral 1/2 in. NPSM conduit connection.

Product Number	Control Signal	Feedback	Timing (sec)	Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz					
* MN6105A1011	Floating; Two position	—	95 sec	5 VA	24 Vac +20%, -15%, 24 Vdc	—	0	—
* MN6105A1201	Floating; Two position	—	95 sec	5 VA	24 Vac +20%, -15%, 24 Vdc	—	2	30 Vdc max., 3 A Class II
* MN7505A2001	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	5 VA	24 Vac +20%, -15%, 24 Vdc	—	0	—
* MN7505A2209	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	5 VA	24 Vac +20%, -15%, 24 Vdc	—	2	30 Vdc max., 3 A Class II

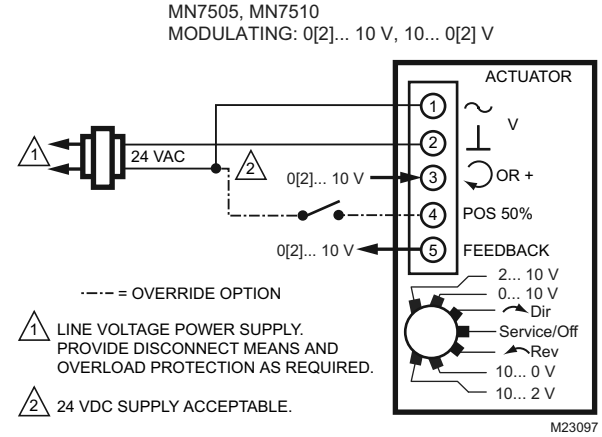
\* TRADELINE models • SUPER TRADELINE models

# Direct Coupled Actuators—Non-Spring Return

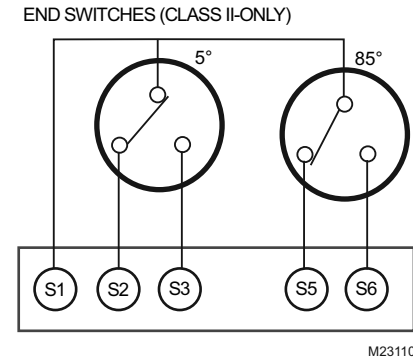
## Wiring for floating control



## Wiring for voltage control



## Wiring for auxiliary switches



# Direct Coupled Actuators—Non-Spring Return

## N10 Series: MN6110; MN7510

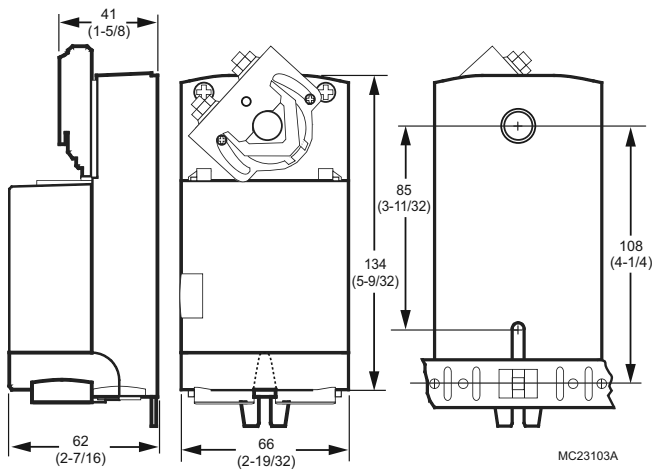
### Non-Spring Return Direct Coupled Actuator, 88 lb-in



This non-spring return direct-coupled damper actuator provides modulating and floating/2-position control for air dampers, air handlers, ventilation flaps, louvers, and reliable control for air damper applications with up to 20 sq ft/88 lb-in. (10 Nm) (seal-less damper blades; air friction-dependent).

- Declutch for manual adjustment
- Adjustable mechanical end limits
- Removable access cover for direct wiring
- Mountable in any orientation
- Function selection switch for selecting modulating or floating/2-position control

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve  
**Rotational Stroke:** 95 ±3 degrees  
**Fail Safe Mode:** Non-Spring Return  
**Torque:** 10 Nm (88 lb-in.)

**External Auxiliary Switches Available:** Yes, SSW2-1M

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2

**Ingress Protection Rating:** IP54

**Frequency:** 50 Hz; 60 Hz

**Manual operation:** Declutch mechanism

**Mounting:** Direct Coupled

**Maximum Noise Rating, Driving (dBA @ 1m):** 35

**Rotation to Open:** By switch

**Rotational Stroke Adjustment:** Dual Integral Adj. Stops (3 degree increments)

**Compatible Damper Shafts:** 6 to 13 mm square or 8 to 16 mm round (1/4 to 1/2 inch square or 3/8 to 5/8 inch round)

**Shaft Adapter Type:** U-bolt clamp

**Materials:** Plenum rated plastic housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -20 C to +60 C (-5 F to +140 F)

**Storage Temperature Range:** -30 C to +80 C (-22 F to +176 F)

**Weight:** 0.45 kg (1 lb)

**Includes:** Mounting bracket, screws, shaft adapter, water-tight strain-relief cable fittings

**Comments:** Integral 1/2 in. NPSM conduit connection.

**Approvals:**

**CE:** 89/336/ECC, 73/23/EEC

**C-Tick:** N314

**Underwriters Laboratories, Inc.** UL873, Plenum Rated

**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

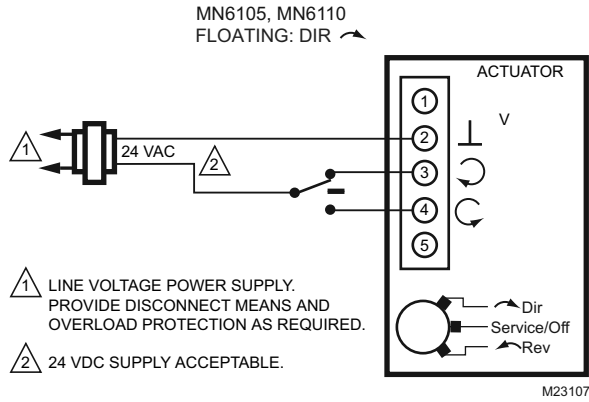
Product Number	Control Signal	Feedback	Timing (sec)		Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz						
* MN6110A1003	Floating; Two position	—	95 sec		5 VA	24 Vac +20%, -15%, 24 Vdc	—	0	—
* MN6110A1201	Floating; Two position	—	95 sec		5 VA	24 Vac +20%, -15%, 24 Vdc	—	2	30 Vdc max., 3 A Class II
* MN7510A2001	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec		5 VA	24 Vac +20%, -15%, 24 Vdc	—	0	—
* MN7510A2209	(0)2-10 Vdc (4-20 mA w/500 ohm resistor); Floating; Two position	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec		5 VA	24 Vac +20%, -15%, 24 Vdc	—	2	30 Vdc max., 3 A Class II

\* TRADELINE models • SUPER TRADELINE models

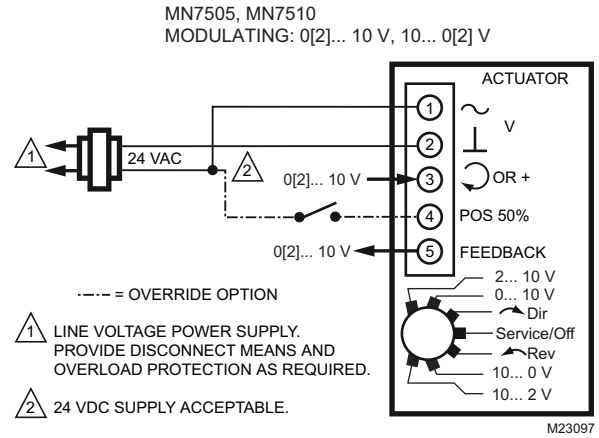
Commercial Components

# Direct Coupled Actuators—Non-Spring Return

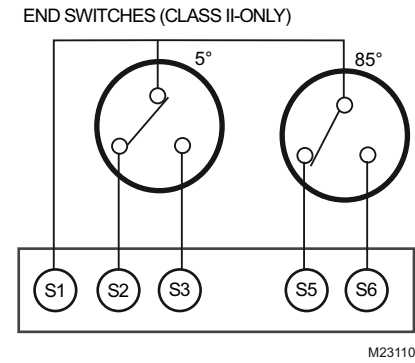
## Wiring for floating control



## Wiring for voltage control



## Wiring for auxiliary switches



# Direct Coupled Actuators—Non-Spring Return

## N20 Series: MN6120; MN7220

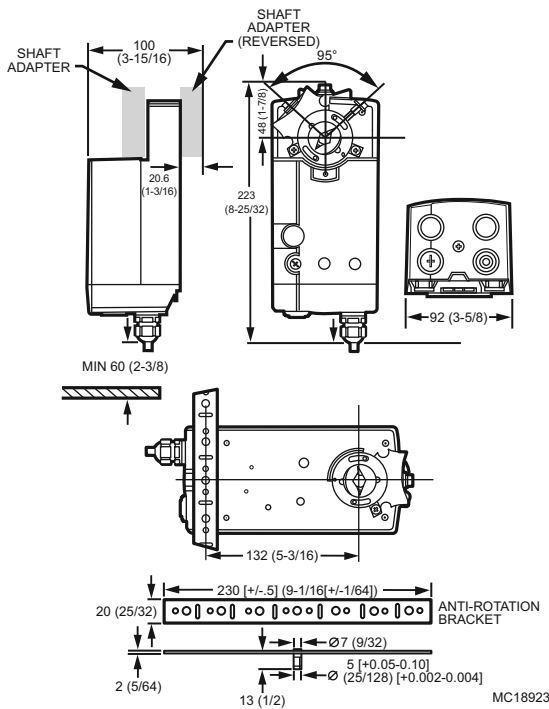
### Non-Spring Return Direct Coupled Actuator, 175 lb-in



These direct-coupled damper actuators provide adjustable modulating control for: air dampers, air handling units, ventilation flaps, louvers, and reliable control for air damper applications with up to 4.6 m<sup>2</sup>/50 sq ft (seal-less dampers; air friction-dependent).

- Control for air damper applications with up to 50 sq ft assuming 3.5 in-lb per sq ft of damper area, velocity independent.
- Patented self-centering shaft adapter.
- Access cover to facilitate connectivity.
- Dec clutch for manual adjustment.
- Mechanical end limits.
- Field-installable auxiliary switches.
- Rotation direction selectable by switch.
- Mountable in any orientation (no IP54 if upside down).
- Mechanical position indicator.
- CE approved. UL approved.

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Non-Spring Return

**Torque:** 20 Nm (175 lb-in.)

**External Auxiliary Switches Available:** Yes, SW2-US

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2; IP54

**Frequency:** 50 Hz; 60 Hz

**Manual operation:** Dec clutch mechanism

**Mounting:** Direct Coupled

**Maximum Noise Rating, Driving (dBA @ 1m):** 40

**Rotation to Open:** By switch

**Rotational Stroke Adjustment:** Dual Integral Adj. Stops (3 degree increments)

**Compatible Damper Shafts:**

10 to 27 mm round or 10 to 18 mm square  
(3/8 to 1.06 in. round or 3/8 to 11/16 in. square)

**Shaft Adapter Type:** Self-centering clamping

**Materials:** Plenum rated plastic housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** (-20 C to +60 C -5 F to +140 F)

**Storage Temperature Range:** -40 C to +80 C (-40 F to +175 F)

**Weight:** 1.45 kg (3.2 lb)

**Includes:** Mounting bracket, self-centering shaft adapter

**Comments:** Integral 1/2 in. NPSM conduit connection.

**Approvals:**

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

Underwriters Laboratories, Inc. UL873, Plenum Rated

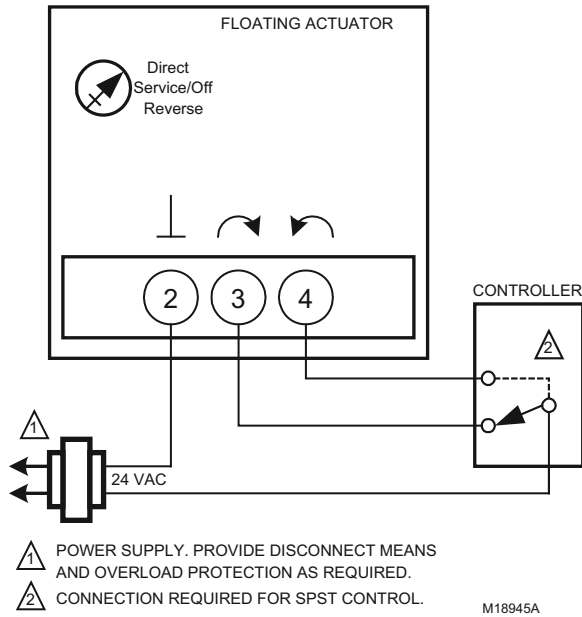
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

# Direct Coupled Actuators—Non-Spring Return

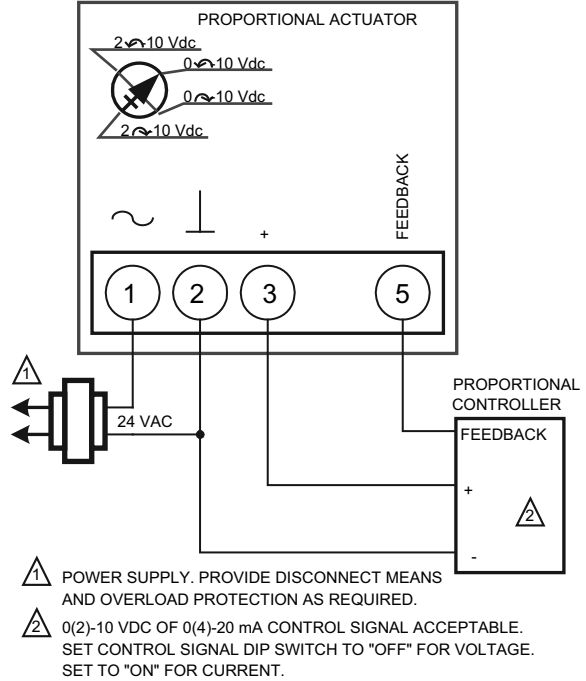
Product Number	Control Signal	Feedback	Timing (sec)	Power Consumption Driving	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch	Switch Ratings
			Nominal Driving @ 60 Hz					
* MN6120A1002	Floating: Two position	—	95 sec	6 VA, 6 W	24 Vac ±15%	—	0	—
* MN6120A1200	Floating: Two position	—	95 sec	6 VA, 6 W	24 Vac ±15%	—	2	250 Vac, 5 A res (3 A ind)
* MN7220A2007	(0)2-10 Vdc (4-20 mA w/500 ohm resistor)	—	95 sec	6 VA, 6 W	24 Vac ±20%	100K ohm (voltage), 500 ohm (current)	0	—
* MN7220A2205	(0)2-10 Vdc (4-20 mA w/500 ohm resistor)	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	6 VA, 6 W	24 Vac ±20%	100K ohm (voltage), 500 ohm (current)	2	250 Vac, 5 A res (3 A ind)

\* TRADELINE models • SUPER TRADELINE models

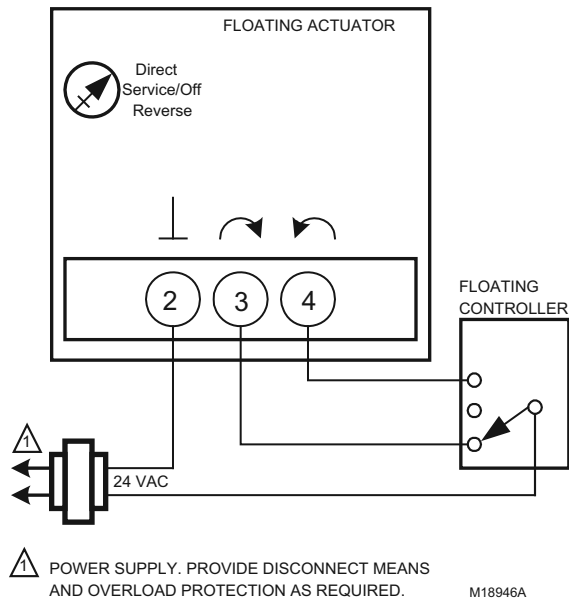
## Used for on/off control



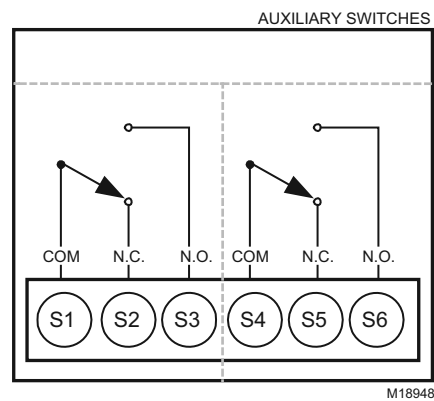
## Wiring for modulating control



## Wiring for floating control



## Wiring for auxiliary switches



# Direct Coupled Actuators—Non-Spring Return

## N34 Series: MN6134; MN7234

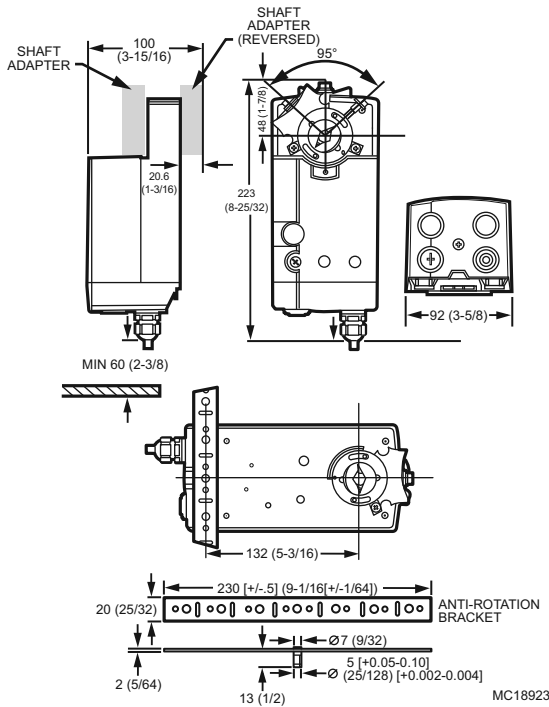
### Non-Spring Return Direct Coupled Actuator, 300 lb-in



These direct coupled damper actuators provide adjustable modulating control for air dampers, air handling units, ventilation flaps, louvers, and reliable control for air damper applications with up to 7.9 m<sup>2</sup>/85 sq ft (seal-less dampers; air friction-dependent).

- Control for air damper applications with up to 85 sq ft assuming 3.5 in-lb per sq ft of damper area, velocity independent.
- Patented self-centering shaft adapter.
- Access cover to facilitate connectivity.
- Declutch for manual adjustment.
- Mechanical end limits.
- Field-installable auxiliary switches.
- Rotation direction selectable by switch.
- Mountable in any orientation (no IP54 if upside down).
- Mechanical position indicator.
- CE approved. UL approved.

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper; Valve

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Non-Spring Return

**Torque:** 34 Nm (300 lb-in.)

**External Auxiliary Switches Available:** Yes, SW2-US

**Electrical Connections:** Enclosed screw terminal strip (22 to 14 AWG)

**Environmental Rating:** NEMA2

**Frequency:** 50 Hz; 60 Hz

**Manual operation:** Declutch mechanism

**Mounting:** Direct Coupled

**Maximum Noise Rating, Driving (dBA @ 1m):** 40

**Rotation to Open:** By switch

**Compatible Damper Shafts:**

10 to 27 mm round or 10 to 18 mm square

(3/8 to 1.06 mm round or 3/8 to 11/16 mm square)

**Shaft Adapter Type:** Self-centering clamping

**Supply Voltage:** 24 Vac ±15%, 24 Vdc

**Materials:** Plenum rated plastic housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -20 C to +60 C (-5 F to +140 F)

**Storage Temperature Range:** -40 C to +80 C (-40 F to +175 F)

**Weight:** 1.45 kg (3.2 lb)

**Includes:** Mounting bracket, self-centering shaft adapter

**Comments:** Integral 1/2 in. NPSM conduit connection.

**Approvals:**

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

Underwriters Laboratories, Inc. UL873, Plenum Rated

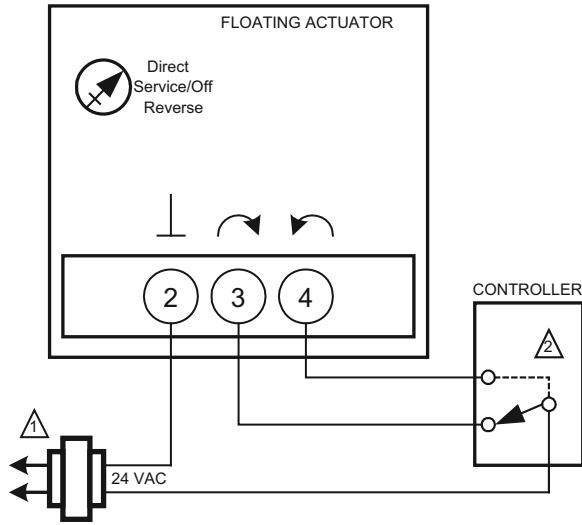
Canadian Underwriters Laboratories, Inc. cUL C22.2 No. 24-93

Product Number	Control Signal	Feedback	Timing (sec)	Power Consumption	Supply Voltage	Input Impedance	Number of Internal Auxiliary Switch
			Nominal Driving @ 60 Hz	Driving			
* MN6134A1003	Floating; Two position	—	95 sec	9 VA, 9 W	24 Vac ±15%, 24 Vdc	—	0
* MN7234A2008	(0)2-10 Vdc (4-20 mA w/500 ohm resistor)	(0)2-10 Vdc (max. output: ±1.0 mA)	95 sec	8 VA, 6 W	24 Vac ±20%, 24 Vdc	100K ohm (voltage), 500 ohm (current)	0

\* TRADELINE models • SUPER TRADELINE models

# Direct Coupled Actuators—Non-Spring Return

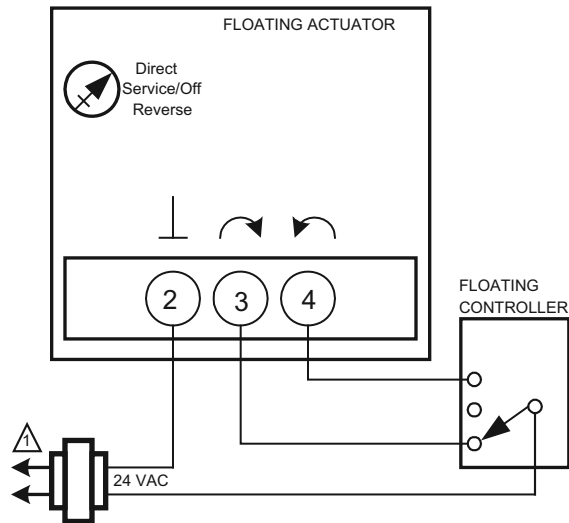
## Used for on/off control



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ CONNECTION REQUIRED FOR SPST CONTROL.

M18945A

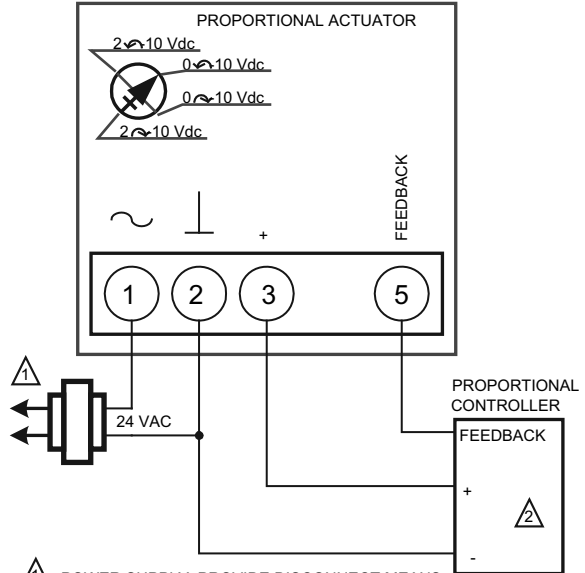
## Wiring for floating control



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

M18946A

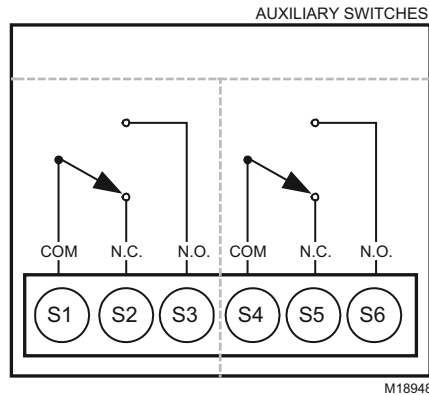
## Wiring for modulating control



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ 0(2)-10 VDC OF 0(4)-20 mA CONTROL SIGNAL ACCEPTABLE. SET CONTROL SIGNAL DIP SWITCH TO "OFF" FOR VOLTAGE. SET TO "ON" FOR CURRENT.

M18947A

## Wiring for auxiliary switches



M18948



# Direct Coupled Actuators—Fire and Smoke

## ML4115; ML8115

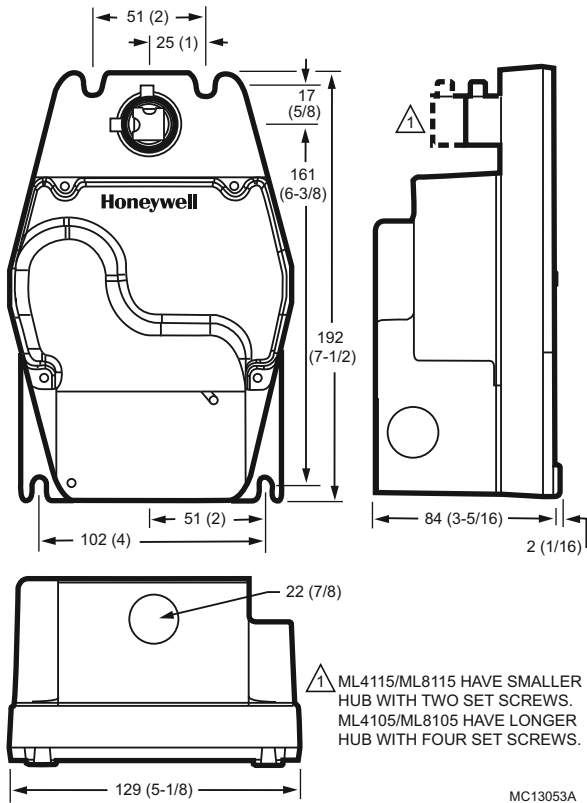
### Fire and Smoke, Fast-Acting, Two-Position Actuators, 30 lb-in



Spring return direct coupled actuators (DCA) for on/off damper control with an integral junction box. The actuator accepts an on/off signal from a single-pole, single-throw (SPST) controller. They are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 F.

- Integral spring return.
- No audible noise during holding.
- Electronic circuitry provides efficient operation while eliminating the need for limit switches.
- Ninety-five degree angle of rotation for tight damper closure.
- Die-cast aluminum housing.
- Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.
- Mounts to 3/8 or 1/2 in. round or square shaft.

Dimensions in millimeters (inches)



**Actuator Type:** Damper

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Spring Return

**Torque:** 3.4 Nm (30 lb-in.)

**Minimum Driving Torque at 350 F:** 3.4 Nm (30 lb-in.)

**Spring Return Torque:** 3.4 Nm (30 lb-in.)

**External Auxiliary Switches Available:** Yes, 32003532-005

**Electrical Connections:** Two color-coded leads

**Electrical Connection Length:** 406 mm (16 in.)

**Environmental Rating:** NEMA1

**Frequency:** 60 Hz

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 65

**Number of Internal Auxiliary Switch:** 0

**Compatible Damper Shafts:** 10 to 13 mm square/round (3/8 to 1/2 in. square or round)

**Shaft Adapter Type:** Aluminum Hub, two set screws

**Materials:** Aluminum housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -18 C to +55 C (0 F to +130 F)

**Storage Temperature Range:** -40 C to +60 C (-40 F to 140 F)

**Weight:** 2.72 kg (6 lb)

**Comments:** Integral junction box with three 7/8 in. conduit openings (fittings not included)

**Approvals:**

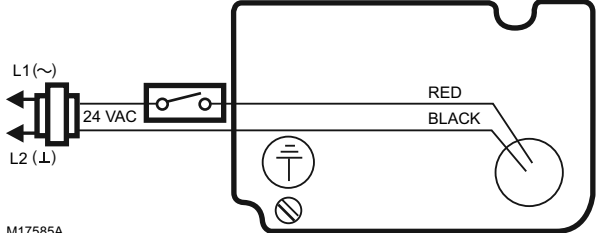
**Underwriters Laboratories, Inc.** UL873, Plenum Rated

**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

Product Number	Control Signal	Timing (seconds)			Power Consumption		Supply Voltage	Includes	Spring Return Direction
		Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding			
ML4115A1009	Two position; SPST	25 sec	18 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	Ground Screw	CCW
ML4115B1008	Two position; SPST	25 sec	18 sec	15 sec	0.18A, 18W	0.11A, 9W	120 Vac ±10%	Ground Screw	CW
ML8115A1005	Two position; SPST	25 sec	18 sec	15 sec	16 VA	8 VA	24 Vac ±20%	—	CCW
ML8115B1004	Two position; SPST	25 sec	18 sec	15 sec	16 VA	8 VA	24 Vac ±20%	—	CW

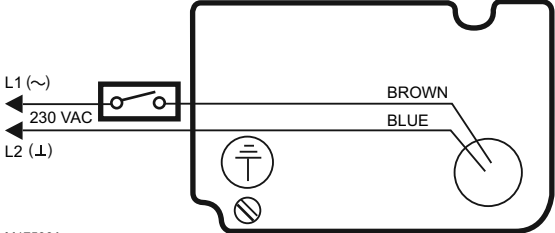
# Direct Coupled Actuators—Fire and Smoke

Typical 24 Vac wiring



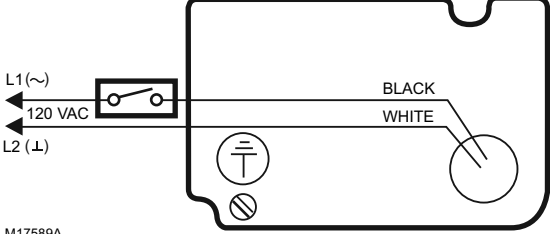
M17585A

Typical 230 Vac Wiring



M17588A

Typical 120 Vac wiring



M17589A

# Direct Coupled Actuators—Fire and Smoke

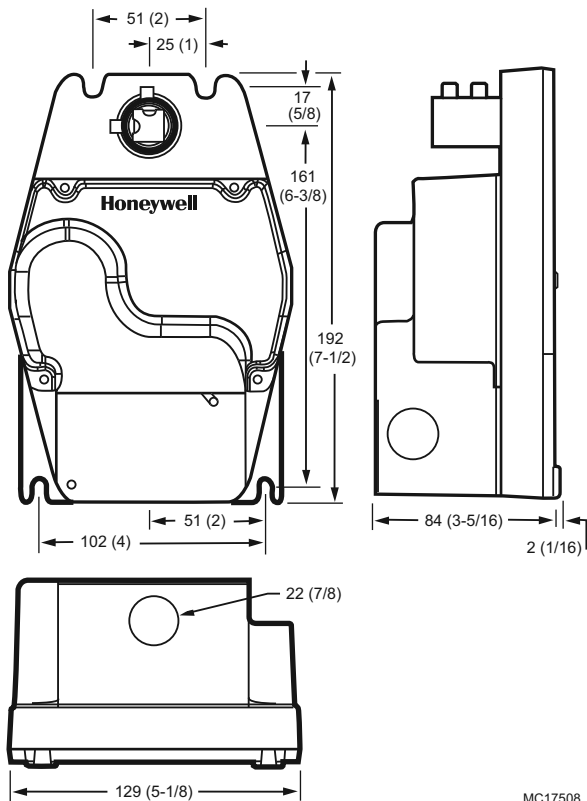
## MS4209F; MS4309F; MS4709F; MS4809F; MS8209F; MS8309F Fast-Acting, Two-Position Actuators, 80 lb-in



Spring return direct coupled actuators (DCA) for on/off damper control with an integral junction box. The actuator accepts an on/off signal from a single-pole, single-throw (SPST) controller. They are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 F.

- Integral spring return ensures level of return torque.
- Fifteen-second spring return timing.
- No special cycling required during long-term holding.
- No audible noise during holding.
- Patent pending design eliminates need for limit switches to reduce power consumption.
- Models available for 24, 120, and 230 Vac.
- Ninety-five degree angle of rotation for tight damper closure.
- Actuator holds rated torque at reduced power level.
- Die-cast aluminum housing. Housing design allows flush mounting to damper.
- Integral junction box with three conduit openings eliminates need for separate wiring box.

Dimensions in millimeters (inches)



MC17508

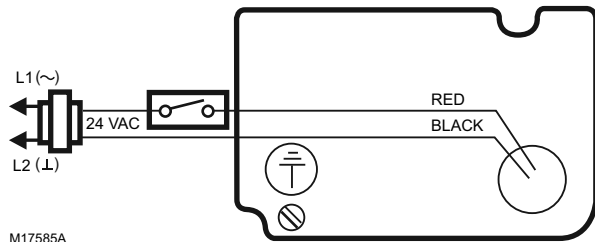
**Actuator Type:** Damper  
**Rotational Stroke:** 95 ±3 degrees  
**Fail Safe Mode:** Spring Return  
**Torque:** 9 Nm (80 lb-in.)  
**Minimum Driving Torque at 350 F:** 9 Nm (80 lb-in.)  
**Spring Return Torque:** 9 Nm (80 lb-in.)  
**External Auxiliary Switches Available:** Yes, 32003532-005  
**Environmental Rating:** NEMA1  
**Frequency:** 60 Hz  
**Mounting:** Direct Coupled  
**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)  
**Maximum Noise Rating, Driving (dBA @ 1m):** 80  
**Number of Internal Auxiliary Switch:** 0  
**Compatible Damper Shafts:** 10 to 13 mm square/round (3/8 to 1/2 in. square or round)  
**Shaft Adapter Type:** Aluminum Hub, four set screws  
**Supply Voltage:** 120 Vac +10%, -15%  
**Materials:** Aluminum housing  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Ambient Temperature Range:** -18 C to +55 C (0 F to +130 F)  
**Storage Temperature Range:** -40 C to +60 C (-40 F to 140 F)  
**Weight:** 2.72 kg (6 lb)  
**Comments:** Integral junction box with three 7/8 in. conduit openings (fittings not included)

**Approvals:**  
**CE:** 89/336/ECC, 73/23/EEC  
**C-Tick:** N314  
**Underwriters Laboratories, Inc.** UL873, Plenum Rated  
**Canadian Underwriters Laboratories, Inc.** cUL C22.2 No. 24-93

# Direct Coupled Actuators—Fire and Smoke

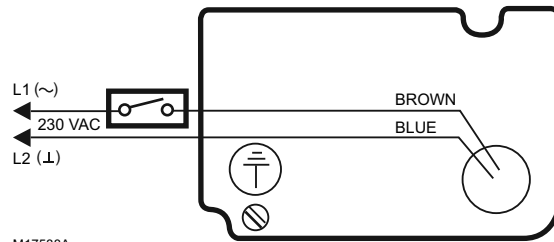
Product Number	Control Signal	Timing (seconds)			Power Consumption		Supply Voltage	Spring Return Direction	Electrical Connections	Electrical Connection Length	
		Maximum Driving @ 60 Hz	Nominal Driving @ 60 Hz	Maximum Spring Return	Driving	Holding				(m)	(inch)
MS4209F1007	Two position; SPST	25 sec	15 sec	15 sec	0.25A, 23W	0.13A, 7W	120 Vac +10%, -15%	CW	Two color-coded leads	406 mm	16 in.
MS4309F1005	Two position; SPST	25 sec	15 sec	15 sec	0.25A, 23W	0.13A, 7W	120 Vac +10%, -15%	CCW	Two color-coded leads	406 mm	16 in.
MS4709F1014	Two position; SPST	25 sec	15 sec	15 sec	0.13A, 23W	0.09A, 7W	230 Vac ±10%	CW	Appliance cable	1 m	39 in.
MS4809F1012	Two position; SPST	25 sec	15 sec	15 sec	0.13A, 23W	0.09A, 7W	230 Vac ±10%	CCW	Appliance cable	1 m	39 in.
MS8209F1003	Two position; SPST	25 sec	15 sec	15 sec	23 VA	7 VA	24 Vac +20%, -10%	CW	Two color-coded leads	406 mm	16 in.
MS8309F1001	Two position; SPST	25 sec	15 sec	15 sec	23 VA	7 VA	24 Vac +20%, -10%	CCW	Two color-coded leads	406 mm	16 in.

Typical 24 Vac wiring



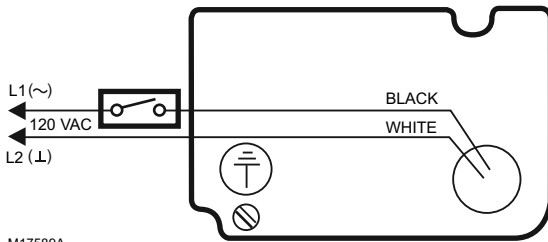
M17585A

Typical 230 Vac Wiring



M17588A

Typical 120 Vac wiring



M17589A

# Direct Coupled Actuators—Fire and Smoke

## MS4120F; MS4620F; MS8120F

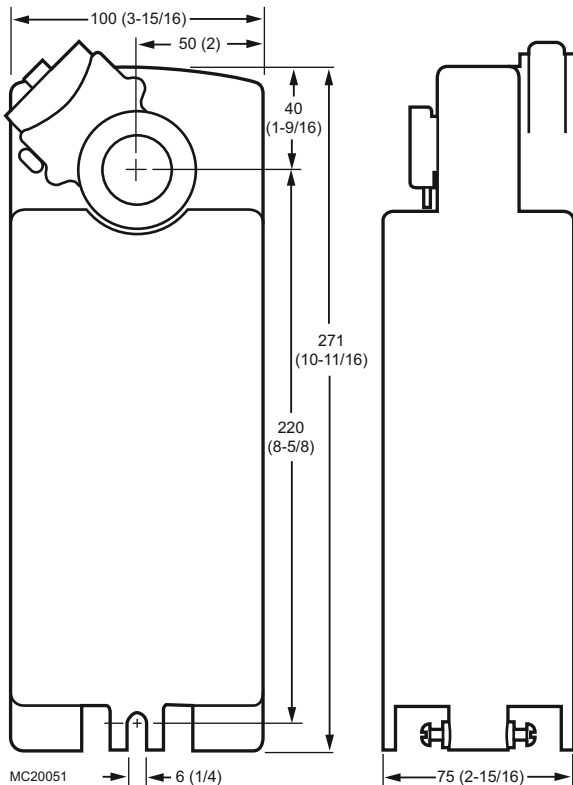
### Fast-Acting, Two-Position Actuators, 175 lb-in



Spring return direct coupled actuators (DCA) for on/off damper control with an integral junction box. The actuator accepts an on/off signal from a single-pole, single-throw (SPST) controller. They are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 F.

- Brush DC submotor with electronic stall protection for 2-position models
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes
- Models available for use with two-position, single pole single throw (spst), line- (Series 40) or low- (Series 80) voltage controls
- Metal housing with built-in mechanical end limits
- Spring return direction field-selectable
- Shaft position indicator and scale
- Manual winding capability with locking function
- UL (cUL) listed and CE compliant
- All Models are plenum-rated per UL873

#### Dimensions in millimeters (inches)



**Actuator Type:** Damper

**Rotational Stroke:** 95 ±3 degrees

**Fail Safe Mode:** Spring Return

**Torque:** 20 Nm (175 lb-in.)

**Minimum Driving Torque at 350 F:** 20 Nm (175 lb-in.)

**Spring Return Torque:** 20 Nm (175 lb-in.)

**External Auxiliary Switches Available:** No

**Electrical Connections:** Teflon-jacketed cable

**Electrical Connection Length:** 1 m (40 in.)

**Environmental Rating:** NEMA2

**Ingress Protection Rating:** IP54

**Frequency:** 60 Hz

**Manual operation:** Manual crank

**Mounting:** Direct Coupled

**Maximum Noise Rating, Holding (dBA @ 1m):** 20 (no audible noise)

**Maximum Noise Rating, Driving (dBA @ 1m):** 70

**Compatible Damper Shafts:**

10 to 27 mm round or 10 to 18 mm square  
(3/8 to 1.06 in. round or 3/8 to 11/16 in. square)

**Shaft Adapter Type:** Self-centering clamping

**Supply Voltage:** 120 Vac ±10%

**Materials:** Aluminum housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Ambient Temperature Range:** -40 C to +55 C (-40 F to +130 F)

**Storage Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Weight:** 3.63 kg (8 lb)

**Includes:** Self-centering shaft adapter, 3mm crank

**Comments:** Two integral 3/8 in. flexible conduit connections

**Approvals:**

CE: 89/336/ECC, 73/23/EEC

C-Tick: N314

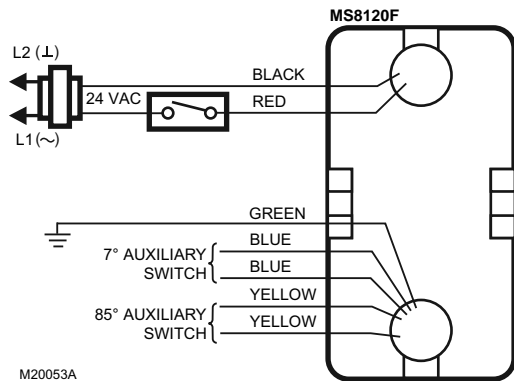
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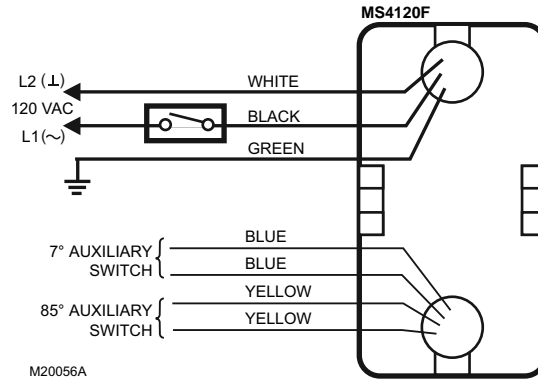
# Direct Coupled Actuators—Fire and Smoke

Product Number	Control Signal	Timing (seconds)		Number of Internal Auxiliary Switch	Switch Ratings	Power Consumption		Supply Voltage	Spring Return Direction
		Nominal Driving @ 60 Hz	Maximum Spring Return			Driving	Holding		
MS4120F1006	Two position; SPST	15 sec	15 sec	0	—	0.35A, 35W	0.15A, 10W	120 Vac ±10%	By orientation
MS4120F1204	Two position; SPST	15 sec	15 sec	2	250 Vac, 5 A res (3 A ind)	0.35A, 35W	0.15A, 10W	120 Vac ±10%	By orientation
MS4620F1005	Two position; SPST	15 sec	15 sec	0	—	0.20A, 35W	0.14A, 10W	230 Vac ±10%	By orientation
MS4620F1203	Two position; SPST	15 sec	15 sec	2	250 Vac, 5 A res (3 A ind)	0.20A, 35W	0.14A, 10W	230 Vac ±10%	By orientation
MS8120F1002	Two position; SPST	15 sec	15 sec	0	—	45 VA	10 VA	24 Vac +20%, -10%	By orientation
MS8120F1200	Two position; SPST	15 sec	15 sec	2	250 Vac, 5 A res (3 A ind)	45 VA	10 VA	24 Vac +20%, -10%	By orientation

Wiring for 24V Control



Wiring for 120V Control



# Direct Coupled Actuator Accessories

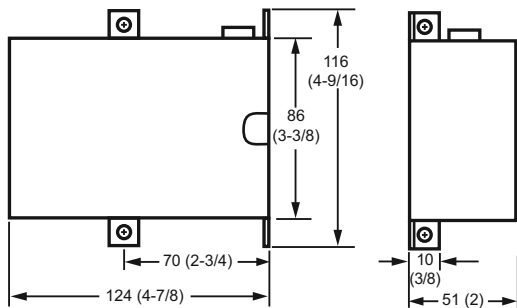
## Q7002 Interface Modules



The Q7002 Interface Modules allow controllers with an otherwise incompatible signal to control an Economizer Logic Module or Direct Coupled Actuator.

- 24 Vac or 24 Vdc power.
- Available for input signals: dc voltage, current, or resistive; and pulse-width modulation (PWM).
- Available to provide output: analog voltage or current for an actuator.
- Inputs and outputs are jumper-selectable and include adjustable zero and span.
- Output is jumper-selectable direct or reverse acting.
- Includes reference voltage and current to power an input device or sensor.
- PWM time base is user-selectable with positive or negative input reference; all ranges have 255-step resolution.
- Multiplex mode enables one PWM signal from a Building Automation System (BAS) controller to address and control up to eight interface modules.

### Dimensions in millimeters (inches)



ENCLOSURE MODELS MC18985

**Mounting:** Enclosure (NEMA 1) with mounting tabs

**Used With:** Direct-Coupled Proportional Actuators and Modutrol Motors

Product Number	Output Burden	Supply Voltage	Frequency	Comments	Description
Q7002B1009	0 to 20 mA < 500 ohm; 0 to 10 Vdc > 500 Ohm	24 Vac ±20%, 24 Vdc	60 Hz	Input: dc voltage, current, or resistive, Output: voltage or current output	Transducer, Accepts dc voltage, current, or resistive input and provides a voltage or current output
Q7002C1007	0 to 20 mA < 500 ohm; 0 to 10 Vdc > 500 Ohm	24 Vac ±20%, 24 Vdc	60 Hz	Input: PWM signal, Output: analog voltage	Transducer, Accepts a pulse-width modulation (PWM) signal and provides a voltage output

# Direct Coupled Actuator Accessories

## Accessories for Direct Coupled Damper Actuators

Compatibility Chart		SPRING RETURN							NON-SPRING RETURN				
		MSxx03	MSxx05	MSxx10A	MSxx20A	ML41x5, ML81x5	MSxx09F	MSxx20F	MLxx61, MLxx74	MNXX05	MNxx10	MNxx20A	MNxx34A
ACTUATOR ACCESSORIES													
<b>Control, Positioning, Feedback</b>													
200976A	Feedback Potentiometer (500 ohm)								•				
200976C	Feedback Potentiometer (2000 ohm)								•				
201052A	Auxiliary Switch (1 SPDT)								•				
201052B	Auxiliary Switch (2 SPDT)								•				
205860	Minimum Position Potentiometer	•	•	•	•				•	•	•	•	•
32003532-005	High Temperature Auxiliary Switch (2 SPDT)					•	•						
32006306-001	Resistor Kit (500 ohm); converts 4-20 mA signal to 2-10 Vdc	•	•	•	•				•	•	•	•	•
SSW2-1M	Auxiliary Switch Package - Low Torque Non Spring Return									•	•		
SW2-US	Auxiliary Switch Package (2 adjustable SPDT switches)			•	•							•	•
<b>Q7002 Interface Modules</b>													
Q7002B1009	Transducer, Accepts dc voltage, current, or resistive input	•	•	•	•				•			•	•
Q7002C1007	Transducer, Accepts a pulse-width modulation (PWM)	•	•	•	•				•	•	•	•	•
<b>Mounting</b>													
205649	Mounting Bracket			•	•	•	•	•					
32007205-001	Actuator Mounting Plate			•	•	•	•	•	•	•	•	•	•
32007205-002	Damper Blade Drive Lever (<24 in.)	•	•	•	•	•	•	•	•	•	•	•	•
32007205-003	Damper Blade Drive Lever (>24 in.)	•	•	•	•	•	•	•	•	•	•	•	•
32007205-004	Damper External Drive Pin Clip	•	•	•	•	•	•	•	•	•	•	•	•
32007205-005	Damper External Drive Pin Kit	•	•	•	•	•	•	•	•	•	•	•	•
32007205-006	Damper Axle Coupling	•	•	•	•	•	•	•	•	•	•	•	•
32007205-007	Damper Crossover Jumper Bracket	•	•	•	•	•	•	•	•	•	•	•	•
50000407-001	Tandem Mounting Kit	•	•	•	•				•	•	•	•	•
50001194-001	Foot Mounting Kit			•	•				•	•	•	•	•
50006427-001	Flexible Anti-rotation Bracket			•	•					•		•	•
STRN-BRKT	Anti-rotation Bracket	•	•										
STRN-CRK-01	Crank Arm Kit	•	•										
STRN-ECONO-01	Economizer Retrofit Kit	•	•										
STRN-WMK-01	Wall Mount Kit	•	•										
<b>Rotation Limiters, Position Indicators</b>													
4074ENJ	Stroke Stop/Minimum Position Kit								•				
<b>Ball Joints, Push Rods</b>													
27518	Ball Joint (5/16 in.)	•	•	•	•	•	•	•	•	•	•	•	•
27520A	Push Rod (5/16 in. dia., 5 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520B	Push Rod (5/16 in. dia., 10 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520C	Push Rod (5/16 in. dia., 12 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520D	Push Rod (5/16 in. dia., 15 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520E	Push Rod (5/16 in. dia., 18 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520G	Push Rod (5/16 in. dia., 24 in. length)	•	•	•	•	•	•	•	•	•	•	•	•
27520H	Push Rod (5/16 in. dia., 28 in. length)	•	•	•	•	•	•	•	•	•	•	•	•




# Direct Coupled Actuator Accessories

Compatibility Chart		SPRING RETURN						NON-SPRING RETURN				
		MSxx03	MSxx05	MSxx10A	MSxx20A	ML41x5, ML81x5	MSxx09F	MSxx20F	MLxx61, MLxx74	MNXX05	MINxx10	MNXx20A
ACTUATOR ACCESSORIES												
27520K	Push Rod (5/16 in. dia., 36 in. length)	•	•	•	•	•	•	•	•	•	•	•
27520L	Push Rod (5/16 in. dia., 48 in. length)	•	•	•	•	•	•	•	•	•	•	•
27520Q	Push Rod (5/16 in. dia., 8 in. length)	•	•	•	•	•	•	•	•	•	•	•
<b>Crankarms</b>												
26026G	Damper Crank Arm, 1/2 in. damper shaft	•	•	•	•	•	•	•	•	•	•	•
205830A	Rotary-to-Linear Kit							•				
STRN-CA-01	Non-Self-centering Crank Arm	•	•									
STRN-CA-02	Self-centering Crank Arm	•	•									
<b>Shaft Adapters</b>												
32003167-001	Shaft Adapter (3/8 in.)							•				
32003168-001	Short Shaft Adapter (3/4-1/2 in.)	•	•	•	•	•	•	•	•	•	•	•
32003168-002	Short Shaft Adapter (5/8-1/2 in.)	•	•	•	•	•	•	•	•	•	•	•
32003168-003	Short Shaft Adapter (9/16-1/2 in.)	•	•	•	•	•	•	•	•	•	•	•
32004254-001	Self Centering Shaft Adapter										•	
32004254-002	Self Centering Shaft Adapter			•	•							
32004254-003	Self Centering Shaft Adapter											•
4074EVK	Short Shaft Kit							•				
4074ENY	Stroke Stop Kit							•				
STRN-SCSA	Self-centering Shaft Adapter	•	•									
<b>Enclosures</b>												
32003036-001	Weather Enclosure	•	•	•	•	•	•	•			•	•
50005859-001	NEMA 4 Enclosure	•	•	•	•				•		•	•
7640QW	Metal Enclosure							•				
<b>Miscellaneous</b>												
32000085-001	Strain Relief Fitting (10 pack)			•	•					•	•	•
STRN-STRNRLF	Strain Relief Fitting (10 pack)	•	•									


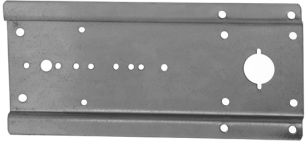
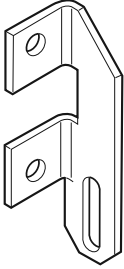
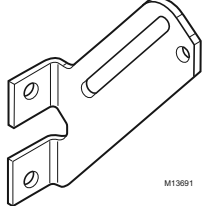




# Direct Coupled Actuator Accessories

## Control, Positioning, Feedback Accessories

Product Number	Description	Used With	
200976A	Auxiliary Feedback Potentiometer (0 to 500 ohm) Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
200976C	Auxiliary Feedback Potentiometer (0 to 2000 ohm) Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
201052A	Auxiliary Switch Package, Single Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
201052B	Auxiliary Switch Package, Double Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
205860	Electronic Remote Minimum Position Potentiometer Used With: Proportional Actuators	Proportional Actuators	
32003532-005	High Temperature Dual Switch Assembly	ML4105, ML8105, ML4115, ML8115, ML4125, ML8125, ML4135, ML8135, MS4209, MS4309, MS4709, MS4809, MS8209, MS8309	
32006306-001	Resistor Kit (500 ohm, converts 4-20mA to 2-10Vdc)	Proportional Actuators	
SSW2-1M	Auxiliary Switch Package - Low Torque Non Spring Return	MN Series Actuators (44 in-lb, 88 in-lb)	
SW2-US	Auxiliary Switch Package (2 adjustable SPDT switches)	MS and MN Series High Torque Actuators (MNXX20 and XX34)	




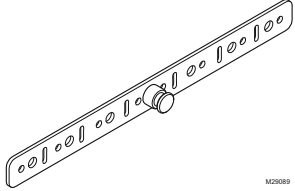
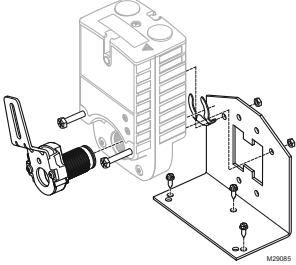
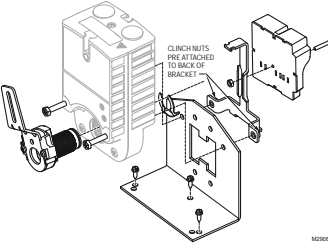
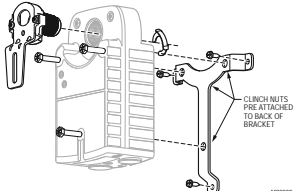
# Direct Coupled Actuator Accessories

## Mounting Accessories

Product Number	Description	Used With	
205649	Mounting Bracket Used With: 150 and 300 lb-in NSR and SR Actuators	150 and 300 lb-in. Non-Spring Return and Spring Return (except 25, 53 and 142 lb-in) Actuators	
32007205-001	Direct Coupled Actuator Mounting Bracket Used With: Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	
32007205-002	Damper Blade Drive Lever (Small) Used With: All Actuators and Dampers	All Actuators and Dampers	 M13690
32007205-003	Damper Blade Drive Lever (Large) Used With: All Actuators and Dampers	All Actuators and Dampers	 M13691
32007205-004	Retaining Clip, Damper External Drive Pin Used With: Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	
32007205-005	Damper External Drive Pin Kit Used With: Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	Damper with External Actuator Mounting (i.e., 32007205-005 Kit)	
32007205-006	Damper Axle Coupling Used With: Multi-Section Dampers	Multi-Section Dampers	
32007205-007	Jumper Bracket Used With: Multi-Section Dampers	Multi-Section Dampers	


Commercial  
Components

# Direct Coupled Actuator Accessories



Product Number	Description	Used With	
5000407-001	Actuator Tandem Mounting Kit	N20 Actuators; N34 Actuators; S05 Actuators; S10 Actuators; S20 Actuators	
50001194-001	Foot Mounting Kit	MS and MN Series High Torque Actuators (MNXX20 and XX34)	
50006427-001	Flexible Anti-Rotation Bracket	N20 Actuators; N34 Actuators; S05 Actuators; S10 Actuators; S20 Actuators	
STRN-BRKT	Anti-rotation Bracket for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M20085
STRN-CRK-01	Crank arm kit for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M20085
STRN-ECONO-01	Economizer Retrofit Kit for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M20084
STRN-WMK-01	Wall mount kit for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	 M20082

# Direct Coupled Actuator Accessories



## Rotational Limiters, Position Indicators

Product Number	Description	Used With	
4074ENJ	Minimum Position Kit Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174;	

## Ball Joints, Push Rod Accessories

Product Number	Description	Used With	
27518	Crankarm balljoint with 1/4 - 28 UNF male threads, fits 5-16 inch diameter push rods	All Actuators and Dampers	
27520A	Push Rod (5/16 in. dia., 5 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520B	Push Rod (5/16 in. dia., 10 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520C	Push Rod (5/16 in. dia., 12 in. length)	All Actuators and Dampers	
27520D	Push Rod (5/16 in. dia., 15 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520E	Push Rod (5/16 in. dia., 18 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520G	Push Rod (5/16 in. dia., 24 in. length)	All Actuators and Dampers	
27520H	Push Rod (5/16 in. dia., 28 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	
27520K	Push Rod (5/16 in. dia., 36 in. length)	All Actuators and Dampers	
27520L	Push Rod (5/16 in. dia., 48 in. length)	All Actuators and Dampers	
27520Q	Push Rod (5/16 in. dia., 8 in. length) Used With: All Actuators and Dampers	All Actuators and Dampers	

## Crankarms

Product Number	Description	Used With	
205830A	Rotary-to-Linear Kit. Used With: 35 and 70 lb-in NSR Actuators	35 and 70 lb-in. Non-Spring Return Actuators	
26026G	Damper Crank Arm, 1/2 in. damper shaft	All Actuators and Damper	


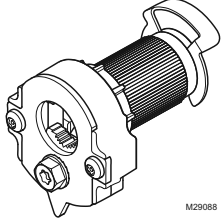
# Direct Coupled Actuator Accessories

Product Number	Description	Used With	
STRN-CA-01	Non Self-centering Crank Arm for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	A technical line drawing of a crank arm with a long handle and a circular head with a central hole and a smaller hole on the side. A threaded shaft is shown passing through the center hole. The part number M2997 is visible in the bottom right corner of the image.
STRN-CA-02	Self-centering Crank Arm for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	A technical line drawing of a crank arm similar to STRN-CA-01 but with a different internal structure. The part number M2998 is visible in the bottom right corner of the image.




# Shaft Adaptor Accessories

Product Number	Description	Used With	
32003167-001	3/8 in. Shaft Adapter Used With: ML6161, ML6174, ML7161, ML7174, ML7999	ML6161; ML6174; ML7161; ML7174; ML7999	A simple L-shaped metal bracket with a flat base and a vertical flange.
32003168-001	Short Shaft Adapter (3/4 in. to 1/2 in. ) Used With: All Actuators and Dampers	All Actuators and Dampers	A cylindrical metal adapter with a long central shaft and two small protrusions on the side.
32003168-002	Short Shaft Adapter (5/8 in. to 1/2 in. ) Used With: All Actuators and Dampers	All Actuators and Dampers	
32003168-003	Short Shaft Adapter (9/16 in. to 1/2 in. ) Used With: All Actuators and Dampers	All Actuators and Dampers	
32004254-001	Self-Centering Shaft Adapter Used With: N20 Actuators	N20 Actuators	A complex metal adapter with a circular opening and several mounting points.
32004254-002	Self-Centering Shaft Adapter Used With: S10, S20 Actuators	S10 Actuators; S20 Actuators	
32004254-003	Self-Centering Shaft Adapter Used With: N34 Actuators	N34 Actuators	
4074ENY	3/8 in. Shaft Kit Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	A simple L-shaped metal bracket, identical to the one in the first row.


# Direct Coupled Actuator Accessories

Product Number	Description	Used With	
4074EVK	Short Shaft Kit Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	
STRN-SCSA	Self-centering Shaft Adapter for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	

## Enclosure Accessories

Product Number	Description	Used With	
32003036-001	Weather Enclosure Used With: All Actuators	All Actuators	
50005859-001	NEMA 4 Enclosure for Direct Coupled Actuator	ML6161, ML6174, ML7161, ML7174; 150 lb-in. Non-Spring Return (ML Series) Actuators; N20 Actuators; N34 Actuators; S03 Actuators; S05 Actuators; S10 Actuators; S20 Actuators	
7640QW	Enclosure for Conduit Connection Used With: ML6161, ML6174, ML7161, ML7174	ML6161, ML6174, ML7161, ML7174	

## Miscellaneous Accessories

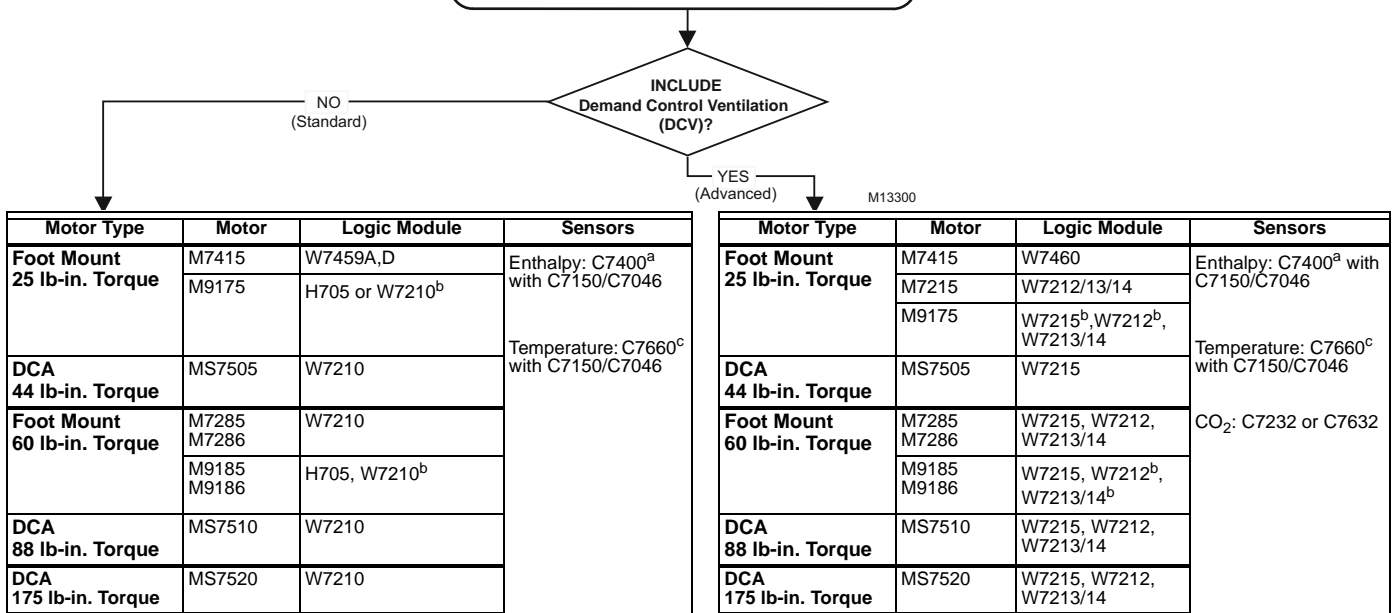
Product Number	Description	Used With	
32000085-001	Strain Relief Fitting (10 pack)	MS and MN Series Actuators;	
STRN-STRNRLF	Strain Relief Fitting for S03 and S05 Series Actuators	S03 Actuators; S05 Actuators	

Commercial  
Components

# Economizer Controllers

## Economizer Systems Quick Selection Guide

### ECOMOMIZER SYSTEM SELECTION



<sup>a</sup> Enthalpy sensor. Use two for differential enthalpy and one for single enthalpy.

For Dry Bulb only, use C7660 for single dry bulb only. C7660 cannot be used for differential dry bulb.

<sup>b</sup> To operate a Series 90 motor, the W7210 and W7215 require a Q7230 interface module or the proper resistor combination (included in the 4074EJM resistor kit), see form 63-2544 for details.

<sup>c</sup> C7660 can only be used in a single (referential) temperature operation. C7660 cannot be used for differential dry bulb.

NOTE: Series 90 Mod Motors™ can be retrofit using W7210, W7212 or W7215 Economizer Logic Modules and a Q7230 or the proper resistor combination. Refer to form 63-2544 for details on using Economizer Logic Modules with Series 90 motors.

#### Logic Module Details.

Model	DCV	Differential CO <sub>2</sub>	Enthalpy High Limit	Exhaust Fan Setpoint	Shutdown and Air Change	Purge	Motors Controlled	Model Number
Standard								
H705 <sup>a</sup>	No	No	None	None	No	No	Series 90	H705A1003
W7459	No	No	No	None	No	No	M7415	W7459A1001
			Yes					W7459D1005
W7210	No	No	No	None	No	No	Series 72	W7210A1001
			Yes					W7210D1005
Advanced								
W7212	Yes	No	No	Adjustable	No	No	Series 72	W7212A1009, W7212A1041 or W7212C1000 <sup>c,d</sup>
W7213/14 <sup>b</sup>	Yes	No	No	Adjustable	No	No	Series 72	W7213A1008 <sup>b</sup>
								W7214A1007 <sup>b</sup>
W7215	Yes	No	No	Adjustable	Yes	No	Series 72	W7215A1006
		Yes		Fixed				W7215B1004
W7460	Yes	No	No	Adjustable	Yes	Yes	M7415	W7460A1008
		Yes		Fixed				No

<sup>a</sup> The H705 includes a SPDT logic module and C7400 sensor (both affixed to the mounting plate).

<sup>b</sup> Terminals B-B1 (W7213) for heat pump applications, terminals 0-01 (W7214) for heat pump applications.

<sup>c</sup> Use C7400C with W7212C; Use C7400A with W7212A

<sup>d</sup> W7212C has A, B, C, D and E enthalpy curves

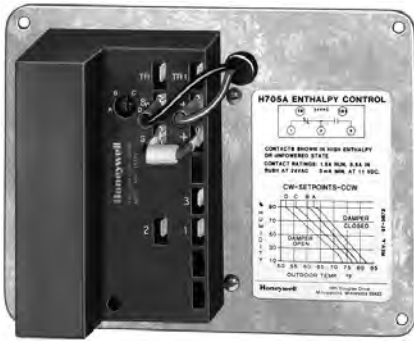
#### Sensor Details

Model	Sensor of	Details	Comments	Model Number	
				No Display	Display
C7046	Temperature	Discharge or Mixed Air	Probe with flange	C7046A1004	—
C7150			Thermistor on board	C7150B1004	—
C7400A	Enthalpy	Changeover	Use with W7212A	C7400A1004	—
C7400C			Use with W7212C	C7400C1002	—
C7660	Dry Bulb Temperature		Use for single dry bulb only.	C7660A1000	—
C7232	CO <sub>2</sub>	Wall Mount	Outputs: one relay, one 0/2-10 Vdc analog or 4-20 mA	C7232A1016	C7232A1008
		Duct Mount		C7232B1014	C7232B1006
C7632	CO <sub>2</sub>	Wall Mount	Outputs: one fixed 0-10 Vdc analog (fixed 0-2000 ppm)	C7632A1004	—
		Duct Mount		C7632B1002	—



# Economizer Controllers and Logic Modules

## H705 Solid State Enthalpy Controller



The H705 Solid State Enthalpy Controller maximizes the use of free outdoor air in place of the first stage of cooling in heating, ventilating and air conditioning (HVAC) economizer systems.

- Consists of a W7459A type solid state economizer logic module and a C7400A Solid State Enthalpy Sensor on a mounting plate.
- Mounts in any position in outdoor air duct.
- Use enthalpy setpoint to select desired combination of air temperature and humidity.
- Use a second C7400A Sensor for differential changeover control to maximize savings.
- Maximizes use of outdoor air for free cooling.
- Use in electronic and electromechanical systems.

**Dimensions, Approximate:** 120 mm high x 154 mm wide x 80 mm deep (4 3/4 in. high x 6 in. wide x 2 1/2 in. deep)

**Contact Ratings:** 1.5 A Run @ 24 Vac; 3.5 A Inrush @ 24 Vac

**Voltage:** 20-28V at 60 Hz; 20-26V at 50 Hz

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** 7 C to 35 C (45 F to 95 F)

**Operating Humidity Range (% RH):** 20 to 90% RH

**Approvals:**

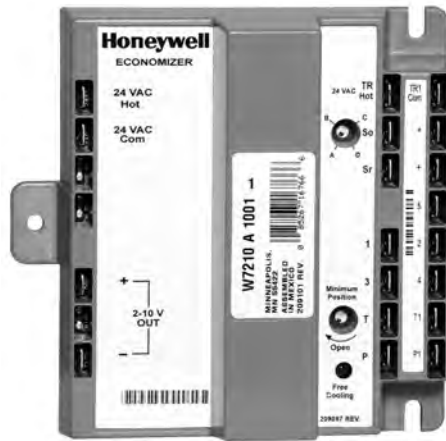
**Underwriters Laboratories, Inc.** Component UL plastic rated for UL 94 V-0

**Accessories:**

**4074EJM** 1.2K ohm checkout resistor, 620 ohm resistor, and jumper  
**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Description	Comments	Used With
H705A1003	Includes W7459 and C7400A	SPDT - terminals 1 and 2 make with enthalpy increase above setpoint; terminals 2 and 3 make with enthalpy decrease.	Series 90 motors

## W7210 Solid State Economizer Logic Modules



W7210A,D Solid State Economizer Logic Modules are used with solid state C7400A Enthalpy Sensors or C7660 Dry Bulb Temperature Sensors and Honeywell Series 72 actuators to proportion outdoor and return air dampers for economizer control in commercial HVAC equipment.

- Operates from the commercial thermostat to provide a totally integrated control system.
- Includes enthalpy or dry bulb changeover control, minimum damper position potentiometer and compressor staging relay functions.
- Optional differential enthalpy control provides greater economizer savings than single enthalpy control by selecting the most economical air for cooling.
- Differential enthalpy control uses two sensor inputs, one in return air and one in outdoor air then economizer control selects the air with the lower enthalpy.
- Enthalpy setpoint (A-D) W7210 Solid State Economizer Logic Module controls the combination of air temperature and humidity suitable for free cooling.
- LED indicates when free cooling is available.
- Mount on the sheet metal duct.
- Mounting screws included.

**Dimensions, Approximate:** 119 mm high x 132 mm wide x 40 mm deep (5 3/16 in. high x 4 11/16 in. wide x 1 9/16 in. deep)

**Contact Ratings:** 1.5 A Run @ 24 Vac; 3.5 A Inrush @ 24 Vac

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +52 C (-40 F to +125 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Used With:** Honeywell Series 72 actuators

**Approvals:**

**Underwriters Laboratories, Inc.** Flammability Rating UL94V-5V

**Accessories:**

**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Input	Output	Use with Sensor	Description	Comments
W7210A1001	Dry Bulb Temperature sensor C7660, or Enthalpy sensor C7400A, or Mixed Air Temperature sensor C7150	Two SPDT one 2-10Vdc	C7400A; C7150; C7046; C7660	Series 72 Economizer Logic Module	Economizer Logic Module operates Series 72 actuators. Optional remote minimum position pot.
W7210D1005	Dry Bulb Temperature sensor C7660, or Enthalpy sensor C7400A, or Mixed Air Temperature sensor C7150	Two SPDT one 2-10Vdc	C7400A; C7150; C7046; C7660	Series 72 Economizer Logic Module	Economizer Logic Module operates Series 72 actuators. Optional remote minimum position pot. High enthalpy limit.

# Economizer Logic Modules

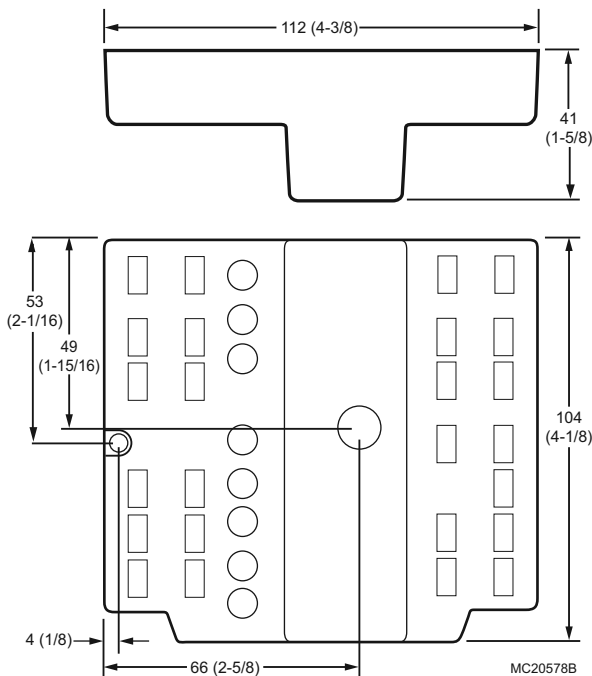
## W7212; W7213; W7214 Demand Control Ventilation Economizer Logic Modules



**W7212, W7213, and W7214 Economizer Logic Modules are used with C7232 Demand Control Ventilation (DCV) Sensors, and solid state C7400 Enthalpy Sensors or C7660 Dry Bulb Temperature Sensors. All models proportion outdoor and return air dampers for control of free cooling in commercial HVAC equipment.**

- Operates from commercial thermostat and DCV sensor to provide a totally integrated control system.
- Mounts on M7215 Motor or ductwork.
- Used with Honeywell M7215 or Series 70 DCA.
- Combines minimum and DCV maximum damper position potentiometers with compressor staging.
- Solid state enthalpy or dry bulb changeover control.
- Terminals included for connecting optional S963B1128 Remote Potentiometer for remote minimum damper position control.
- LED indicates when free cooling is available.
- LED indicates when module is in DCV mode.
- LED indicates when exhaust fan contact is closed.
- W7213 is used with heat pump B terminal.
- W7214 is used with heat pump O terminal.

### Dimensions in millimeters (inches)



**Contact Ratings:** 1.5 A Run @ 30 Vac; 3.5 A Inrush @ 30Vac

**Output:** 2-10 Vdc to actuator

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +65 C (-40 F to +149 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Color:** Black

### Approvals:

**Underwriters Laboratories, Inc.** UL Listed File: E4436, Guide: XAPX, CE Report: GV02-003, Meets UL873 plenum requirements, C-tick, Complies with California Title 24

### Accessories:

**C7232A1008** Wall mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with LCD Display and Honeywell logo

**C7232A1016** Wall mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

**C7232B1006** Duct mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with LCD Display and Honeywell logo

**C7232B1014** Duct mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

**C7632A1004** Wall mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

**C7632B1002** Duct mounted Non-dispersive Infrared (NDIR) Carbon Dioxide Sensor with Honeywell logo

**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Description	Comments
<b>W7212A1009</b>	Series 72 Economizer Logic Module with Demand Control Ventilation	Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default minimum position in freeze protection
<b>W7213A1008</b>	Series 72 Economizer Logic Module with Demand Control Ventilation and B-B1 terminals for heat pump	Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default closed position in freeze protection. Includes B terminal (energized in heating mode)
<b>W7214A1007</b>	Series 72 Economizer Logic Module with Demand Control Ventilation and O-O1 terminals for heat pump	Includes O terminal (energized in cooling mode). Can be used with C7400A Enthalpy sensors or C7660 Dry Bulb sensor and C7232 CO2 sensors for Demand Control Ventilation. Accepts inputs from discharge or mixed air temperature sensors. Economizer Logic Module operates Series 72 actuators. Default closed position in freeze protection

# Economizer Logic Modules

## W7215A,B Enhanced Economizer Logic Modules



**Dimensions, Approximate:** 221 mm high x 147 mm wide x 43 mm deep (8 11/16 in. high x 5 13/16 in. wide x 1 11/16 in. deep)  
**Contact Ratings:** 1.5 A Run @ 30 Vac; 3.5 A Inrush @ 30Vac  
**Voltage:** 24 Vac  
**Frequency:** 50 Hz; 60 Hz  
**Input:** Discharge Air Temperature sensor: C7150 or C7046 Air Quality Sensor  
**Output:** 2-10 Vdc to actuator  
**Operating Temperature Range:** -32 C to +52 C (-25 F to +125 F)  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

Use with C7400A, or C7660 and C7150B or C7046 Sensors; Demand Control Ventilation (DCV) sensor C7232 C02 sensor (2-10 Vdc); and Honeywell Series 72 actuators, or M7415 Damper Actuator to proportion outdoor and return air dampers for economizer and ventilation control in commercial HVAC equipment. (See below)

- Input from DCV C02 sensor provides optimum ventilation based on occupancy.
- All models include air change and shutdown; "A" models also provide prepurge.
- Demand control ventilation economizer provides comfort, energy savings, reliability, air quality compliance and application flexibility in heating, cooling and ventilating applications.
- Combines solid state enthalpy or dry bulb changeover control, minimum and maximum damper position potentiometer and DCV setpoint functions.
- Optional differential enthalpy control (enthalpy setpoint D with two C7400A sensors) provides greater economizer savings and maximum comfort over single enthalpy control by selecting the most economical method for cooling.
- Enthalpy setpoint (A-D) on economizer module controls the combination of air temperature and humidity that is suitable for free cooling.
- LEDs indicates when economizer is in free cooling and DCV modes.
- B models provide for input from an outdoor air quality sensor.

**Use With Sensor:** C7232; C7400A; C7150; C7046; C7660

**Approvals:**

**Underwriters Laboratories, Inc.** UL Listed File: E4436, Guide: XAPX, CE Report: GV02-003, Meets UL873 plenum requirements, C-tick, Complies with California Title 24

**Accessories:**

**4074EJM** 1.2K ohm checkout resistor, 620 ohm resistor, and jumper  
**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Description	Comments
W7215A1006	Series 72 Economizer Logic Module with analog input from one Indoor Air Quality sensor (commonly Carbon Dioxide Sensor)	Can accept remote minimum position damper position potentiometer and/or analog input from one carbon dioxide sensor for indoor air. Economizer Logic Module operates Series 72 actuators.
W7215B1004	Series 72 Economizer Logic Module with analog input from two Indoor Air Quality sensors (commonly Carbon Dioxide Sensor)	Can accept remote minimum position damper position potentiometer and/or analog input from two carbon dioxide sensors for indoor and outdoor air. Economizer Logic Module operates Series 72 actuators.

# Economizer Logic Modules

## W7459 Solid State Economizer Logic Module



**W7459 Solid State Economizer Logic Module are used with M7415 and M8405 Dedicated Economizer Actuators to proportion outdoor and return air dampers in economizer systems.**

- Attaches to one side of actuator for proportional control of damper.
- Combines solid state changeover control, minimum damper position potentiometer and compressor staging relays.
- Use one sensor in outdoor air for single sensor control; use two sensors, one in return air and one in outdoor air, for differential control.

**Dimensions, Approximate:** 103 mm high x 71 mm wide x 32 mm deep (4 1/16 in. high x 2 13/16 in. wide x 1 1/4 in. deep)

**Contact Ratings:** 1.5 A Run @ 24 Vac; 3.5 A Inrush @ 24 Vac

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +52 C (-40 F to +125 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Approvals:**

**Underwriters Laboratories, Inc.** UL Listed File: E4436, Guide: XAPX2, CE Report: GV97-010, Flammability Rating UL94V-5V

**Accessories:**

**4074EJM** 1.2K ohm checkout resistor, 620 ohm resistor, and jumper  
**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Input	Output	Use with Sensor	Description	Comments	Used With
<b>W7459A1001</b>	Y1 and Y2 from thermostat; Discharge Air Temperature sensor: C7150 or C7046; Enthalpy Sensor: C7400	Output for M7415	C7400A; C7150; C7046; C7660	Economizer Logic Module (works with M7415 Damper Actuators)	Economizer Logic Module. Optional remote minimum position potentiometer.	M7415 Damper Actuator
<b>W7459A1035</b>	See comments Y1 and Y2 from thermostat	Output for M7415	C7400A; C7150; C7046; C7660	Economizer Logic Module (works with M7415 Damper Actuators)	Economizer Logic Module. With resistor jumper to allow operation with a temp. activated switch to limit min. pos. to 50% max. open. Optional remote minimum position potentiometer.	M7415 Damper Actuator
<b>W7459C1007</b>	Discharge Air Temperature controller: T675 or T6031	Output for M7415	C7400A; C7150; C7046; C7660	Economizer Logic Module (works with M8405 Damper Actuator)	Economizer Logic Module.	M8405 Damper Actuator

## W7499 Solid State Economizer Logic Module



**W7459 Solid State Economizer Logic Module with M7415 Actuator to proportion outdoor and return air dampers in economizer systems.**

- Combines solid state changeover control, minimum damper position potentiometer and compressor staging relays.
- Use one sensor in outdoor air for single sensor control; use two sensors, one in return air and one in outdoor air, for differential control.

**Dimensions, Approximate:** 103 mm high x 71.4 mm wide x 33 mm deep (5 in. high x 6 in. wide x 5 in. deep)

**Contact Ratings:** 1.5 A Run @ 30 Vac; 3.5 A Inrush @ 30Vac

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Temperature Range:** -40 C to +52 C (-40 F to +125 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Approvals:**

**Underwriters Laboratories, Inc.** UL Listed File: E4436, Guide: XAPX2, Flammability Rating UL94V-5V

Product Number	Use with Sensor	Description	Comments
<b>W7499A1003</b>	May add a second C7400 sensor for differential control; C7400A; C7150; C7046; C7660	W7459A1001 Economizer Logic Module with M7415A1006 Damper Actuator	Kit includes W7459A1001 Economizer Logic Module and M7415A1006 Damper Actuator

## W859 Economizer Control Packages



Contain all controls needed to operate an outdoor return air damper system, when used with an M91XX Modutrol IV Motor with internal balancing relay.

- Can be connected to the commercial thermostat to provide a totally integrated control system that locks out the economizer during the heating system.
- Used with an H205A or H705A Enthalpy Control to provide maximum economy in high humidity areas.
- Includes lead wires for remote minimum position potentiometer and remote changeover switch. 24 Vac power supply only.
- Mounts in place of Modutrol IV Motor cover, when used with 203977A bracket.
- Weatherproof screw-on caps prevent accidentally changing control adjustments.
- Hook provided to support device on side of Modutrol IV Motor during wiring.

**Dimensions, Approximate:** 148 mm high x 105 mm wide x 85 mm deep (5 13/16 in. high x 4 1/8 in. wide x 3 11/32 in. deep)

**Contact Ratings:** 1 A @ 24 Vac

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Approvals:**

**Underwriters Laboratories, Inc.** UL and CSA recognized for field wiring.

**Accessories:**

**107324A** Capillary Holder Assembly for duct insertion, 8 3/8 in. long

**Replacement Parts:**

**107324A** Capillary Holder Assembly for duct insertion, 8 3/8 in. long

Product Number	Output	Description	Comments	Used With
W859F1005	Series 90	Economizer for Modutrol Motors	throttling range: 10 F (6 C) Requires 203977A bracket for mounting on Modutrol IV motor. 135 ohm mixed air temperature controller	M91XX Modutrol IV motor
W859F1013	Series 90	Economizer for Modutrol Motors	throttling range: 10 F (6 C) Requires 203977A bracket for mounting on Modutrol IV motor. 135 ohm mixed air temperature controller	M91XX Modutrol IV motor, and H705A1003 enthalpy control

## Economizer Parts and Accessories

Product Number	Description	Used With
4074EJM	1.2K ohm checkout resistor, 620 ohm resistor, and jumper	W7459; W7210; W7212; W7215
4074EJQ	Board for panel mounting W7459A	W7459A

# Economizer Damper Actuators

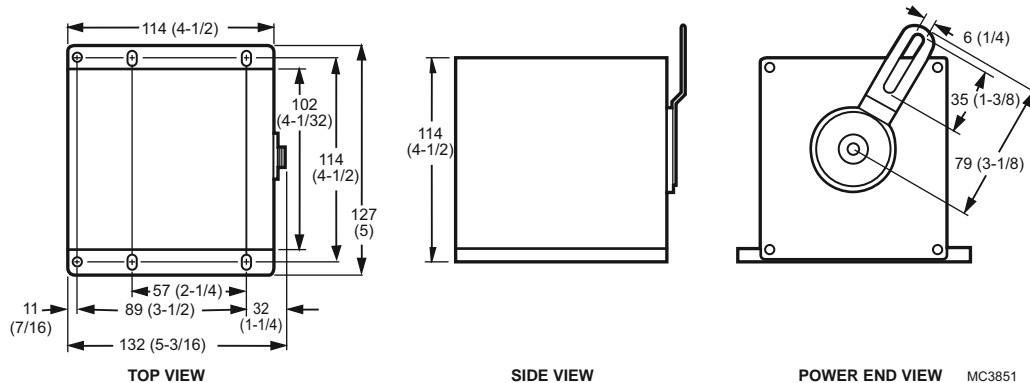
## M6415; M7215; M7415; M8405; M8415 Economizer Damper Actuators



25 lb-in. spring return damper actuators provide two-position, three-position, floating, or modulating control of economizer systems, ventilation dampers and combustion air dampers used in residential or commercial HVAC equipment.

- Synchronous Motor. Quiet, high efficiency drive motor.
- Spring returns motor shaft to normal position in the event of power failure.
- High impact, glass-fiber reinforced plastic case is rugged, lightweight and corrosion resistant.
- Uses Q298B Linkage.

Dimensions in millimeters (inches)



**Fail Safe Mode:** Spring Return  
**Torque Rating:** 2.8 Nm (25 lb-in.)  
**Torque Rating, Breakaway:** 4.5 Nm (40 lb-in.)  
**External Auxiliary Switches Available:** Yes  
**Fixed Stroke:** Yes  
**Feedback:** No  
**Electrical Connections:** Quick-connect terminals  
**Frequency:** 50 Hz; 60 Hz  
**Motor Shafts:** 1  
**Mounting:** Foot-mounted  
**Vibration:** V2 level  
**Angle of Rotation (Stroke Max (deg)):** 90  
**Nominal Spring Return (seconds):** 18 sec

**Nominal Timing Opening (seconds):** 90 sec  
**Maximum Run Time (seconds):** 90 sec  
**Minimum Timing (seconds):** 90 sec  
**Deadweight Load on Shaft (Power End):** 15 lbs max  
**Operating Temperature Range:** -32 C to +52 C (-25 F to +125 F)  
**Shipping Temperature Range:** -34 C to +66 C (-30 F to +150 F)  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Materials (Housing):** UL94-5V plastic housing  
**Weight:** 3 lb  
**Approvals:**  
**Underwriters Laboratories, Inc.** Listed File: E4436, Guide: XAPX

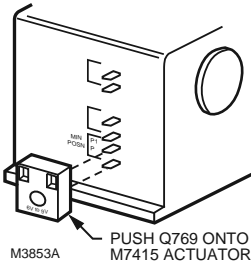
Product Number	Control Signal	Power Consumption		Rotation to Open	Description	Comments	Used With
		Driving	Holding				
M6415A1016	Floating, SPDT	8 VA	3 VA	CCW	Spring return-foot mounted, Spdt floating, 24 Vac	—	Floating Controllers—
M7215A1008	2 to 10 Vdc	8 VA	3 VA	CCW	Spring return-foot mounted, Modulating, 24 Vac	—	W7212/13/14 Economizers; W7215 Economizers
M7415A1006	Thermistor, Modulating	8 VA	5 VA	CCW	Spring return-foot mounted, Modulating, 24 Vac	With captive mounting nuts	W7459 Economizers; W7460 Economizers
M7415B1004	Thermistor, Modulating	8 VA	5 VA	CW	Spring return-foot mounted, Modulating, 24 Vac	—	W7459 Economizers; W7460 Economizers
M8405A1006	Three position	8 VA	3 VA	CCW	Spring return-foot mounted, 3 position w/field adj. min pos., 24 Vac	—	W7459C—
M8415A1004	Two position, SPST	8 VA	3 VA	CCW	Spring return-foot mounted, 2 position, 2 wire w/field adj. min. pos., 24 Vac	—	—

# Economizer Damper Actuators

## Q769 Signal Adapters



Q769 Adapter is used to provide a modulating signal to the M7415 Economizer Damper Motors when used with a controller.





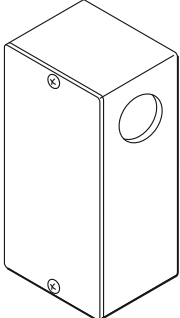
**Dimensions, Approximate:** 35 mm high x 35 mm wide x 17 mm deep  
(1 3/8 in. high x 1 3/8 in. wide x 11/16 in. deep)

**Electrical Connections:** Quick-connect terminals

**Operating Temperature Range:** -32 C to +52 C (-25 F to +125 F)

Product Number	Control Signal	Description	Used With
Q769A1009	6 to 9 Vdc	6 to 9 volt Adapter	M7415
Q769B1008	4 to 20 mA	4 to 20 mA Adapter	M7415
Q769C1007	0 to 10 Vdc	0-2 to 10 Vdc Adjustable Adapter	M7415

## Economizer Actuator Accessories

Product Number	Description	Used With	
203977A	Economizer Adapter Kit for Mod Motors	Modutrol™ Motors; W7459 Economizers	
4074EGR	Crank arm assembly	M6415; M7215; M7415; M8405; M8415	
4074EKV	24 Vac Auxiliary switch which provides switching capability for controlling auxiliary equipment	M6415; M7215; M7415; M8405; M8415	
7640QF	Terminal Enclosure which provides wiring enclosure for electrical connections	M6415; M7215; M7415; M8405; M8415	 7640 QF M11519A
Q709A1005	Minimum Position Potentiometer	M7415; M7405	

# Economizer Sensors

## C7150 Mixed Air Sensor



**C7150 Solid State mixed air sensor is used with Honeywell economizer logic modules and W973 and M7415 to proportion outdoor and return air dampers in economizer systems.**

- Uses thermistor sensing element in ventilation duct systems.
- Negative temperature coefficient (NTC) causes resistance to decrease as sampled air temperature increases.
- Resistance change used as in input to control W973 and M7415.
- Requires no settings or calibration.
- Mounts on duct surface with four screws (not supplied).

**Application:** Temperature Mixed Air

**Dimensions, Approximate:** 51 mm high x 64 mm wide  
(2 in. high, 2 1/2 in. wide, 3/4 in. deep)

**Sensor Type:** 3000 ohms @ 25C NTC

**Color:** Black

**Operating Temperature Range:** 4 C to 43 C (40 F to 110 F)

**Electrical Connections:** 1/4 in. (6 mm) quick-connect terminals.

**Approvals:**

**CE:** Report: GV97-011

**Underwriters Laboratories, Inc.** Component Recognized

Product Number	Application Type	Mounting	Maximum Ambient Temperature		Description	Used With
			(C)	(F)		
C7150B1004	Duct mixed or discharge air	Mount on a mounting bracket (not included) inside the mixed air or discharge air duct.	121 C	250 F	Electronic Temperature Sensor	W973 and M7415; W7210, W7212, W7213, W7214, W7215, W7459, W7460

## C7400 Enthalpy Sensor



**C7400 Solid State Enthalpy Sensor is used with Honeywell economizer logic modules to proportion outdoor and return air dampers in economizer systems.**

- C7400 solid state elements sense enthalpy (temperature and humidity); use two sensors for differential control, maximizing energy savings.
- Use one sensor in outdoor air for single sensor control; use two sensors, one in return air and one in outdoor air, for differential control.
- C7400 mount in any position up to 200 ft (61 m) away from Economizer Logic Module.
- UL94-5V enclosure.

**Application:** Enthalpy economizing

**Dimensions, Approximate:** 80 mm high x 98 mm wide x 25 mm deep  
(3 5/32 in. high, 3 7/8 in. wide, 1 in. deep)

**Sensor Type:** 4-20 mA output

**Color:** Black

**Operating Temperature Range:** -32 C to +52 C (-25 F to +125 F)

**Operating Humidity Range (% RH):** 10 to 90% RH

**Electrical Connections:** Two 1/4 in. quick-connect terminals

**Approvals:**

**CE:** Report: GV97-011

**Underwriters Laboratories, Inc.** Component Recognized: E4436

**Accessories:**

**4074EJM** 1.2K ohm checkout resistor, 620 ohm resistor, and jumper

**4074EJQ** Board for panel mounting W7459A

**S963B1128** Manual Potentiometer (135 ohm)

Product Number	Application Type	Mounting	Maximum Ambient Temperature		Description	Used With
			(C)	(F)		
C7400A1004	Duct outside (supply) or return	Mounted in any position where it is exposed to freely circulating air	121 C	250 F	Solid State Enthalpy Sensor	W7210, W7212A, W7213, W7214, W7215, W7459, W7460
C7400C1002	Duct outside (supply) or return	Mounted in any position where it is exposed to freely circulating air	121 C	250 F	Solid State Enthalpy Sensor	W7212C



## C7660 Selectable Temperature Sensor



C7660 Selectable Temperature Sensor is used with the W7459, W7215, W7212, W7213 and W7214 Economizer Controls. The economizer controls are mounted on an M7415/M7215 Actuator. They permit the use of outdoor air as the first stage of cooling in heating, ventilating and air conditioning (HVAC) systems.

The C7660 Selectable Temperature Sensor is only to be used with single temperature change over with the sensor located in the outdoor air.

- Senses temperature of outdoor air and provides a signal to economizer control with OK or not OK to economize.
- Selectable dip switch provides 8 change over temperature options.
- When temperature of outdoor air is below change over temperature, the outdoor air damper is opened to reduce the cooling load in the building.
- Provides 4 OR 20 mA output signal to economizer control; At 4 mA not OK to economize, 20 mA OK to economize.
- Highly accurate microprocessor control.
- Sensor is enclosed in a rugged, corrosion-resistant plastic case.
- Replaces C7650 temperature sensors and the control function of temperature change over in the economizer control.

**Application:** Selectable Temperature Sensor

**Dimensions, Approximate:** 81 mm high x 96 mm wide x 25 mm deep  
(4 5/32 in. high x 3 7/8 in. wide x 1 in. deep)

**Sensor Type:** 4 or 20mA Output

**Color:** Black

**Operating Temperature Range:** -40 to 65 C (-40 to 149 F)

**Electrical Connections:** Two 1/4 in. quick-connect terminals

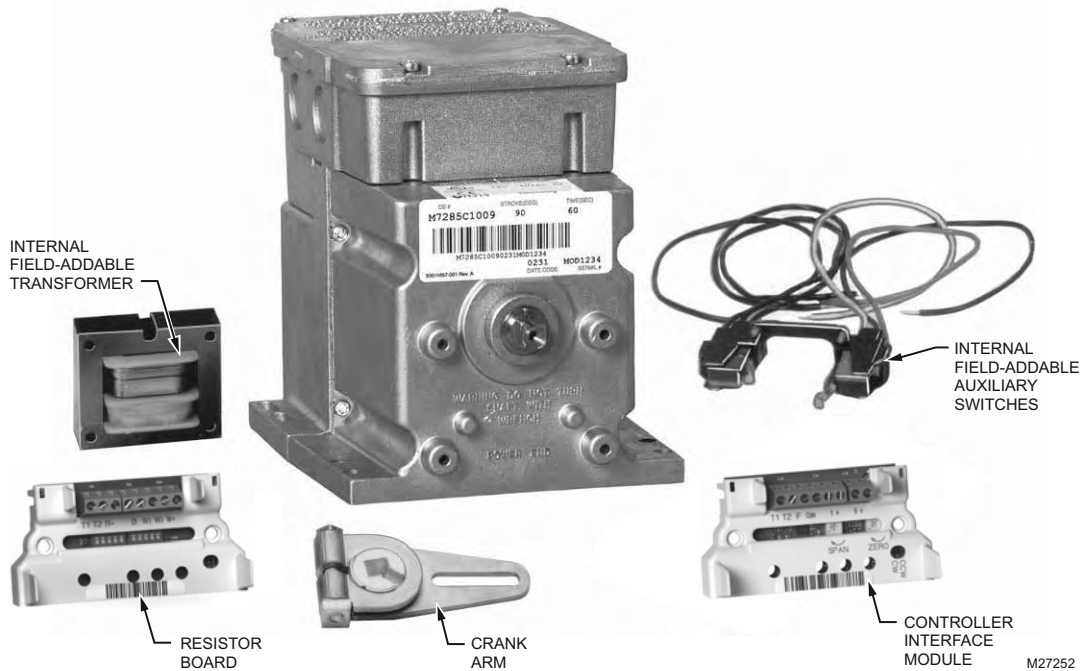
**Approvals:**

**Underwriters Laboratories, Inc.** Flammability Rating 94-5V (cUL)

Product Number	Application Type	Mounting	Description	Used With
C7660A1000	Duct outside (supply) or return	Mounted in any position where it is exposed to freely circulating air	Selectable Temperature Sensor	W7210, W7212, W7213, W7214, W7215, W7459, W7460

# Modutrol IV™ Motors

## Modutrol IV™ Series 2 and Series 3 Family of Motors “Contractor-Friendly” design for service and retrofit



Modutrol IV™ Series 2 and Series 3 Motors replace all present generation Modutrol motors and set a new, certifiable standard for the industry. Modutrol IV™ Series 2 and Series 3 Motors retain all the features that make Honeywell Modutrol motors the most reliable produced, and go even further with many quality improvements.

Our engineers have incorporated Design for Six Sigma methodology and Electronic Excellence to re-engineer this popular product. The motor has undergone a technology update integrating the proven DCA (Direct Coupled Actuator) microprocessor based design into the existing footprint of a Mod Motor.







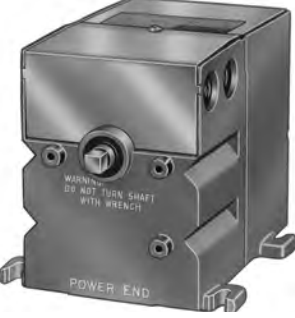
The Series 2 and Series 3 Motors provide these features and benefits:

1. **Dual shafts.** Slotted and tapped at both ends. Both drive and auxiliary shafts have equal torque ratings, allowing auxiliary shaft to drive full torque loads. This provides a more flexible motor. For example, a spring-return, normally closed motor will provide normally open operation simply by using the auxiliary shaft.
2. **NEMA 3 housing.** Modutrol IV™ motor housings protect the motor from driving rain if motor is mounted in the upright position (as shown in above photo). May be mounted outdoors without a weatherproofing kit.
3. **Brushless DC sub motor** provides a fixed torque over the entire voltage range.
4. **Reduced power consumption.** Motor power needs can always be satisfied with a 25 VA transformer.
5. **Internal quality improvements.** Results in improved performance and longer life. These quality improvements include:
  - Microprocessor based technology eliminated the need for mechanical end stops.
  - Brushless DC sub motor eliminates the need for oil.
6. **Auxiliary Switch cams.** All models have auxiliary switch cams that permit acceptance of 220736A,B Internal Auxiliary Switch Kits.
7. **Field Adjustable stroke.** Most models are field adjustable (i.e. 90 to 160 degrees).

TRADELINE motors and appropriate accessories can be configured to replace all previous Honeywell Modutrol motors, as well as most OEM modutrol motors. The appropriate accessories are listed with the different models and in tables near the end of this section.

## Modutrol IV™ Family of Motors

The following Modutrol IV™ Motors can replace the old style Modutrol motors as shown below.

	Mod IV Replacement	Old Motors Replaced
<b>Non-Spring Return</b>	M6184 M9164 M6194 M9174 M6284 M9184 M6294 M9194 M7164 M9484 M7284 M9494 M7294 	M644 M744 M941 M944 M954  M734 M934 
<b>Spring Return</b>	M4185 M7685 M6285 M8185 M7285 M9185 M7286 	M445 M745 M845 M945 M955 
<b>Medium Torque Spring Return</b>	M9175 	M765 M865 M965 M975 

## The Honeywell Family of Modutrol IV™ Series 2 and Series 3 Motors

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 <sup>a</sup>	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
*TRADELINE models.															
M4185A1001		●		90-160	30-60	●				●				●	T775; T4031
M4185B1009		●		90-160	30-60	●				●				●	T775; T4031
M4185B1058	●	●	●	90-160	30-60	●				●				●	T775; T4031
M4185C1001	●	●		90-160	30-60	●				●				●	T775; T4031
M6184A1015	●			90-160	30-60		●					●			T775; T675; T678; T6031

<sup>a</sup> All 24 Vac Modutrol motors have CE approval.

<sup>b</sup> Available only through Honeywell Authorized Distributors.

<sup>c</sup> Includes minimum position potentiometer.

# Modutrol IV™ Motors

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 <sup>a</sup>	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
<i>*TRADELINE models.</i>															
M6184A1023		●		90-160	15-30		●					●			T775; T675; T678; T6031
M6184D1001	●			90-160	15-30		●					●			T775; T675; T678; T6031
*M6184D1035	●			90-160	30-60		●					●			T775; T675; T678; T6031
M6184D1068	●			90-160	120-240		●					●			T775; T675; T678; T6031
M6184F1014	●			90-160	30-60		●					●			T775; T675; T678; T6031
*M6194B1011	●			90-160	60-120		●						●		T775; T675; T678; T6031
*M6194D1017	●			90-160	120-240		●						●		T775; T675; T678; T6031
M6194E1006	●			90-160	120-240		●						●		T775; T675; T678; T6031
M6284A1055		●		90-160	30-60		●					●			T775; T675; T678; T6031
M6284A1071		●		90-160	30-60		●					●			T775; T675; T678; T6031
*M6284D1000	●			90-160	30-60		●					●			T775; T675; T678; T6031
*M6284D1026	●			90-160	30-60		●					●			T775; T675; T678; T6031
M6284F1013	●			90-160	30-60		●					●			T775; T675; T678; T6031
*M6285A1005	●			90-160	30-60		●			●				●	T775; T675; T678; T6031
M6285C1001	●			90-160	30-60		●			●				●	T775; T675; T678; T6031
*M6294D1008	●			90-160	120-240		●						●		T775; T675; T678; T6031
M7164A1017 <sup>b</sup>	●			90-160	30-60				10.5-13.5 Vdc	●					T775; W7080
M7164G1030 <sup>b</sup>		●		90-160	30-60				10.5-13.5 Vdc	●					T775; W7080
M7284A1004 <sup>b</sup>		●		90-160	30-60				4-20 mA				●		T775, EXCEL 5000
M7284A1012 <sup>b</sup>		●		90-160	30-60				4-20 mA				●		T775, EXCEL 5000
M7284A1038 <sup>b</sup>		●		90-160	15-30				4-20 mA			●			T775, EXCEL 5000
M7284A1079 <sup>b</sup>	●			90-160	30-60				2-10 Vdc				●		T775, EXCEL 5000
M7284C1000 <sup>b</sup>		●		90-160	30-60				4-20 mA				●		T775, EXCEL 5000
M7284C1083	●			90	30		●		4-20 mA				●		DDC
M7284C1091	●			160	60		●		4-20 mA				●		DDC
M7284Q1009 <sup>b</sup>		●		90-160	30-60				4-20 mA				●		T775, EXCEL 5000
M7284Q1082	●			90	30		●		4-20 mA				●		DDC
M7284Q1090	●			160	60		●		4-20 mA				●		DDC
M7285A1003 <sup>b</sup>		●		90-160	30-60				4-20 mA		●			●	T775, EXCEL 5000
M7285A1045 <sup>b</sup>	●			90-160	30-60				2-10 Vdc		●			●	T775, EXCEL 5000
M7285C1009 <sup>b</sup>		●		90-160	30-60				4-20 mA		●			●	T775, EXCEL 5000
M7285Q1008 <sup>b</sup>		●		90-160	30-60				4-20 mA		●			●	T775, EXCEL 5000
M7286G1009 <sup>b</sup>	●			90-160	30-60				2-10 Vdc		●			●	T775, EXCEL 5000
M7294A1010 <sup>b</sup>	●			90-160	60-120				2-10 Vdc				●		T775, EXCEL 5000
M7294Q1007 <sup>b</sup>		●		90-160	60-120				4-20 mA				●		T775, EXCEL 5000
M7685A1025 <sup>b,c</sup>	●			90-160	30-60				14-17 Vdc		●			●	T775; W7080
*M8185D1006	●			90-160	30-60		●				●			●	T775
M9164A1005		●		90-160	30-60				135 ohm	●					T775; T915; T991
M9164A1013	●	●	●	90-160	30-60				135 ohm	●					T775; T915; T991
M9164A1070	●			90-160	30-60				135 ohm	●					T775; T915; T991
M9164C1001	●			90-160	30-60				135 ohm	●					T775; T915; T991
M9164C1068		●		90-160	30-60				135 ohm	●					T775; T915; T991

<sup>a</sup> All 24 Vac Modutrol motors have CE approval.

<sup>b</sup> Available only through Honeywell Authorized Distributors.

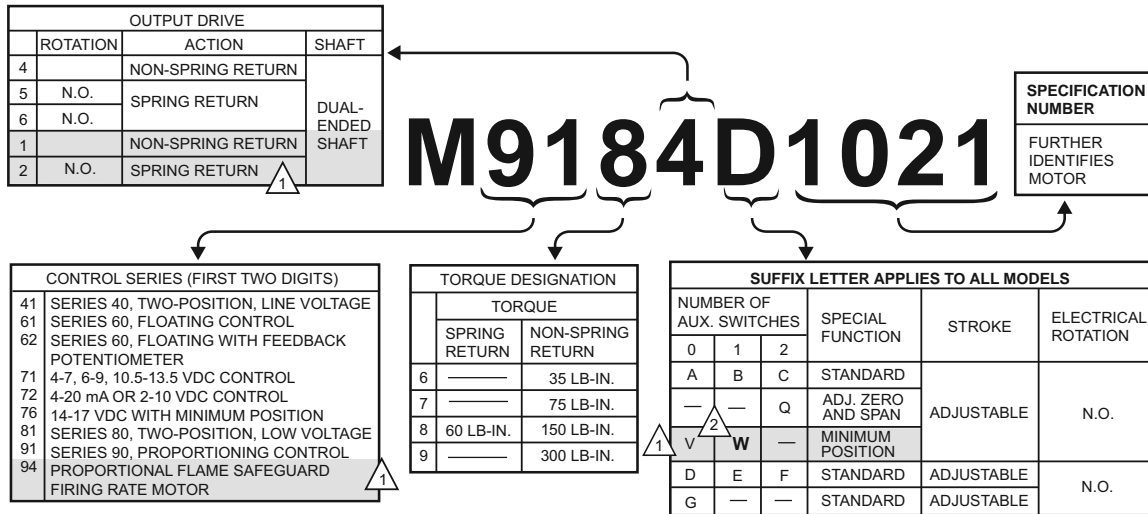
<sup>c</sup> Includes minimum position potentiometer.

# Modutrol IV™ Motors

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 <sup>a</sup>	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
*TRADELINE models.															
*M9164D1009	●			90-160	30-60			135 ohm	●						T775; T915; T991
M9174B1027		●		90-160	30-60			135 ohm		●					T775; T915; T991
M9174C1025		●		90-160	30-60			135 ohm		●					T775; T915; T991
M9174C1033		●		90-160	30-60			135 ohm		●					T775; T915; T991
*M9174D1007	●			90-160	30-60			135 ohm		●					T775; T915; T991
M9184A1019	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184C1031	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184D1005	●			90-160	15-30			135 ohm		●					T775; T915; T991
*M9184D1021	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184F1034	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9185A1018	●			90-160	30-60			135 ohm	●			●			T775; T915; T991
M9185C1006	●			90-160	30-60			135 ohm	●			●			T775; T915; T991
*M9185D1004	●			90-160	30-60			135 ohm	●			●			T775; T915; T991
M9185E1019	●			90-160	30-60			135 ohm	●			●			T775; T915; T991
*M9194D1003	●			90-160	120-240			135 ohm				●			T775; T915; T991
M9194E1000	●			90-160	120-240			135 ohm				●			T775; T915; T991

- <sup>a</sup> All 24 Vac Modutrol motors have CE approval.
- <sup>b</sup> Available only through Honeywell Authorized Distributors.
- <sup>c</sup> Includes minimum position potentiometer.

## Modutrol IV™ Series 2 and Series 3 Motor Order Number Guide



<sup>1</sup> MODEL NUMBERS IN SHADED AREAS ARE AVAILABLE SPECIAL ORDER ONLY. CONTACT YOUR HONEYWELL SALES REPRESENTATIVE.

<sup>2</sup> SUFFIX LETTERS IN BOLD ARE OBSOLETE.

M13696A

# Modutrol IV™ Motors

## M4185 Line Volt; M8185 Low Volt Two-Position Modutrol IV™ Series 2 Motors



**Application Type:** Electric  
**Fail Safe Mode:** Spring Return  
**Control Signal:** Two position, SPST  
**Feedback:** No  
**Frequency:** 50 Hz; 60 Hz  
**External Auxiliary Switches Available:** Yes  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A  
**Mounting:** Foot-mounted  
**Motor Shafts:** Dual-ended shaft  
**Shaft Shape:** square  
**Shaft Dimensions:** 10 mm (0.375 in.)  
**Shaft Rotation (upon control signal increase):** Clockwise (as viewed from power end) (normally closed)  
**Stroke:** Adjustable; 90 to 160 degrees, Asymmetrical  
**Deadweight Load on Shaft (Either End):** 200 lbs.  
**Deadweight Load (Combined on both Shafts):** 300 lbs.  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

Series 41 and Series 81 Modutrol IV motors are 2-position (line- and low-voltage per motor control) spring-return motors. They are used to operate dampers or valves in applications where it is necessary or desirable to have the controlled element return to the starting position in the event of power failure or interruption.

- Fixed torque throughout the entire voltage range.
- Integral spring return returns motor to normal position in the event of power failure.
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Motors are designed for either normally open or normally closed valves and dampers.
- Integral auxiliary switches are available factory mounted, or can be field added.
- Motors can operate valve linkages from the power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).

**Weight:** 9.5 lb

**Approvals:**

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**

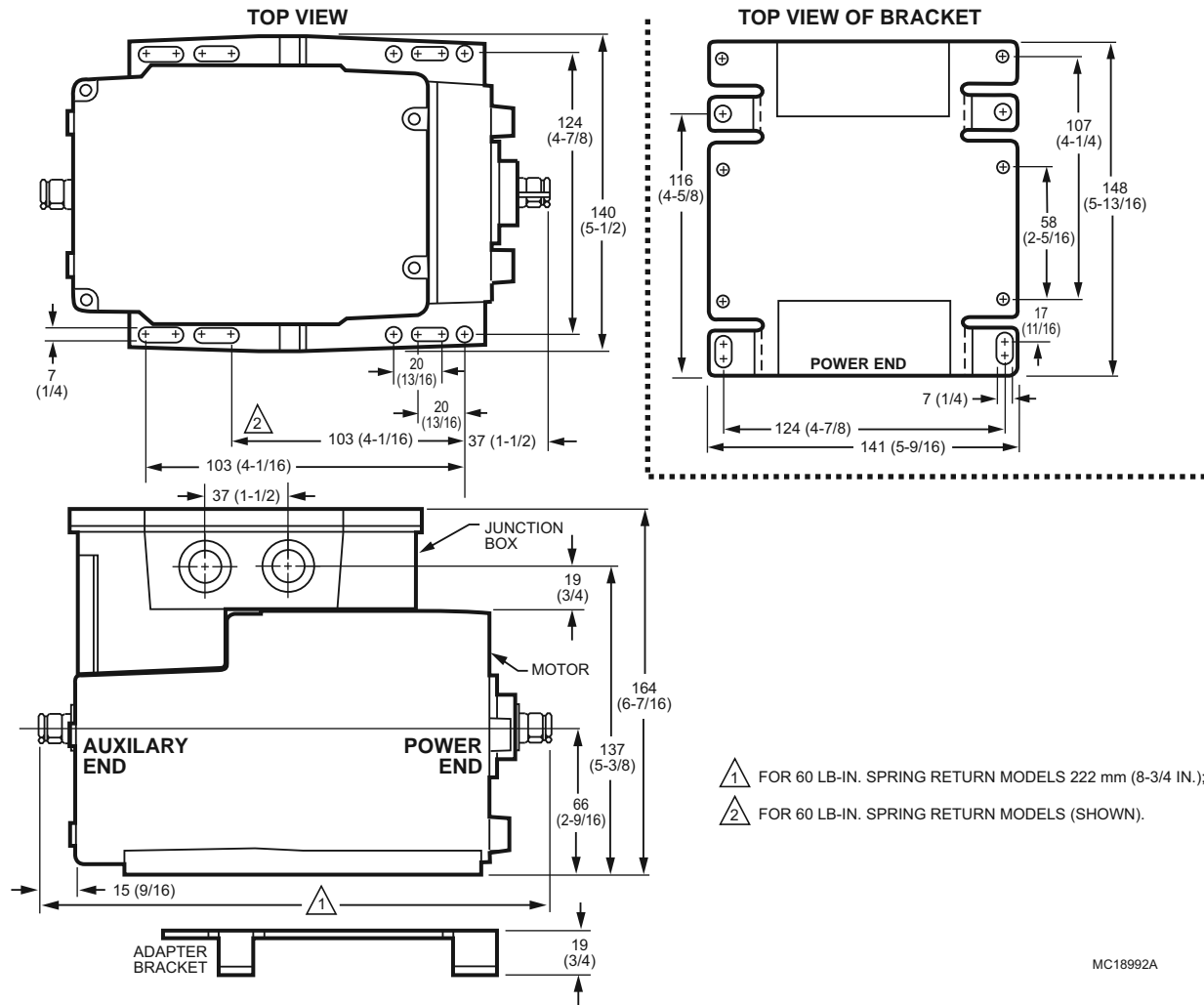
- Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control
- 220736A** Internal Auxiliary Switch Assembly - 1 Switch
- 220736B** Internal Auxiliary Switch Assembly - 2 Switches
- 220741A2-TP** Screw Terminal Adapter Kit for 2 position Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals
- 221455A** Infinitely adjustable Motor Crank Arm
- 50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003** 120 Vac Internal Transformers for Series 2 Motors
- 4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch	Includes
	(Nm, N)	(lb-in., lb)					
M4185A1001	6.8 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	0	Transformer
M4185B1009	6.8 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	1	Transformer
M4185B1058	6.8 Nm	60 lb-in.	24/120/230V	30-60 sec	Quick-connect terminals	1	Transformer
M4185C1007	6.8 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	2	Transformer
* M4185E4006	6.8 Nm	60 lb-in.	24/120/230V	30-60 sec	Quick-connect terminals	1	Transformer
* M4185E4014	6.8 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	1	Transformer
* M8185D1006	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	0	—

\* TRADELINE models • SUPER TRADELINE models

# Modutrol IV™ Motors

Dimensions in millimeters (inches)



Commercial  
Components

# Modutrol IV™ Motors

## M6184; M6194 Floating Modutrol IV™ Series 2 Motors



**Series 61 Modutrol IV™ Motors non-spring return floating control motors used with controllers that provide a switched spdt or floating output to operate dampers or valves.**

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.

**Application Type:** Electric  
**Fail Safe Mode:** Non-Spring Return  
**Control Signal:** Floating  
**Feedback:** No  
**Frequency:** 50 Hz; 60 Hz

**External Auxiliary Switches Available:** Yes  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A  
**Internal Auxiliary Switch:** 0

**Mounting:** Foot-mounted  
**Motor Shafts:** Dual-ended shaft  
**Shaft Shape:** square  
**Shaft Dimensions:** 10 mm (0.375 in.)  
**Shaft Rotation (upon control signal increase):** Dependent on wiring (normally closed)

**Stroke:** Adjustable; 90 to 160 degrees, Symmetrical  
**Deadweight Load on Shaft (Either End):** 200 lbs.  
**Deadweight Load (Combined on both Shafts):** 300 lbs.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)  
**Weight:** 6.5 lb

**Approvals:**  
**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**  
**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control  
**220736A** Internal Auxiliary Switch Assembly - 1 Switch  
**220736B** Internal Auxiliary Switch Assembly - 2 Switches  
**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors  
**221455A** Infinitely adjustable Motor Crank Arm  
**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors  
**50017460-003** 120 Vac Internal Transformers for Series 2 Motors  
**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

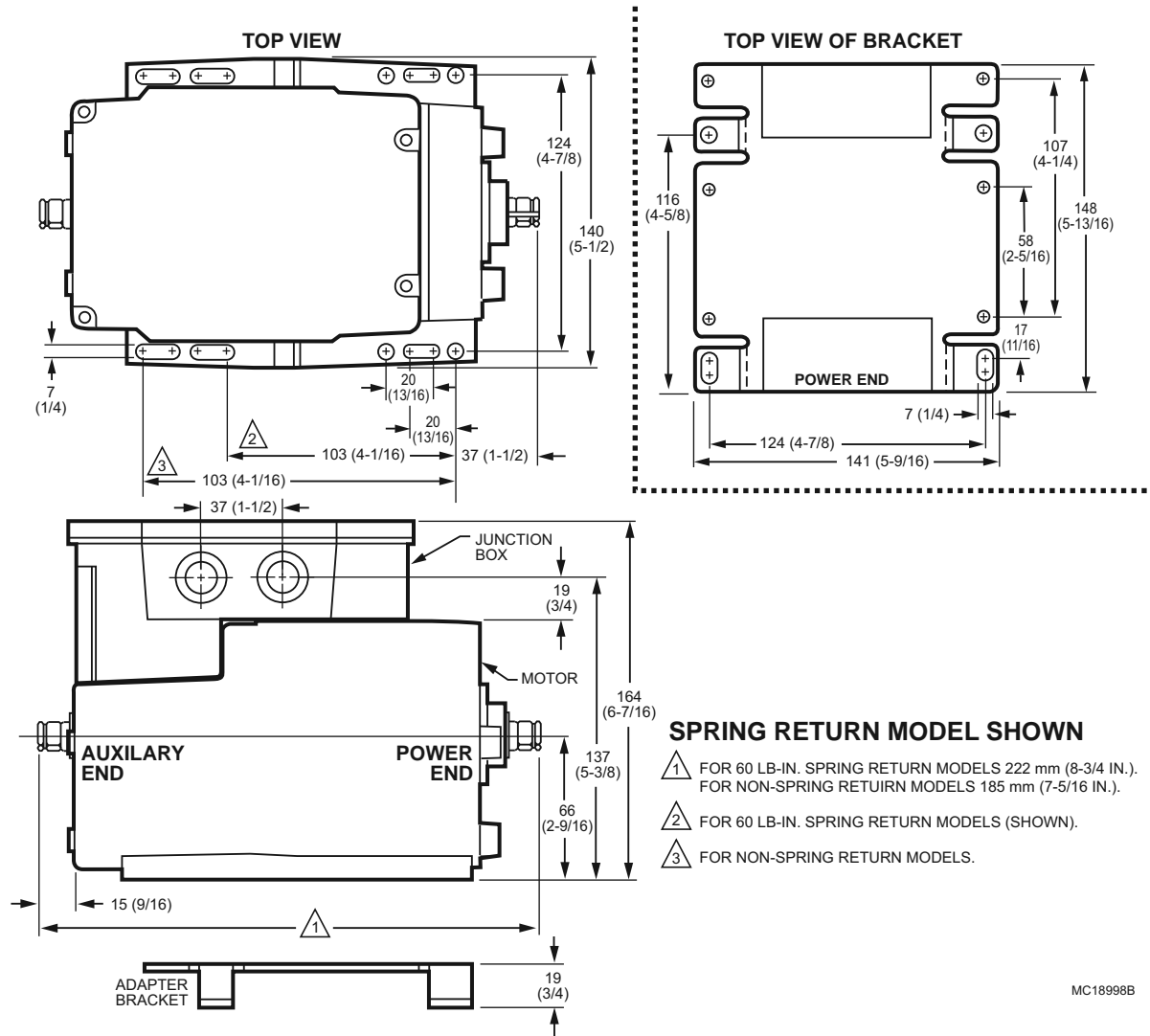
Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch
	(Nm, N)	(lb-in., lb)				
M6184A1015	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	0
M6184D1001	8.5 Nm	75 lb-in.	24V	15-30 sec	Quick-connect terminals	0
* M6184D1035	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	0
M6184F1014	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	2
M6194B1011	34 Nm	300 lb-in.	24V	60-120 sec	Quick-connect terminals	1
* M6194D1017	34 Nm	300 lb-in.	24V	120-240 sec	Quick-connect terminals	0
* M6194D4003	34 Nm	300 lb-in.	24V	120-240 sec	Quick-connect terminals	0

\* TRADELINE models • SUPER TRADELINE models



# Modutrol IV™ Motors

Dimensions in millimeters (inches)



## SPRING RETURN MODEL SHOWN

- △1 FOR 60 LB-IN. SPRING RETURN MODELS 222 mm (8-3/4 IN.).  
FOR NON-SPRING RETURN MODELS 185 mm (7-5/16 IN.).
- △2 FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).
- △3 FOR NON-SPRING RETURN MODELS.

MC18998B

Commercial Components

# Modutrol IV™ Motors

## M6284; M6294 Floating Modutrol IV™ Series 2 Motors, for Slaving Applications only



These Series 62 Modutrol IV™ Motors non-spring return floating control motors are used with controllers that provide a switched spdt or floating output to operate dampers or valves. These motors

**Application Type:** Electric  
**Dimensions, Approximate:** See Diagram page 435  
**Fail Safe Mode:** Non-Spring Return  
**Control Signal:** Floating  
**Feedback:** Yes  
**Frequency:** 50 Hz; 60 Hz  
**External Auxiliary Switches Available:** Yes  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A  
**Internal Auxiliary Switch:** 0  
**Mounting:** Foot-mounted  
**Motor Shafts:** Dual-ended shaft  
**Shaft Shape:** square  
**Shaft Dimensions:** 10 mm (0.375 in.)  
**Shaft Rotation (upon control signal increase):** Dependent on wiring (normally closed)  
**Stroke:** Adjustable; 90 to 160 degrees, Symmetrical  
**Deadweight Load on Shaft (Either End):** 200 lbs.  
**Deadweight Load (Combined on both Shafts):** 300 lbs.  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position. Some models can be used for slaving Series 90 Motors.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Include electrically isolated feedback potentiometer that provides shaft position indication.
- -S models with non-linear feedback are for slaving applications only.

**Weight:** 6.5 lb

**Approvals:**

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**

- Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control
- 220736A** Internal Auxiliary Switch Assembly - 1 Switch
- 220736B** Internal Auxiliary Switch Assembly - 2 Switches
- 220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 220741A2-62** Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals
- 221455A** Infinitely adjustable Motor Crank Arm
- 50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003** 120 Vac Internal Transformers for Series 2 Motors
- 4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch	Comments
	(Nm, N)	(lb-in., lb)					
* M6284D4004-S	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	0	non-linear feedback, for slaving applications only
* M6294D1008-S	34 Nm	300 lb-in.	24V	120-240 sec	Quick-connect terminals	0	non-linear feedback, for slaving applications only

\* TRADELINE models • SUPER TRADELINE models

## M6285 Floating Modutrol IV™ Series 2 Motors, for Slaving Applications only



Series 62 Modutrol IV™ Motors are spring return floating control motors used with controllers that provide a switched spdt or floating output to operate dampers or valves. These motors also

**Application Type:** Electric  
**Dimensions, Approximate:** See diagram page 435  
**Fail Safe Mode:** Spring Return  
**Control Signal:** Floating  
**Feedback:** Yes  
**Frequency:** 50 Hz; 60 Hz  
**External Auxiliary Switches Available:** Yes  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A  
**Internal Auxiliary Switch:** 0  
**Mounting:** Foot-mounted  
**Motor Shafts:** Dual-ended shaft  
**Shaft Shape:** square  
**Shaft Dimensions:** 10 mm (0.375 in.)  
**Shaft Rotation (upon control signal increase):** Dependent on wiring (normally closed)  
**Deadweight Load on Shaft (Either End):** 200 lbs.  
**Deadweight Load (Combined on both Shafts):** 300 lbs.  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)  
**Weight:** 8.5 lb

have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position and can be used for slaving Series 90 motors or rebalancing an external control circuit.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Integral spring return returns motor to normal position in the event of power failure.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Include electrically isolated feedback potentiometer that provides shaft position indication.

### Approvals:

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

### Accessories:

**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control  
**220736A** Internal Auxiliary Switch Assembly - 1 Switch  
**220736B** Internal Auxiliary Switch Assembly - 2 Switches  
**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors  
**220741A2-62** Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals  
**221455A** Infinitely adjustable Motor Crank Arm  
**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors  
**50017460-003** 120 Vac Internal Transformers for Series 2 Motors  
**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Internal Auxiliary Switch	Comments
	(Nm, N)	(lb-in., lb)						
* M6285A1005-S	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	0	non-linear feedback, for slaving applications only
* M6285A4009-S	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees	0	non-linear feedback, for slaving applications only

\* TRADELINE models • SUPER TRADELINE models

# Modutrol IV™ Motors

## Modutrol IV™ Motor with Linear 10K feedback



**Series 62 Modutrol IV™ Motors Spring Return and Non-Spring Return floating control motors used with controllers that provide a switched spdt or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.**

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- -F models have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.

**Application Type:** Electric

**Dimensions, Approximate:** See diagram on page 435

**Fail Safe Mode:** Non-Spring Return

**Control Signal:** Floating

**Feedback:** Yes

**Frequency:** 50 Hz; 60 Hz

**External Auxiliary Switches Available:** Yes

**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A

**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A

**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A

**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A

**Internal Auxiliary Switch:** 2

**Electrical Connections:** Screw terminals

**Mounting:** Foot-mounted

**Shaft Shape:** square

**Shaft Dimensions:** 10 mm (0.375 in.)

**Stroke:** Adjustable; 90 to 160 degrees, Symmetrical

**Deadweight Load on Shaft (Either End):** 200 lbs.

**Deadweight Load (Combined on both Shafts):** 300 lbs.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 6.5 lb

### Approvals:

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

**Underwriters Laboratories, Inc. Listed:** File No. E4436, Guide No. XAPX for USA and Canada

### Accessories:

**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control

**220736A** Internal Auxiliary Switch Assembly - 1 Switch

**220736B** Internal Auxiliary Switch Assembly - 2 Switches

**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors

**220741A2-62** Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals

**221455A** Infinitely adjustable Motor Crank Arm

**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors

**50017460-003** 120 Vac Internal Transformers for Series 2 Motors

**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Fail Safe Mode	Torque/Force		Voltage	Timing (sec)		Electrical Connections	Stroke	Motor Shafts	Internal Auxiliary Switch	Comments
		(Nm, N)	(lb-in., lb)		Nominal	Spring Return					
M6274F1009-F	Non-Spring Return	8.5 Nm	75 lb-in.	24V	15/27	—	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	2; Dual-ended shaft	2	Linear 10K feedback
* M6284D1032-F	Non-Spring Return	17 Nm	150 lb-in.	24V	30-60 sec	—	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Dual-ended shaft	0	Linear 10K feedback
M6284F1078-F	Spring Return	17 Nm	150 lb-in.	24V	30/53	—	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	2; Dual-ended shaft	2	Linear 10K feedback
M6285F1001-F	Spring Return	6.8 Nm	60 lb-in.	24V	30/53	30 sec.	Screw terminals	Adjustable; 90 to 160 degrees, Asymmetrical	2; Dual-ended shaft	2	Linear 10K feedback
M6294F1009-F	Non-Spring Return	34 Nm	300 lb-in.	24V	120/214	—	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	2; Dual-ended shaft	2	Linear 10K feedback

\* TRADELINE models • SUPER TRADELINE models

## M7164 Modutrol IV™ Series 2 Motors



**Series 71 Modutrol IV™ Motors non-spring return motors used to control dampers and valves. These motors accept a voltage signal from an electronic controller to position a damper or valve at any point between open and closed.**

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

**Application Type:** Electric

**Dimensions, Approximate:** See diagram page 435

**Fail Safe Mode:** Non-Spring Return

**Control Signal:** Modulating, 10.5-13.5 Vdc

**Feedback:** No

**Frequency:** 50 Hz; 60 Hz

**External Auxiliary Switches Available:** Yes

**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A

**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A

**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A

**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A

**Internal Auxiliary Switch:** 0

**Mounting:** Foot-mounted

**Motor Shafts:** Dual-ended shaft

**Shaft Shape:** square

**Shaft Dimensions:** 10 mm (0.375 in.)

**Deadweight Load on Shaft (Either End):** 200 lbs.

**Deadweight Load (Combined on both Shafts):** 300 lbs.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 6.5 lb

**Approvals:**

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**

**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control

**220736A** Internal Auxiliary Switch Assembly - 1 Switch

**220736B** Internal Auxiliary Switch Assembly - 2 Switches

**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors

**220741A2-71** Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors- Converts quick-connect terminals to screw terminals

**221455A** Infinitely adjustable Motor Crank Arm

**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors

**50017460-003** 120 Vac Internal Transformers for Series 2 Motors

**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Internal Auxiliary Switch	Includes
	(Nm, N)	(lb-in., lb)							
M7164A1017	4 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	—
M7164G1030	4 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Counter-clockwise (as viewed from power end) (normally open)	0	Transformer

\* TRADELINE models • SUPER TRADELINE models

# Modutrol IV™ Motors

## M7284; M7285; M7286; M7294 Modutrol IV™ Series 2 Motors



Series 72 Modutrol IV Motors are spring return and non-spring return motors (per motor type) used to control dampers and valves. The motors accept a current or voltage signal from an

**Application Type:** Electric

**Dimensions, Approximate:** See diagram page 435

**Feedback:** No

**Frequency:** 50 Hz; 60 Hz

**External Auxiliary Switches Available:** Yes

**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A

**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A

**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A

**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A

**Internal Auxiliary Switch:** 0

**Mounting:** Foot-mounted

**Motor Shafts:** Dual-ended shaft

**Shaft Shape:** square

**Shaft Dimensions:** 10 mm (0.375 in.)

**Deadweight Load on Shaft (Either End):** 200 lbs.

**Deadweight Load (Combined on both Shafts):** 300 lbs.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 7.5 lb

electronic controller to position a damper or valve at any point between open and closed.

- Integral spring return returns motor to normal position in the event of power failure on spring return models.
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard--screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.
- Motors are designed for either normally open or normally closed valves and dampers.
- Models available with adjustable start (zero) and span.
- Models available with 4 to 20 mA input signal.
- Models available with 2 to 10 Vdc input signal.
- Die-cast aluminum housing.

### Approvals:

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

### Accessories:

- Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control
- 220736A** Internal Auxiliary Switch Assembly - 1 Switch
- 220736B** Internal Auxiliary Switch Assembly - 2 Switches
- 220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 220741A2-72** Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals
- 221455A** Infinitely adjustable Motor Crank Arm
- 50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003** 120 Vac Internal Transformers for Series 2 Motors
- 4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Fail Safe Mode	Control Signal	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Internal Auxiliary Switch	Includes	Comments
			(Nm, N)	(lb-in., lb)								
M7284A1004	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	0	Transformer and Screw Terminal Adapter	—
M7284A1012	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	Transformer and Screw Terminal Adapter	—
M7284A1038	Non-Spring Return	Modulating, 4-20 mA	8.5 Nm	75 lb-in.	120V	15-30 sec	Screw terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	Transformer and Screw Terminal Adapter	—
M7284A1079	Non-Spring Return	Modulating, 2-10 Vdc	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	—	—
M7284C1000	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer and Screw Terminal Adapter	—

\* TRADELINE models • SUPER TRADELINE models

# Modutrol IV™ Motors

Product Number	Fail Safe Mode	Control Signal	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Internal Auxiliary Switch	Includes	Comments
			(Nm, N)	(lb-in., lb)								
M7284C1083	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	24/120/230V	30 sec	Screw terminals	Fixed; 90 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer	Enhanced models, additional repositions
M7284C1091	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	24/120/230V	60 sec	Screw terminals	Fixed; 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer	Enhanced models, additional repositions
M7284Q1009	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer and Screw Terminal Adapter	Adjustable zero and span for split range applications
M7284Q1082	Non-Spring Return	Modulating, 4-20 mA	17 Nm	150 lb-in.	24/120/230V	30 sec	Screw terminals	Fixed; 90 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer	Enhanced models, additional repositions (160°); Adjustable zero and span for split range applications
M7285A1003	Spring Return	Modulating, 4-20 mA	6.8 Nm	60 lb-in.	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	Transformer and Screw Terminal Adapter	—
M7285A1045	Spring Return	Modulating, 2-10 Vdc	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	—	—
M7285C1009	Spring Return	Modulating, 4-20 mA	6.8 Nm	60 lb-in.	120V	30-60 sec	Screw terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer and Screw Terminal Adapter	—
M7286G1009	Spring Return	Modulating, 2-10 Vdc	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Counter-clockwise (as viewed from power end) (normally open)	0	—	—
M7294A1010	Non-Spring Return	Modulating, 2-10 Vdc	34 Nm	300 lb-in.	24V	60-120 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	—	—
M7294Q1007	Non-Spring Return	Modulating, 4-20 mA	34 Nm	300 lb-in.	120V	60-120 sec	Screw terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer and Screw Terminal Adapter	Adjustable zero and span for split range applications

\* TRADELINE models • SUPER TRADELINE models

# Modutrol IV™ Motors

## M7685 Modutrol IV™ Series 2 Motor



**Proportional, spring-return motors for use with Honeywell W7080 panel 14-17 Vdc output; with minimum position adjustment.**

- Integral spring return returns motor to normal position in the event of power failure.
- Integral junction box provides NEMA 3 weather protection.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 deg. to 160 deg.).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

**Application Type:** Electric  
**Dimensions, Approximate:** See diagram page 435  
**Fail Safe Mode:** Spring Return  
**Control Signal:** Modulating, 14-17 Vdc  
**Feedback:** No  
**Frequency:** 50 Hz; 60 Hz  
**External Auxiliary Switches Available:** Yes  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6A  
**Internal Auxiliary Switch:** 0  
**Electrical Connections:** Quick-connect terminals  
**Mounting:** Foot-mounted  
**Motor Shafts:** Dual-ended shaft  
**Shaft Shape:** square  
**Shaft Dimensions:** 10 mm (0.375 in.)  
**Shaft Rotation (upon control signal increase):** Clockwise (as viewed from power end) (normally closed)  
**Stroke:** Adjustable; 90 to 160 degrees, Asymmetrical  
**Deadweight Load on Shaft (Either End):** 200 lbs.

**Deadweight Load (Combined on both Shafts):** 300 lbs.  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)  
**Weight:** 8.5 lb

**Approvals:**  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**  
**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control  
**220736A** Internal Auxiliary Switch Assembly - 1 Switch  
**220736B** Internal Auxiliary Switch Assembly - 2 Switches  
**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors  
**221455A** Infinitely adjustable Motor Crank Arm  
**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors  
**50017460-003** 120 Vac Internal Transformers for Series 2 Motors  
**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Fail Safe Mode	Torque/Force		Voltage	Timing (sec)	Electrical Connections	Stroke	Includes	Comments
		(Nm, N)	(lb-in., lb)		Nominal				
M7685A1025	Spring Return	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Minimum Position Potentiometer	Minimum position potentiometer

\* TRADELINE models • SUPER TRADELINE models



## M9164; M9174; M9184; M9194 Modutrol IV™ Series 3 Motors



**Series 90 Modutrol™ IV Motors non-spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.**

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard; screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

**Application Type:** Electric

**Dimensions, Approximate:** See diagram page 435

**Fail Safe Mode:** Non-Spring Return

**Control Signal:** Proportional, 135 ohm

**Feedback:** No

**Frequency:** 50 Hz; 60 Hz

**External Auxiliary Switches Available:** Yes

**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A

**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A

**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A

**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A

**Internal Auxiliary Switch:** 0

**Mounting:** Foot-mounted

**Motor Shafts:** Dual-ended shaft

**Shaft Shape:** square

**Shaft Dimensions:** 10 mm; (0.375 in.)

**Stroke:** Adjustable; 90 to 160 degrees, Asymmetrical

**Deadweight Load on Shaft (Either End):** 200 lbs.

**Deadweight Load (Combined on both Shafts):** 300 lbs.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 7.5 lb

**Approvals:**

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**

**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control

**220736A** Internal Auxiliary Switch Assembly - 1 Switch

**220736B** Internal Auxiliary Switch Assembly - 2 Switches

**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors

**220741A2-90** Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals

**221455A** Infinitely adjustable Motor Crank Arm

**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors

**50017460-003** 120 Vac Internal Transformers for Series 2 Motors

**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Internal Auxiliary Switch	Includes
	(Nm, N)	(lb-in., lb)							
M9164A1005	4 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	Transformer
M9164C1068	4 Nm	60 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer
* M9164D1009	4 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Counter-clockwise (as viewed from power end) (normally open)	0	—
M9174B1027	8.5 Nm	75 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	1	Transformer
M9174C1025	8.5 Nm	75 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer
M9174C1041	8.5 Nm	75 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer
* M9174D1007	8.5 Nm	75 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	—
M9184A1019	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Clockwise (as viewed from power end) (normally closed)	0	—
M9184B1025	17 Nm	150 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	1	Transformer

\* TRADELINE models • SUPER TRADELINE models

Commercial Components

# Modutrol IV™ Motors

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Stroke	Shaft Rotation (upon control signal increase)	Internal Auxiliary Switch	Includes
	(Nm, N)	(lb-in., lb)							
<b>M9184C1031</b>	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	—
<b>M9184C1049</b>	17 Nm	150 lb-in.	120V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer
* <b>M9184D1021</b>	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	0	—
* <b>M9184D4009</b>	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	0	—
* <b>M9184E4006</b>	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	1	—
<b>M9184F1034</b>	17 Nm	150 lb-in.	24V	30-60 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	—
<b>M9194C1005</b>	34 Nm	300 lb-in.	120V	60-120 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	2	Transformer
* <b>M9194D1003</b>	34 Nm	300 lb-in.	24V	120-240 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	0	—
<b>M9194E1000</b>	34 Nm	300 lb-in.	24V	120-240 sec	Quick-connect terminals	Adjustable; 90 to 160 degrees, Symmetrical	Clockwise (as viewed from power end) (normally closed)	1	—

\* TRADELINE models • SUPER TRADELINE models

## M9175; M9185 Modutrol IV™ Series 3 Motors



**Series 90 Modutrol™ Motors are spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.**

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Integral spring return in the event of power failure.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard; screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

**Application Type:** Electric

**Dimensions, Approximate:** See diagram page 435

**Fail Safe Mode:** Spring Return

**Control Signal:** Proportional, 135 ohm

**Feedback:** No

**Frequency:** 50 Hz; 60 Hz

**External Auxiliary Switches Available:** Yes

**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A

**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A

**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A

**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A

**Internal Auxiliary Switch:** 0

**Mounting:** Foot-mounted

**Motor Shafts:** Dual-ended shaft

**Shaft Shape:** square

**Shaft Dimensions:** 10 mm (0.375 in.)

**Shaft Rotation (upon control signal increase):** Clockwise (as viewed from power end) (normally closed)

**Stroke:** Adjustable; 90 to 160 degrees, Asymmetrical

**Deadweight Load on Shaft (Either End):** 200 lbs.

**Deadweight Load (Combined on both Shafts):** 300 lbs.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 8.5 lb

**Approvals:**

**CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

**Underwriters Laboratories, Inc. Listed:** File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**

**Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control

**220736A** Internal Auxiliary Switch Assembly - 1 Switch

**220736B** Internal Auxiliary Switch Assembly - 2 Switches

**220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors

**220741A2-90** Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals

**221455A** Infinitely adjustable Motor Crank Arm

**50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors

**50017460-003** 120 Vac Internal Transformers for Series 2 Motors

**4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch
	(Nm, N)	(lb-in., lb)				
M9185A1018	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	0
M9185C1006	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	2
* M9185D1004	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	0
* M9185D4008	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	0
M9185E1019	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	1
* M9185E4005	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	1

\* TRADELINE models • SUPER TRADELINE models

# Modutrol IV™ Motors

## M9182 Modutrol IV™ Series 3 Motors



**Application Type:** Electric  
**Dimensions, Approximate:** See diagram page 435  
**Fail Safe Mode:** Spring Return  
**Control Signal:** Proportional, 135 ohm  
**Feedback:** No  
**Frequency:** 50 Hz; 60 Hz  
**External Auxiliary Switches Available:** Yes  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A  
**Internal Auxiliary Switch:** 0  
**Mounting:** Foot-mounted  
**Motor Shafts:** Dual-ended shaft  
**Shaft Shape:** square  
**Shaft Dimensions:** 10 mm (0.375 in.)  
**Shaft Rotation (upon control signal increase):** Clockwise (as viewed from power end) (normally closed)  
**Stroke:** Adjustable; 90 to 160 degrees, Asymmetrical  
**Deadweight Load on Shaft (Either End):** 200 lbs.  
**Deadweight Load (Combined on both Shafts):** 300 lbs.  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Series 90 Modutrol™ IV Motors spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.**

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position.
- Integral spring return returns motor to normal position in the event of power failure.
- Motor and circuitry operate from 24 Vac.
- Quick-connect terminals are standard; screw terminal adapter is available.
- Adapter bracket for matching shaft height of older motors is available.
- Motors have field adjustable stroke (90 to 160 degrees).
- Integral auxiliary switches are available factory mounted, or can be field added.
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications.
- All models have dual shafts (slotted and tapped on both ends).
- All models have auxiliary switch cams.
- Fixed torque throughout the entire voltage range.

**Weight:** 8.5 lb

**Approvals:**

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada


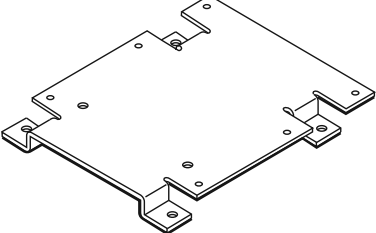



**Accessories:**

- Q7230A1005** Interface module, provides adjustable zero & span, voltage or current control
- 220736A** Internal Auxiliary Switch Assembly - 1 Switch
- 220736B** Internal Auxiliary Switch Assembly - 2 Switches
- 220738A** Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 220741A2-90** Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals
- 221455A** Infinitely adjustable Motor Crank Arm
- 50017460-001** 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003** 120 Vac Internal Transformers for Series 2 Motors
- 4074ERU** Weatherproofing kit. Protects motor from driving rain when mounted in any position

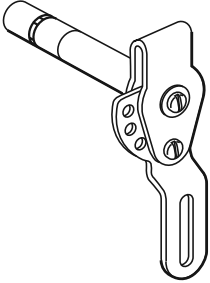
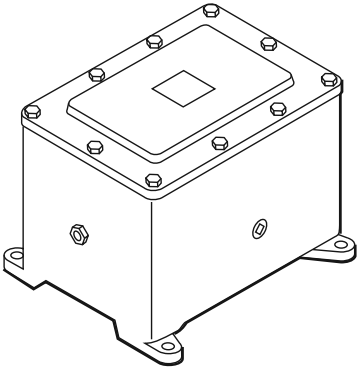
Product Number	Torque/Force		Voltage	Nominal Timing (sec)	Electrical Connections	Internal Auxiliary Switch
	(Nm, N)	(lb-in., lb)				
M9182A1011	6.8 Nm	60 lb-in.	24V	30-60 sec	Quick-connect terminals	0

# Modutrol IV™ Motor Accessories

## Foot Mounted Motor Accessories

Product Number	Description	Used With	
203709D2	Screw Terminal Adapter With Zero and Span Adjustment for Series 2 and Series 3 Modutrol IV™ Motors	Series 2 Modutrol IV™ Motors; Series 2 and Series 3 Modutrol IV™ Motors;	
220738A	Adapter Bracket. Adjusts shaft height to match Modutrol III motors	Mod IV Actuator to match shaft height of Mod III Actuator;	
220741A2-61	Screw Terminal Adapter Kit for Series 61 Modutrol IV™ Series 2 motors - Converts quick-connect terminals to screw terminals	Series 61 Mod IV Motor;	
220741A2-62	Screw Terminal Adapter Kit for Series 62 Series Modutrol IV™ Series 2 motors - Converts quick-connect terminals to screw terminals	Series 62 Mod IV Motor;	
220741A2-71	Screw Terminal Adapter Kit for Series 71 Modutrol IV™ Series 2 motors - Converts quick-connect terminals to screw terminals	Series 71 Mod IV Motor;	
220741A2-72	Screw Terminal Adapter Kit for Series 72 Modutrol IV™ Series 2 motors - Converts quick-connect terminals to screw terminals	Series 72 Mod IV Motor;	
220741A2-90	Screw Terminal Adapter Kit for Series 90 Modutrol IV™ Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals	Series 90 Mod IV Motor;	
220741A2-TP	Screw Terminal Adapter Kit for 2 position Modutrol IV™ Series 2 motors - Converts quick-connect terminals to screw terminals	Two Position for use with M4XXX and M8XXX Mod IV Motors;	
221455A	Infinitely adjustable Motor Crank Arm	Modutrol IV™ Motors;	
221508A2	Resistor Board Assembly for Series 2 Modutrol IV™ Motors	Series 2 Modutrol IV™ Motors;	
4074ERU	Weatherproofing kit. Protects motor from driving rain when mounted in any position	Fits all Modutrol IV™ Motors.;	

# Modutrol IV™ Motor Accessories

Product Number	Description	Used With	
7617DM	Coupling- Must be used with ES650117 explosion-proof housing	ES650117;	
ES-650-117	Explosion-Proof Housing encloses motor for use in explosive atmospheres. To order contact: EGS Enclosures, (281) 774-3763; or write to: EGS Enclosures in Houston, TX Karen Barfield 281-774-3763 Karen.barfield@egseg.com Part number ES-650-117	Modutrol IV™ Motors, not for use with Q5001 (or any other valve linkages);	

## 220736 Internal Auxiliary Switch Kits



**Application Type:** Internal Auxiliary Switch Kits  
**Control Signal:** SPDT, On/Off switch  
**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2 A  
**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A  
**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6 A  
**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6 A  
**Ambient Temperature Range:** -18 C to +55 C (0 F to 131 F)  
**Weight:** 0.3 lb

Product Number	Electrical Connections	Includes	Used With
220736A	15 in (381 mm) Lead Wires	One Micro Switch V3 precision switch, which is actuated by adjustable cams inside the motor.	TRADELIN Modutrol IV™ Motors
220736B	15 in (381 mm) Lead Wires	Two Micro Switch V3 precision switches, which are actuated by adjustable cams inside the motor.	TRADELIN Modutrol IV™ Motors

## 50017460 Internal Transformers for Series 2 Motors

**Application Type:** Internal Transformer  
**Control Signal:** SPST, On/Off switch  
**Frequency:** 50 Hz; 60 Hz

**Mounting:** Internal mount to Modutrol IV™ Motors  
**Ambient Temperature Range:** -18 C to +55 C (0 F to 131 F)

Product Number	Voltage	Includes	Used With
50017460-001	24/120/230 Vac	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 2 motors	Series 2 Modutrol IV™ Motors
50017460-003	120 Vac	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 2 motors	Series 2 Modutrol IV™ Motors

# Modutrol IV™ Motor Accessories

## 198162 Internal Transformer for Series 1 Motors

**Application Type:** Internal Transformer  
**Control Signal:** SPST, On/Off switch

**Ambient Temperature Range:** -18 C to +55 C (0 F to 131 F)

Product Number	Voltage	Includes	Comments
198162AA	120/208/240 Vac at 50 or 60 Hz	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 1 motors	For Mod IV Series 2 actuator, use 50017460-001
198162EA	120 Vac at 50 or 60 Hz	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 1 motors	For Mod IV Series 2 actuator, use 50017460-003
198162GA	220 Vac at 50 or 60 Hz	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 1 motors	For Mod IV Series 2 actuator, use 50017460-001
198162JA	24 Vac (for electrical isolation)	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 1 motors	For Mod IV Series 2 actuator, use 50017460-001

## Q181 Auxiliary Potentiometer for Modutrol Motors



**Controls from one to four Modutrol (Series 90) motors from one master motor.**

- Compatible with Modutrol III and Modutrol IV™ Motors.
- Mounts on master motor and operates controlled motors in unison or in sequence.
- Controls motors with mechanical balance relay and solid state drive circuit.
- Use with 24V motors.

**Application Type:** Electro-mechanical

**Dimensions, Approximate:** 81 mm high x 83 mm wide x 86 mm deep (3 3/16 in. high x 3 1/4 in. wide x 3 3/8 in. deep)

**Control Signal:** SPST, On/Off switch

**Mounting:** External mount to Modutrol IV™ Motors

**Weight:** 1.38 lb

**Approvals:**

**CE:** Report: GV97-011

Product Number	Electrical Connections	Includes	Comments	Used With
Q181A1007	Screw terminals	Cover	For controlling one modutrol motor	Series 90
Q181A1015	Screw terminals	Cover	For controlling two modutrol motors	Series 90
Q181A1064	Screw terminals	—	For controlling up to three modutrol motors	Series 90

## Q209 Manual Potentiometer for Modutrol Motors



**Used to limit minimum position of a proportioning Modutrol motor.**

- Mount directly in motor.
- All wiring is accomplished within motor wiring compartment.
- Color-coded leadwires.

**Application Type:** Electro-mechanical

**Dimensions, Approximate:** 83 mm high x 86 mm wide x 98 mm deep (3 1/4 in. high x 3 3/8 in. wide x 3 7/8 in. deep)

**Control Signal:** SPST, On/Off switch

**Mounting:** Internal mount to Modutrol IV™ Motors

**Weight:** 0.2 lb

**Approvals:**

**CE:** Report: GV97-011

Product Number	Electrical Connections	Includes	Used With
Q209A1022	Screw terminals	150 ohm Potentiometer, leadwires and bracket	M9184; M9185; M6284; M6285
Q209A1030	Screw terminals	300 ohm Potentiometer, leadwires and bracket	M9184; M9185; M6284; M6285
Q209E1002	Quick-connect terminals with lead wires	150 ohm Potentiometer, factory mounted on a wiring cover box	—
Q209E1010	Quick-connect terminals with lead wires	300 Ohm Potentiometer, Factory Mounted on a wiring cover box	—

# Modutrol IV™ Motor Accessories

## Q607 Auxiliary Switches for Modutrol Motors



For control of auxiliary equipment as a function of motor shaft position.

- Compatible with Modutrol III and Modutrol IV™ Motors. (Requires 220738A adapter bracket for use with Modutrol IV™ Motors).
- Micro Switch precision switches, adjustable.
- Indicate motor position by use of a scale plate anchored to a common shaft, which allows Q607 to be adjusted for operational sequence before mounting.
- Adjustable plate allows universal mounting on either end of motor.
- Wrap-around cover for easy access to switch adjustments and wiring.
- Maintenance-free protection of the switches and cams.

**Application Type:** Electro-mechanical

**Dimensions, Approximate:** 164 mm high x 132 mm wide x 54 mm deep (6 7/16 in. high x 5 3/16 in. wide x 2 1/8 in. deep)

**Control Signal:** SPDT, On/Off switch

**Electrical Connections:** Screw terminals

**Auxiliary Switch Ratings AFL - 120 Vac:** 9.8 A

**Auxiliary Switch Ratings ALR - 120 Vac:** 58.8A

**Auxiliary Switch Ratings AFL - 240 Vac:** 4.90A

**Auxiliary Switch Ratings ALR - 240 Vac:** 29.4A

**Mounting:** Cover or gear end

**Weight:** 2.5 lb

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620

**Underwriters Laboratories, Inc.** Listed File: E4436, Guide: XAPX2

Product Number	Internal Auxiliary Switch	Includes	Comments
Q607A1050	1	Revised mounting bracket	Post 1969 Honeywell Modutrol Motors
Q607A1068	1	With adapter for cover end spring return motor and revised mounting bracket	—
* Q607A1076	1	With adapter for cover end spring return motor and revised mounting bracket	Post 1969 Honeywell Modutrol Motors
Q607B1067	2	Revised mounting bracket	Pre/Post 1969 Honeywell Modutrol Motors
Q607B1075	2	With adapter for cover end spring return motor and revised mounting bracket	—
* Q607B1083	2	With adapter for cover end spring return motor and revised mounting bracket	—
* TRADELINE models • SUPER TRADELINE models			



# Modutrol IV™ Motor Accessories

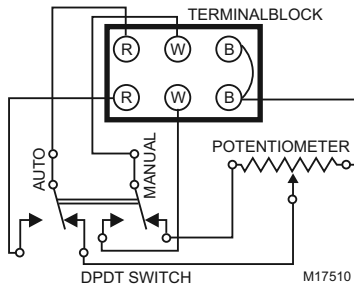
## S443 Manual Potentiometer for Modutrol Motors



Used for remote manual control of proportioning (Series 90) motors and relays.

- Compatible with Modutrol III and Modutrol IV™ Motors.
- Select automatic or manual control with DPST toggle switch.
- Suitable for Series 90, M7685; and M7285 motors controlled by 135 ohm inputs.
- Surface mounted, with conduit outlet on each side of case. Screw terminals.
- Scale marked OPEN-CLOSE.

### Internal schematic of S443A



**Application Type:** Electric

**Dimensions, Approximate:** Including Knob 95 mm high, 86 mm wide, 83 mm deep (Including Knob 3 3/4 in. high, 3 3/8 in. wide, 3 1/4 in. deep.)\*\*Fits inside wiring junction box of Modutrol IV Motor

**Control Signal:** SPST, On/Off switch

**Mounting:** Surfaced mounted with conduit knock-outs

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 1.3 lb

Product Number	Electrical Connections	Comments	Used With
S443A1007	Screw terminals	2 position manual switch	M9164; M9484; M9184; M9185 and motors replaced by these motors

# Modutrol IV™ Motor Accessories

## Q7130; Q7230; Q7330 Interface Modules for Series 90 Modutrol IV™ Motors



Q7130A



Q7230A



Q7330A

### For converting Series 90 Modutrol IV™ Motors to Series 70 (electronic) control.

- Mounts and works inside wiring box of any series 90 Modutrol IV™ Motor.
- Protected from weather by motor's NEMA 3 wiring box.
- Mates to motor's quick-connect terminals and provides screw terminals for control wiring connections.
- Features solid-state circuitry with surface mount components.
- Cover holds module in place, screws not required.
- Includes (except Q7330A) reversing switch to allow replacement of electrically normally open or electrically normally closed motors.

**Application Type:** Electric

**Dimensions, Approximate:** Fits inside wiring junction box of Modutrol IV Motor

**Control Signal:** Provides selectable voltage ranges: 4 to 7, 6 to 9, or 10.5 to 13.5 Vdc. Adapts M91XX to function as M71XX model

**Frequency:** 50 Hz; 60 Hz

**Electrical Connections:** Terminal Board

**Mounting:** Mounts to quick-connects inside Mod Motor

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +150 F)

**Weight:** 0.3 lb

Product Number	Electrical Connections	Control Signal	Used With
Q7130A1006	Terminal Board	Provides selectable voltage ranges: 4 to 7, 6 to 9, or 10.5 to 13.5 Vdc. Adapts M91XX to function as M71XX model	Series 90 for conversion to Series 70
Q7230A1005	Terminal Board	Provides adjustable zero & span, voltage or current control (includes 2-10 Vdc or 4-20 mA). Adapts M91XX to function as M72XX model.	Series 90 for conversion to Series 70
Q7330A1004	Terminal Board	Provides interface to W936 Control. Adapts M91XX to function as M73XX model.	Series 90 for conversion to Series 70

## Interface Module Cross Reference and Usage Chart

Product Number	Application	Replaces	Replaces	Use With
Q7130A1006	Provides selectable voltage ranges: 4 to 7, 6 to 9 or 10.5 to 13.5 Vdc. Adapts M91XX Modutrol IV™ motor to function as M71XX model for M734H,J; M744D; M745G,P replacements.	M744D1011, M744D1003	M7184A1005	M9184D1021
		M745P1007	M7185A1004	M9185D1004
Q7230A1005	Provides adjustable zero and span, voltage or current control (includes 4 to 20 mA and 2 to 10 Vdc). Adapts M91XX Modutrol IV™ Motors to function as M72XX model for M744S,T,Y; M745S,T,Y replacements.	M744S1005	M7284A1004	M9184D1021
		M744S1013	M7284A1012	
		M744T1004	M7284C1000	
		M744T1012	M7284C1018	
		M744Y1009	M7284Q1009	
		M744Y1017	M7284Q1017	
		M745S1002	M7285A1003	M9185D1004
		M745S1010	M7285A1011	
		M745T1001	M7285C1009	
		M745T1019	M7285C1017	
Q7330A1004	Provides interface to W936 Control. Adapts M91XX Modutrol IV motor to function as M73XX model for M734D; M744A; M745A replacements.	M744A1006	M7384A1003	M9184D1021
		M744A1014	M7384A1011	
		M745A1003	M7385A1002	M9185D1004
		M745A1011	M7385A1010	

## M436; M836 Damper Motors



**Dimensions, Approximate:** 114 mm high x 118 mm wide x 95 mm deep (4 1/2 in. high x 4 5/8 in. wide x 3 3/4 in. deep)

**Fail Safe Mode:** Spring Return

**Spring Return Timing (Maximum seconds):** 25 sec

**Control Signal:** Two position, SPST

**Internal Auxiliary Switch:** 1

**External Auxiliary Switches Available:** Yes

**Auxiliary Switch Ratings AFL - 120 Vac:** 7.2A

**Auxiliary Switch Ratings ALR - 120 Vac:** 43.2A

**Auxiliary Switch Ratings AFL - 240 Vac:** 3.6A

**Auxiliary Switch Ratings ALR - 240 Vac:** 21.6A

**Torque Rating, Breakaway:** 30 lb-in.

**Electrical Connections:** Screw terminals

**Spring return motors for two-position back draft, outdoor air changeover, zone, or minimum position damper control.**

- Operate outdoor air dampers for combustion or makeup air in residential and light commercial applications.
- Operate changeover dampers for heating and cooling systems.
- Operate minimum position dampers for ventilation and similar applications.
- Include internal SPDT switch for controlling auxiliary equipment, additional motors, or to provide a burner interlock switch.
- Spring returns motor to start position on power failure.
- Drive shafts located on both sides of motor.
- Adjustable auxiliary switch for cascading motors or operating auxiliary equipment.
- Thermal breaker for overload protection during lifting stroke or if motor stalls.

**Frequency:** 60 Hz

**Mounting:** Any position where the output shaft is horizontal

**Motor Shafts:** 2

**Shaft Shape:** Hexagonal

**Angle of Rotation (Stroke Max (deg)):** 75

**Operating Temperature Range:** 0 C to 52 C (32 F to 125 F)

**Operating Humidity Range (% RH):** 5 to 95% RH

**Weight:** 2.1 kg (4 lb 10 oz)

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-6

**CE:** Report: S5535

**Underwriters Laboratories, Inc.** Listed File: E4436, Guide: XAPX

Product Number	Torque Rating		Voltage	Run Time (Maximum (seconds))	Timing Opening, Nominal (seconds)	Nominal Current Draw (amps)		Nominal Power (watts)		Comments	Used With
	(Nm)	(lb-in.)				Opening	Holding	Opening	Holding		
M436A1090	2.3 Nm	20 lb-in.	120 Vac	55 sec	Open: 30 sec, Close: 25 sec	0.37 A	0.12 A	27 W	8.5 W	Flame Safeguard Model	Series 40, 80 circuits
* M436A1116	2.3 Nm	20 lb-in.	120 Vac	40 sec	Open: 30 sec	0.37 A	0.12 A	28 W	8.5 W	—	—
* M436A1124	2.3 Nm	20 lb-in.	240 Vac	40 sec	Open: 30 sec	0.19 A	0.06 A	29 W	8.5 W	—	—
M836A1034	2.3 Nm	20 lb-in.	24 Vac	55 sec	Open: 30 sec, Close: 25 sec	1.85 A	0.6 A	39 W	8.5 W	—	Series 40, 80 circuits
* M836A1042	2.3 Nm	20 lb-in.	24 Vac	40 sec	Open: 30 sec	1.85 A	0.6 A	28 W	8.5 W	—	—
* M836B1033	1.7 Nm	15 lb-in.	24 Vac	40 sec	Open: 25 sec	1.34 A	0.73 A	20.3 W	11.2 W	—	—

\* TRADELINE models • SUPER TRADELINE models

# Kit Mounted Motors

## M835 Two-Position Zone Damper Actuator



**Dimensions, Approximate:** 140 mm high x 108 mm wide x 67 mm deep (5 1/2 in. high x 4 1/4 in. wide x 2 5/8 in. deep)

**Fail Safe Mode:** Spring Return

**Control Signal:** Two position, SPST

**External Auxiliary Switches Available:** No

**Torque Rating, Breakaway:** 30 lb-in.

**Electrical Connections:** Lead wire in conduit box

**Frequency:** 60 Hz

**Two-Position Zone Motor, used with two-wire, 24-volt room thermostat or other controller for two position damper control.**

- Controls zone or changeover damper in heating and air conditioning systems, and control gates on feeders.
- SPST end switch makes within 20 sec of full open, breaks within 20 sec after start of closing stroke.

**Mounting:** Foot-mounted

**Motor Shafts:** 2

**Shaft Shape:** Round

**Angle of Rotation (Stroke Max (deg)):** 60

**Angle of Rotation (Stroke Min (deg)):** 75

**Operating Temperature Range:** Cooling: 60 C, Heating: 93 C (Cooling: 140 F, Heating: 200 F)

**Operating Humidity Range (% RH):** 5 to 95% RH

Product Number	Torque Rating		Voltage	Run Time (Maximum (seconds))	Nominal Power (watts)	
	(Nm)	(lb-in.)			Opening	Holding
* M835A1051	0.45 Nm	4 lb-in.	24 Vac	Open: 80 sec, Close: 160 sec	27 W	8.5 W

\* TRADELINE models • SUPER TRADELINE models

## M847 Two-Position Draft Damper Actuator



**Dimensions, Approximate:** 89 mm high x 119 mm wide x 75 mm deep (3 1/2 in. high x 2 5/8 in. wide x 3 5/16 in. deep)

**Fail Safe Mode:** Spring Return

**Control Signal:** Two position, SPST

**External Auxiliary Switches Available:** No

**Frequency:** 60 Hz

**Mounting:** Foot mounted. Direct Coupled

**Two-Position Draft Damper Actuators. Use with two-wire 24V room thermostats or other low voltage controllers to operate the draft damper on solid fuel furnaces or boilers and other similar light duty applications.**

- Low voltage, spring-return damper actuator.
- Equipped with mounting bracket for wall, duct or direct appliance mounting to control draft damper through an actuator arm or chain linkage arrangement.
- Actuator wheel rotates in a clockwise direction (when facing the wheel) when energized.

**Motor Shafts:** 1

**Shaft Shape:** Round

**Angle of Rotation (Stroke Max (deg)):** 45

**Operating Temperature Range:** 5 C to 50 C (40 F to 125 F)

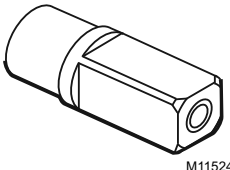
**Operating Humidity Range (% RH):** 5 to 95% RH

**Weight:** (1.8 lb)

Product Number	Torque Rating		Voltage	Run Time (Maximum (seconds))	Includes
	(Nm)	(lb-in.)			
M847A1031	0.21 Nm	1.9 lb-in.	24 Vac	20 sec	38 in. linkage chain
M847A1049	0.21 Nm	1.9 lb-in.	24 Vac	20 sec	3.8 in. linkage arm
M847A1072	0.21 Nm	1.9 lb-in.	24 Vac	20 sec	3.8 in. linkage arm
M847A1080	0.21 Nm	1.9 lb-in.	24 Vac	20 sec	38 in. linkage chain
M847A1098	0.21 Nm	1.9 lb-in.	24 Vac	20 sec	3.8 in. linkage arm

# Kit Mounted Motor Accessories

## Replacement Parts and Accessories for Kit Mounted Motors

Product Number	Description	Used With	
121825AA	Auxiliary crank arm assembly	Q298; M835	—
126809/0021	M836 Mounting Bracket	M836	—
126809/0021	M836 Mounting Bracket	M836	—
126816/0021	Clamp for M436	M436	—
128336/0021	Mounting Bracket for M436/M836, Increases motor height 0.5 inches.	M436, M836	—
16254AC	Motor mounting bracket for M436/M836.	M436, M836	—
198545	Motor mounting bracket for M436/M836.	M436, M836	—
4074BRU	Bag Assembly Extension adapter and screws for mounting Q607 Auxiliary switch to M436A Damper Motor.	Q607; M436A	 <p>M11524</p> <p><b>4074BRU</b></p>
4074ELR	Crank arm, heavy duty	—	—
4074ELY	Crank arm, infinitely adjustable	—	—

## Versa Drive Accessories

Product Number	Description
Q583C1002	Coupler and Bracket for Versadrive Actuator

# Damper and Valve Linkages

## Q100 Linkage



Contains necessary hardware to link Modutrol™ motors to a V51B Butterfly Valve.

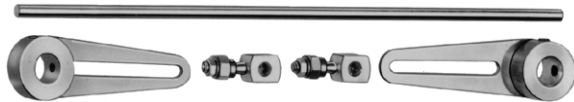
- Compatible with Modutrol III and Modutrol IV™ motors. (Requires adapter bracket)
- Adaptable for all sizes of V51B Valves.
- Strain release and stop bracket are provided with V51B.

**Linkage Type:** Valve

**Used with Actuator:** Modutrol Motor

Product Number	Description
Q100A1015	Linkage for 2 1/2 and 3 in. butterfly valves

## Q298 Damper Linkage for Economizer Motors



Connects M833, M835, M836 or M7415 motor to 1 or 2 zone dampers.

- May be used to link shafts of two dampers together.
- Includes pushrod, ball joints and bushings for 1/4 in. (6 mm) to 1/2 in. (13 mm) diameter shafts.

**Linkage Type:** Damper

**Used with Actuator:** Damper Actuator (M6415, M7405, M7415, M8415)

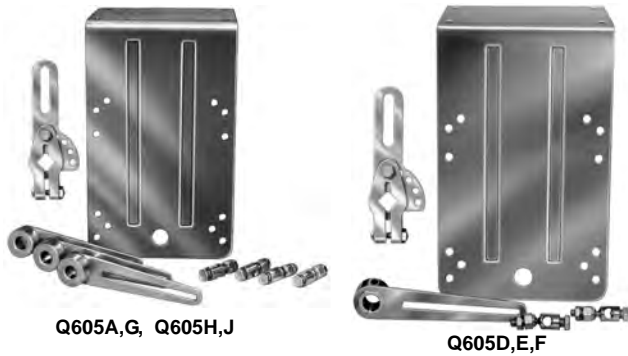
Product Number	Description	Includes
Q298B1065	Damper Linkage	Pushrod in variable lengths, 2 damper arms, and 2 ball joints

## Damper and Valve Linkage Accessories

Product Number	Description	Used With
102546	Ball Joint, 5/16 in.	Damper Linkages
104643A	Adapter for driving 2 dampers from 1 crank arm	Kit Mounted Motors; Modutrol IV Motors
26026B	Damper Arm, 1/2 in. shaft, 3 in. long	—

# Damper and Valve Linkages

## Q605 Damper Linkage



Connect Modutrol™ motor to standard damper or set of dampers to provide control of duct airflow.

- Adjustable to any degree of damper opening. Include ball joints, motor crank arm and damper arm for 1/2 in. (13 mm) diameter shaft.
- 27520 pushrod must be ordered separately.

**Linkage Type:** Damper

**Mounting:** Mount motor externally on duct

**Used with Actuator:** Modutrol Motor

Product Number	Shaft Dimensions	Description	Comments	Includes
Q605A1062	1/2 in.	Damper-Linkage with 1/2 inch shaft- Connects Modutrol motor to water or steam valve	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
* Q605A1070	1/2 in.	Damper-Linkage with 1/2 inch shaft- Connects Modutrol motor to a damper to control duct air flow.	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
* Q605D1051	—	Damper-Linkage including motor bracket, 3 damper arms, motor crankarm, and 4 ball joints - connects Modutrol motor to a damper for control of duct airflow.	—	Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints
• Q605D1069	—	Damper-Linkage including Motor Bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter - Connects Modutrol motor to a damper to provide control of duct airflow.	—	Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter
* Q605E1050	—	Damper-Linkage including damper arm, motor crankarm, and 2 ball joints - Connects Modutrol Motor to a damper to provide control of duct airflow.	—	Damper arm, motor crankarm, and 2 ball joints
* Q605F1018	—	Damper-Linkage including Motor bracket, damper arm, motor crankarm, and 2 ball joints - Connects Modutrol motor to damper to provide control of duct airflow.	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
Q605G1009	—	Damper-Linkage including Motor bracket, damper arm, motor crankarm, and 2 ball joints - connects Modutrol motor to a damper to provide control of duct airflow.	—	Motor bracket, damper arm, motor crankarm, and 2 ball joints
Q605H1016	1/2 in.	Damper-Linkage including Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints - connects Modutrol motor to a damper to provide control of duct airflow.	Connects One Mod IV Motor to Two Louver Dampers	Motor bracket, 3 damper arms, motor crankarm, and 4 ball joints
• Q605H1024	1/2 in.	Damper-Linkage including Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter - connects Modutrol motor with a damper to provide control of duct airflow.	Connects One Mod IV Motor to Two Louver Dampers	Motor bracket, 3 damper arms, motor crankarm, 4 ball joints, left hand drive ear and crankarm adapter
* Q605J1013	1/2 in.	Damper-Linkage with 1/2 inch shaft - Connects Modutrol motor to a damper to provide control of duct airflow.	—	Damper arm, motor crankarm, and 2 ball joints

\* TRADELINE models • SUPER TRADELINE models

## Q605 Accessories

Product Number	Description	Used With
101662A/0021	Motor Mounting Bracket Assembly for Q605	Q605
102931/0021	Adapter arm for less than 90 degree rotation for the Q605	Q605; Modutrol Motor

# Damper and Valve Linkages

## Q5001 Valve Linkage for Modutrol IV™ Motors



The Q5001 Valve Linkage connects a Modutrol™ Motor to a 2- or 3-way valve. It is used primarily on V5011 or V5013 steam and water valves.

- Q5001 Valve Linkage is applicable to 2-Way or 3-Way valves in modulating or two-position service.
- Linkage requires no adjustment when used with Honeywell valves and Modutrol IV™ Motors.
- Q5001 Valve Linkage replaces Q601 and Q618 Valve Linkages.
- Linkage mounts directly to the valve bonnet; motor mounts to linkage bracket.
- Easy-to-read position indicator.
- Valve stem lift height cam selectable.
- Overtravel permits tight close-off without excessive motor strain.
- Available brackets make linkages adaptable to many valve bodies.
- Models available with 80 lb, 160 lb, and 320 lb stem force.
- Reversible cams on the Q5001 allow field selection of normally open or normally closed valve operation.
- All models have anti-spin clips.

**Linkage Type:** Valve

**Mounting:** Linkage mounts directly to the valve bonnet; motor mounts on linkage bracket.

**Used with Actuator:** Modutrol Motor

**Stem Force Rating:** 356 N (80 lbf)

**Ambient Temperature Range:** -40 C to +66 C (-40 F to +150 F)

### Replacement Parts:

**220845/0767** Retainer button for Q5001

### Accessories:

**220829BCQ1** Barber-Colman Valve Adapter Kit

**220829LGQ3** Landis and Gyr Powers Valve Adapter Kit

Product Number	Bonnet Size (in.)	Stroke	Description	Includes	Used With
Q5001A1006	1 3/8 in.	3/4 in.	Valve Linkage for Mod III and Mod IV motors with 80 lb stem force	1 3/8 in. valve bracket	V5011/V5013; Modutrol IV Motors
Q5001A1014	1 3/8 in.	3/4 in.	Valve Linkage for Mod III and Mod IV motors with 160 lb stem force	1 3/8 in. valve bracket	V5011/V5013; Modutrol IV Motors
* Q5001D1000	1 3/8 in.	3/4 in.	Valve Linkage for Mod III and Mod IV motors with 80 or 160 lb stem force	1 3/8 in. valve bracket and Anti spin clip	V5011/V5013; Modutrol IV Motors
* Q5001D1018	1 3/8 in.	3/4 in.	Valve Linkage for Mod IV motors with 160 or 320 lb stem force and up to 3 inch valves	1 3/8 in. valve bracket and Anti spin clip	Valve sizes up to 3 inch; V5011/V5013; Modutrol IV Motors
* Q5001D1026	1 7/8 in.	1 1/2 in.	Valve Linkage for Mod IV motors with 160 or 320 lb stem force and 4, 5 or 6 inch valves	1 7/8 in. valve bracket and Anti spin clip	4, 5 or 6 inch valves; V5011/V5013; Modutrol IV Motors

\* TRADELINE models • SUPER TRADELINE models

## Q5001 Parts

Product Number	Stroke	Description
220845/0767	—	Retainer button for Q5001
220861A	3/4 in.	3/4 inch lift Q5001 linkage cam assembly
220863A	1 in.	1 inch lift Q5001 linkage cam assembly
220864A	1 1/8 in.	1 1/8 inch lift Q5001 linkage cam assembly
220865A	1 1/4 in.	1 1/4 inch lift Q5001 linkage cam assembly
220867A	1 1/2 in.	1 1/2 inch lift Q5001 linkage cam assembly
4074ETB	—	Antispin Kit, Q5001



## Q5020 Globe Valve Linkages



The Q5020 Globe Valve Linkages connect a Honeywell direct coupled actuator (DCA) to a steam or water globe valve. The Q5020 Linkages are compatible with two-way and three-way globe valves up to 3 inch (DN80).

- Used with two-way and three-way globe valves in modulating or two-position service.
- Used with 25, 50, and 142 lb-in. spring return and 35, 70, 150, and 300 lb-in. non-spring return DCA.
- Quick and simple installation with no disassembly required.
- Heavy-duty Steel rack and pinion construction and Aluminum Die-cast housing.
- Maintenance-free construction.
- Precision roller-bearing rack construction prevents premature valve packing wear and leakage.
- Flexible actuator mounting orientation.
- Adjustable manual override lever and valve position indicator.
- Can be mounted on specific non-Honeywell valves using a 32004629 Bonnet Adapter Kit.

**Linkage Type:** Valve

**Mounting:** Linkage mounts directly to the valve bonnet; actuator mounts on linkage

**Used with Actuator:** Direct Coupled Actuator

Product Number	Bonnet Size (in.)	Shaft Dimensions	Stroke	Description	Includes	Used With
Q5020A1003	1 3/8 in.	1/2 in.	3/4 in.	Globe Valve Linkage, 1/2 in. actuator shaft	1/2 in. diameter drive shaft	V5011G; V5011F; V5013N; V5011N
Q5020B1001	1 3/8 in.	1 in.	3/4 in.	Globe Valve Linkage, 1 in. actuator shaft	1 in. diameter drive shaft	V5011G; V5011F; V5013N; V5011N
Q5020C1009	1 3/8 in.	1 in.	1 1/2 in.	Globe Valve Linkage, 1 in. actuator shaft	1 in. diameter drive shaft	V5051
Q5020D1007	1 3/8 in.	1/2 in.	1/2 in.	Globe Valve Linkage, 1/2 in. actuator shaft	1/2 in. diameter drive shaft	Siebe valves; Johnson valves; Siemms valves

# Damper and Valve Linkages

## Q5022 Globe Valve Tandem DCA Linkage



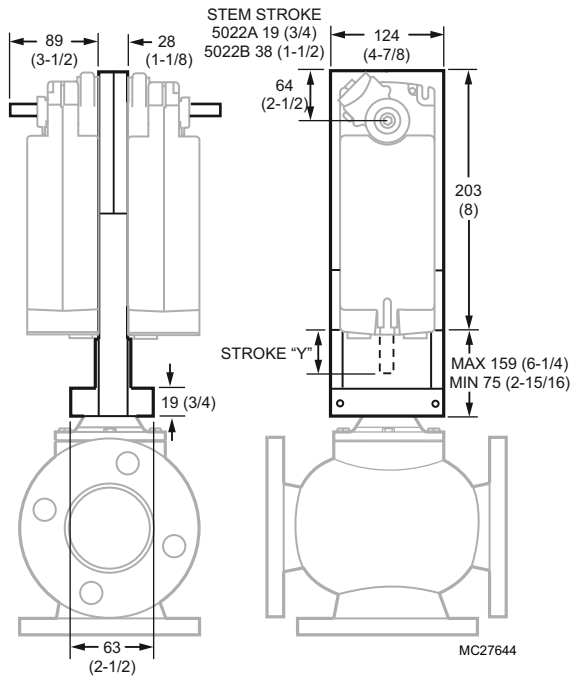
The Q5022A,B Globe Valve Linkages connect one or two Honeywell direct coupled rotary actuators (DCA) to a globe valve for control of chilled water, hot water, or steam. The Q5022A,B Linkages are compatible with 2 and 3-way globe valves up to 6 in. (DN150) pipe size.

**Q5022A** is used to provide enhanced close-off ratings with Honeywell globe valves up to 3 in. with 1-3/8 in. diameter bonnet and 3/4 in. stem stroke.

**Q5022B** is used with Honeywell globe valves 4 to 6 in. with 1-7/8 in. diameter bonnet and 1-1/2 in. stem stroke.

- For use with 2-way and 3-way globe valves in modulating or two-position service.
- For use with 175 lb.-in. (S20) spring return or 175 and 300 lb.-in. (N20, N34) non-spring return DCAs.
- Accepts single or dual matching actuators for higher close-off pressures.
- Fail-safe operation with spring return DCAs, field selectable normally open or normally closed for direct or reverse-acting valves.
- Linkage threads onto valve stem.
- Oilite® self-lubricated actuator shaft bearing.
- Anodized extruded aluminum housing.
- Maintenance-free construction.
- Precision roller-bearing rack construction to prevent premature valve packing wear and leakage.
- Flexible actuator mounting orientation.

### Dimensions in millimeters (inches)



### Linkage Type: Valve

**Mounting:** Linkage mounts directly to the valve bonnet; actuator(s) mount on linkage

**Stem Force Rating:** 4969 max. (1117 max.)

**Includes:** Anti-spin brackets

**Comments:** This linkage is not compatible with the 43196000 high temperature kits

Product Number	Bonnet Size (in.)	Shaft Dimensions	Stroke	Description	Used With
Q5022A1001	1 3/8 in.	1/4 -28UNF-2A	3/4 in.	Tandem DCA linkage for Honeywell threaded and flanged globe valves 3 inches and smaller	VGF under 4 in.; V5013; V5011
Q5022B1009	1 7/8 in.	7/16 -20UNF-2A	1 1/2 in.	Tandem DCA linkage for Honeywell flanged globe valves 4 inches and larger	VGF over 3 in.; V5013; V5011

# Carbon Dioxide (CO<sub>2</sub>) Sensors

## C7232 Carbon Dioxide (CO<sub>2</sub>) Sensors



The Carbon Dioxide (CO<sub>2</sub>) Sensors and Controllers are stand-alone carbon dioxide (CO<sub>2</sub>) sensors for use in determining ventilation necessity with HVAC controllers. The sensor measures the CO<sub>2</sub> concentration in the ventilated space or duct. The sensors are used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO<sub>2</sub> in the space.

- Models available with LCD that provides sensor readings and status information.
- Non-Dispersion-Infrared (NDIR) technology used to measure carbon dioxide gas.
- Gold-plated sensor provides long-term calibration stability.
- C7232 provides voltage or current output based on CO<sub>2</sub> levels.
- SPST relay output.
- Used for CO<sub>2</sub> based ventilation control (Demand Control Ventilation (DCV)).
- Automatic Background Calibration (ABC) algorithm based on long-term evaluation reduces required typical zero-drift check maintenance.

**Carbon Dioxide Range:** 0 to 2000 ppm, adjustable  
**Analog Current Output:** 0/2 - 10 Vdc or 0/4 - 20 mA selectable, w/ one relay output  
**Electrical Connections:** Six leadwires, 20-gauge, 8 in. long  
**Contact Ratings:** 1 A @ 50 Vac/24 Vdc  
**Relay Output:** One: Normally Open SPST

**Voltage:** 24 Vac/dc ±20%  
**Frequency:** 50 Hz; 60 Hz  
**Response Time:** 1 minute  
**Sensor Type:** Non-dispersive Infrared (NDIR)  
**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)  
**Accuracy:** 5% full scale

Product Number	Display	Mounting	Dimensions, Approximate		Includes
			(mm)	(inch)	
C7232A1008	Yes	Wall mount	128 mm high x 80 mm wide x 25 mm deep	5 1/16 in. high x 3 11/16 in. wide x 2 in. deep	Honeywell Logo
C7232A1016	No	Wall mount	128 mm high x 80 mm wide x 25 mm deep	5 1/16 in. high x 3 5/32 in. wide x 2 in. deep	Honeywell Logo
C7232A1024	Yes	Wall mount	128 mm high x 80 mm wide x 25 mm deep	5 1/16 in. high x 3 5/32 in. wide x 2 in. deep	No Honeywell Logo
C7232A1032	No	Wall mount	128 mm high x 80 mm wide x 25 mm deep	5 1/16 in. high x 3 5/32 in. wide x 2 in. deep	No Honeywell Logo
C7232B1006	Yes	Duct mount	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	Honeywell Logo
C7232B1014	No	Duct mount	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	Honeywell Logo
C7232B1022	Yes	Duct mount	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	No Honeywell Logo
C7232B1030	No	Duct mount	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	5 5/8 in. high x 3 5/16 in. wide x 3 7/16 in. deep x plus 8 in. long sensing tube	No Honeywell Logo

# Carbon Dioxide (CO<sub>2</sub>) Sensors

## C7632 Carbon Dioxide (CO<sub>2</sub>) Sensors



The Carbon Dioxide (CO<sub>2</sub>) Sensors offer a fixed 0-2000 ppm and fixed 0-10 Vdc output. No adjustments are necessary. Like the C7232 sensors, these are for use in determining ventilation necessity with HVAC controllers. The sensor measures the CO<sub>2</sub> concentration in the ventilated space or duct. The sensors are used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO<sub>2</sub> in the space.

- Non-Dispersion-Infrared (NDIR) technology used to measure carbon dioxide gas.
- Gold-plated sensor provides long-term calibration stability.
- Fixed 0-2000ppm, fixed 0-10Vdc output.
- Used for CO<sub>2</sub> based ventilation control (Demand Control Ventilation (DCV)).
- Automatic Background Calibration (ABC) algorithm based on long-term evaluation reduces required typical zero-drift check maintenance.

**Carbon Dioxide Range:** 0 to 2000 ppm, fixed  
**Analog Current Output:** 0-10Vdc fixed  
**Electrical Connections:** Terminal block  
**Relay Output:** None  
**Voltage:** 24 Vac (±20%)

**Frequency:** 50 Hz; 60 Hz  
**Response Time:** 1 minute  
**Sensor Type:** Non-dispersive Infrared (NDIR)  
**Operating Temperature Range:** 0 C to 50 C (32 F to 122 F)  
**Accuracy:** 5% full scale

Product Number	Display	Mounting	Dimensions, Approximate		Includes
			(mm)	(inch)	
C7632A1004	No	Wall mount	104mm high x 99 mm high x 27 mm deep	4 1/8 in high x 3 7/8 in. wide x 1 1/16 in. deep	Honeywell Logo
C7632B1002	No	Duct mount	142 mm high x 84 mm wide x 87 mm deep x plus 203 mm sensing tube	5 5/8 in. high x 3 5/16 in. wide x 1 13/16 in. deep x plus 8 in. long sensing tube	Honeywell Logo

## Solid and Split Core Current Switches



Split Core

Solid Core

All of these sensors have a solid-state output with an adjustable or fixed trip point (setpoint). These current switches should be used in applications in which a "Go/No Go" current switch is required. The current switches can be used to monitor devices with a maximum continuous operating current of up to 250 Amps. These current switches do not need to be externally powered, since the power for the switch is induced from the conductor being monitored. The split core switches are ideal for retrofit or existing installations, since it is not necessary to power down the unit and disconnect any wires during the installation process. Solid core switches are extremely easy to install, they are an excellent choice for new installations.

- Solid or split core switches with fixed or adjustable trip points
- Very low operating trip points
- LED status indication
- Integral DIN rail mounting flange
- Accepts up to a 350 MCM (17.3 mm) cable
- Operates up to 250 continuous amps
- RoHS and WEEE Compliant
- Limited 5 year warranty

**Application:** Great for monitoring fans, pumps, motors, compressors, or other electrical equipment

**Din Rail Size:** 35 mm (1-3/8 in.)

**Enclosure Rating/Color:** UL94-5V/Burgundy

**Isolation Voltage:** 2200 Vac

**Supply Voltage:** Induced from monitored conductor

**Frequency:** 40 Hz to 1 kHz

**Operating Temperature Range:** -15 C to 40 C (5 F to 104 F)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Weight:** 0.1 kg (0.23 lb)

**Approvals:**

**CE:** Approved

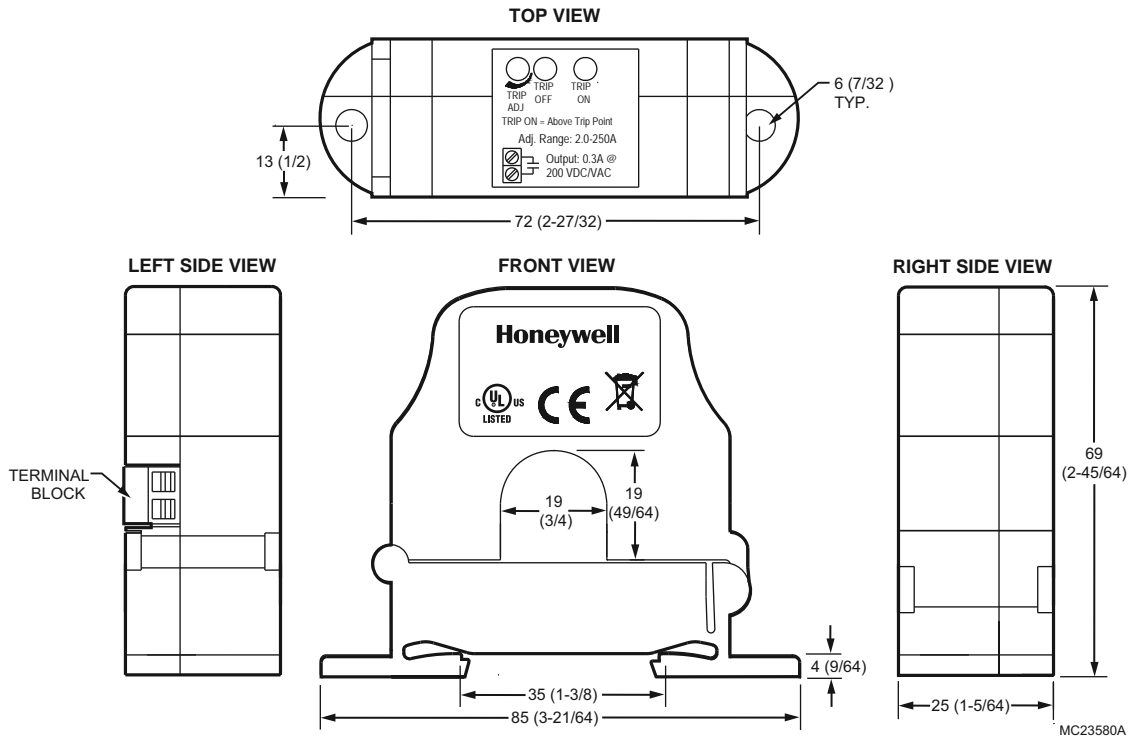
**Underwriters Laboratories, Inc.** Approved

**Environmental Compliance:** RoHS-Directive 2002/95/EC, WEEE-Directive 2002/96/EC

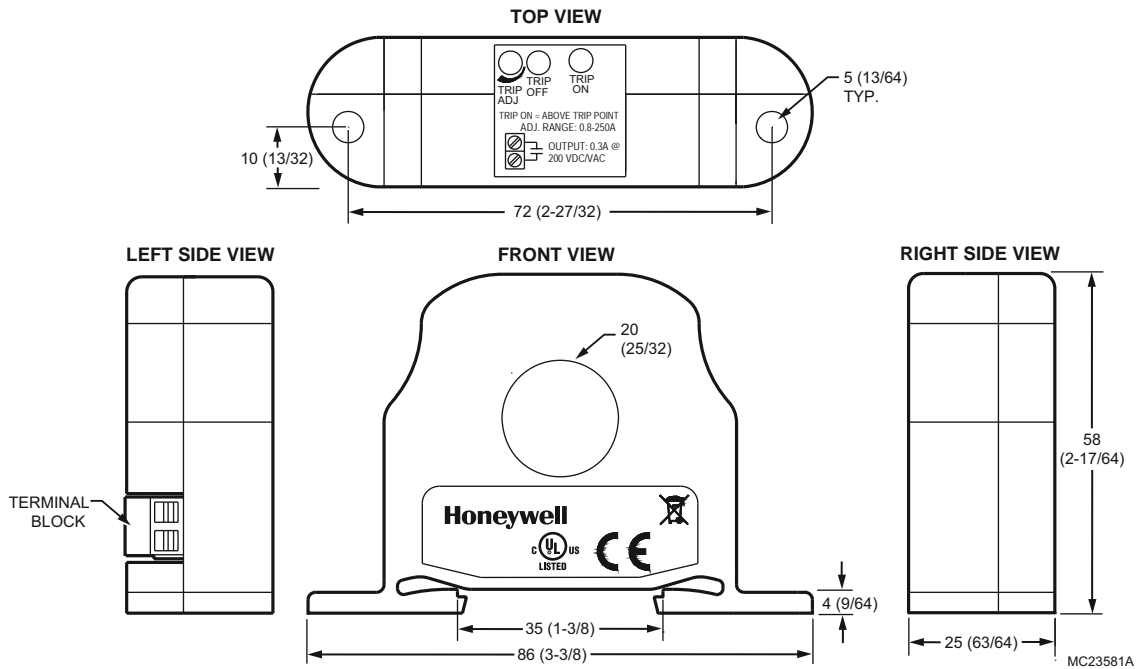
Product Number	Description	Core Type	Normal Position	Output Switch Rating	Operating Range	Trip Point	LEDs
CSP-C-A200-001	Adjustable Current Switch	Split	N.C.	0.15 Amps @ 300 Vac/Vdc	0-250A	2.5-250 Amps	Green— Below the trip point; Red—Above the trip point
CSP-O-A200-001	Adjustable Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	0-250A	2.0-200 Amps	Green—Below the trip point; Red—Above the trip point
CSP-O-A300-001	Adjustable Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	0-250A	3.0-200 Amps	Green— Below the trip point; Red—Above the trip point
CSP-O-F10-001	Go/No Go Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	0-200A	1.50 Amps	Red—Above the trip point
CSP-O-F15-001	Go/No Go Current Switch	Split	N.O.	0.30 Amps @ 200 Vac/Vdc	0-200A	2.50 Amps	Red—Above the trip point
CSS-C-F1-001	Go/No Go Current Switch	Solid	N.C.	0.15 Amps @ 300 Vac/Vdc	0-250A	0.50 Amps	Red—Above the trip point
CSS-C-F5-001	Go/No Go Current Switch	Solid	N.C.	0.15 Amps @ 300 Vac/Vdc	0-250A	1.00 Amps	Red—Above the trip point
CSS-O-A200-001	Adjustable Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0-200A	0.5-250 Amps	Green—Below the trip point; Red—Above the trip point
CSS-O-A300-001	Adjustable Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0-200A	1.0-250 Amps	Green—Below the trip point; Red—Above the trip point
CSS-O-F1-001	Go/No Go Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0-250A	0.20 Amps	Red—Above the trip point
CSS-O-F5-001	Go/No Go Current Switch	Solid	N.O.	0.30 Amps @ 200 Vac/Vdc	0-250A	0.50 Amps	Red—Above the trip point

# Current Switches

Solid Core Switches and Transmitters dimensions in millimeters (inches)



Solid Core Switches and Transmitters dimensions in millimeters (inches)



## Solid and Split Core Current Transmitters



Split Core

Solid Core

Depending on model selected the current is converted into a linear and proportional output signal of 0-5 Vdc, 0-10 Vdc or 4-20 mA, which can be monitored by a building management controller. These current sensors should be used in load trending (current monitoring) type applications. The split core transmitters are ideal for retrofit or existing installations, since it is not necessary to power down the unit and disconnect any wires during the installation process. Solid core transmitters are extremely easy to install, they are an excellent choice for new installations.

- Solid or split core loop-powered current transmitters for 4-20 mA models
- Solid or split core 0-5 or 0-10 Vdc models
- Fast response time
- Integral DIN rail mounting flange
- Easy wiring, polarity sensitive output
- Accepts up to a 350 MCM (17.3 mm) cable
- Operates up to 250 continuous amps
- True RMS versions are available
- RoHS and WEEE Compliant
- Limited 5 Year Warranty

**Dimensions Diagrams:** See page 464

**Application:** Ideal for retrofit or existing installations requiring load trending (current monitoring)

**Din Rail Size:** 35 mm (1-3/8 in.)

**Enclosure Rating/Color:** UL94-5V/Burgundy

**Maximum Load Resistance:** 650 Ohms @ 24 Vdc (Vs-10)/0.02-40.2

**Isolation Voltage:** 2200 Vac

**Supply Current:** 36 mA max

**Operating Temperature Range:** -15 C to 40 C (5 F to 104 F)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Weight:** 0.1 kg (0.24 lb)

**Approvals:**

**CE:** Pending

**Underwriters Laboratories, Inc.** Approved

**Environmental Compliance:** RoHS-Directive 2002/95/EC, WEEE-Directive 2002/96/EC

Product Number	Description	Core Type	Output Switch Rating	Current Range	Type	Response Time	Supply Voltage	Frequency
CTP-20-050-VFD-001	Loop Powered Current Sensor	Split	4-20 mA Average True RMS	0-10 Amps; 0-20 Amps; 0-50 Amps	Adjustable	<200 mS	12 to 30 Vdc	30 Hz to 1 kHz
CTS-05-050-VDC-001	Current Sensors	Solid	0 to 5 Vdc	0-10 Amps; 0-20 Amps; 0-50 Amps	Adjustable	<100 mS	Induced from monitored conductor	50 Hz to 600 Hz
CTS-10-250-VDC-001	Current Sensors	Solid	0 to 10 Vdc	0-100 Amps; 0-200 Amps; 0-250 Amps	Adjustable	<100 mS	Induced from monitored conductor	50 Hz to 600 Hz
CTS-20-250-VFD-001	Loop Powered Current Sensor	Solid	4-20 mA Average True RMS	0-100 Amps; 0-200 Amps; 0-250 Amps	Adjustable	<200 mS	12 to 30 Vdc	30 Hz to 1 kHz

# Dew Point Sensors

## Dew Point Sensor



This early-warning dew-point sensor is designed for use in monitoring cooling water pipes or chilled surfaces in order to determine if temperatures are approaching the dewpoint.

It is suitable for mounting on flat and round surfaces. The sensor measures the relative humidity prevailing directly at the chilled surface and can thus be used to regulate cooling performance, or switch cooling systems ON and OFF, and signal if the temperature is approaching the dew point.

Using this sensor, it is thus possible to operate e.g. chilled ceilings in an optimal manner and without the formation of condensation water even under critical climatic conditions.

- Does not wait to detect when the dew-point has already been reached, but rather provides an early warning of the approaching dew-point
- Compact design
- Fast response
- Module is coated, thus protected against contamination
- Simple and easy mounting

**Application:** For use in monitoring cooling water pipes or chilled surfaces in order to determine if temperatures are approaching the dew point.

**Dimensions, Approximate:** 15.5 mm high x 32 mm wide x 50 mm deep (1/16 in. high x 1 1/4 in. wide x 2 in. deep)

**Operating Humidity Range (% RH):** 5–95% RH, non-condensing

**Power Consumption:** < 10 mA

**Voltage:** 60 Vdc

**Mounting:** Flat and round surfaces

Product Number	ON Voltage	Supply Voltage	R.H. Hysteresis Switching	Switch Points	Switching Current	Output Type	Response Time	Description
H7018A1003	100 mV @ 15 mA	24 Vac ±20%	5% RH	Contact Closed @ <90% RH; Contact Open @ > 90% RH	15 mA max	Potential-Free Contact	~3 min (given a jump in the relative humidity of from 55% to 100%)	Early warning dew point sensor. Switching hysteresis - 4 to+5% RH.contact open @ RH >90% RH contact closed @ RH <90%.



## C7600 Humidity Sensor



C7600A,C

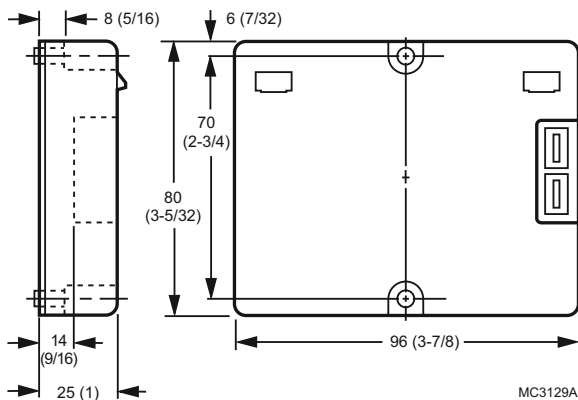


C7600B

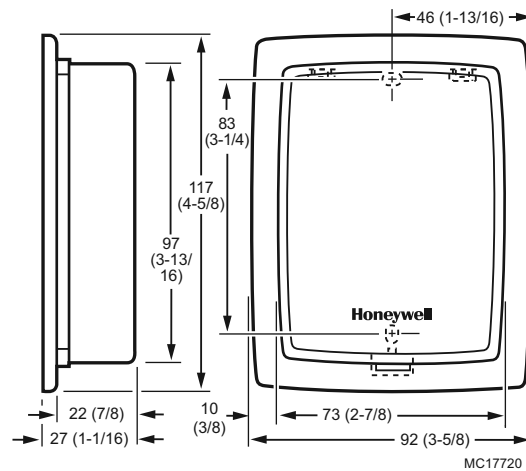
Used with any controller capable of processing a 4-20 mA or 2-10 Vdc signal.

- Provide humidity sensing through a long-lasting thick-film capacitive polyimide sensing element that is both accurate and stable over time.
- Vents in top cover provide for airflow to humidity sensing element inside.
- Mounts easily because of compact size and lightweight construction.
- Remains operational after exposure to all outdoor air humidity extremes. 5% RH accuracy from 30% to 70% RH.

Dimensions in millimeters (inches)



Dimensions in millimeters (inches)



Application: Humidity

Operating Temperature Range: 0 C to 52 C (32 F to 125 F)

Shipping Temperature Range: -40 C to +65 C (-40 F to +150 F)

Operating Humidity Range (% RH): 10 to 90% RH, non-condensing

Product Number	Application Type	Mounting	Sensor Type	Description	Comments	Used With
C7600A1002	Duct mount	Duct or Wall mount	4-20 mA inversely proportional	Solid State Humidity Sensor	Two 1/4 in. quick-connect terminals	W7600
C7600B2008	Junction box mount	Wall mount	2-10Vdc directly proportional	Solid State Humidity Sensor	Three 22-gauge wires	T775U
C7600C1008	Duct mount	Duct or Wall mount	4-20mA directly proportional	Solid State Humidity Sensor	Two 1/4 in. quick-connect terminals	T775U

# Humidity Sensors

## H7012 Humidity and Temperature Room Sensors



- Wall-mounted, capacitance type relative humidity room sensor.**
- Capacitance type sensing element.
  - Wide sensing range.
  - Temperature indication sensor, H7012B only.

**Application:** Humidity

**Dimensions, Approximate:** 130 mm high x 81 mm wide x 34 mm deep (5 1/8 in. high x 3 3/16 in. wide x 1 11/32 in. deep)

**Operating Humidity Range (% RH):** 30 to 70% RH

Product Number	Mounting	Sensor Type	Description	Comments
H7012A1009	Wall mount	—	Humidity Sensor	Capacitance type humidity sensor
H7012B1007	Wall mount	PT1000	Humidity and Temperature Sensor	Capacitance type humidity sensor
H7012B1015	Wall mount	Balco 500	Humidity and Temperature Sensor	Capacitance type humidity sensor

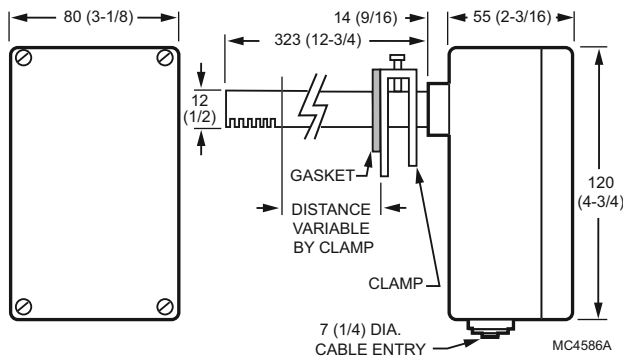
## H7015B Humidity Transducers



**The H7015B Combined Humidity/Temperature Duct Sensor combines a capacitance-type relative humidity sensor with a PT1000 or BALCO 500 temperature sensor in one housing. These sensors can be used for discharge, outside or return air control or as a high-limit sensor in applications such as steam humidification.**

- Wide sensing range.
- Capacitance type sensing element for relative humidity.
- PT1000 or BALCO 500 temperature sensing element.

**Dimensions in millimeters (inches)**



**Application:** Humidity Sensor

**Operating Temperature Range:** -30 C to 70 C (-22 F to 158 F)

**Operating Humidity Range (% RH):** 10 to 90% RH, non-condensing

Product Number	Mounting	Description	Comments
H7015B1004	Duct mount	Humidity and Temperature Duct Mounted Sensors	With PT1000 Temperature Sensor
H7015B1012	Duct mount	Humidity and Temperature Duct Mounted Sensors	With Balco 500 Temperature Sensor

## H7625, H7635, and H7655 Humidity and Temperature Transmitters



H7625A  
H7635A



H7655A



H7625B,  
H7635B, C,  
H7655B

The H7625, H7635, and H7655 are highly accurate, stable humidity transducers designed for use with HVAC controllers such as the T7350 Thermostat, T775U Remote Humidity Controller, and W7760 Direct Digital Controllers. The Ceramic Technology humidity sensor is not affected by condensation and provides excellent long-term stability.

- Ceramic Technology overcomes the limitations of other resistance based humidity sensors that use water soluble polymer coatings.
- Ceramic Technology allows sensors to recover fully from condensation, fog, and high humidity.
- Highly accurate, repeatable, stable output with negligible hysteresis.
- Temperature compensated output. Zero and span trimmers, and increment/decrement recalibration feature.
- All units have selectable 4-20 mA, 0-10 Vdc, or 0-5 Vdc output. NIST traceable 2%, 3%, and 5% calibration, every sensor calibrated at 3 different points.
- All humidity sensors use the same enclosure as the T7770 sensor, except the H7655A, which uses the T7047-like enclosure.

**Application:** Humidity and Temperature

**Voltage:** 18-36 Vdc or 18-28 Vac

**Operating Temperature Range:** -23C to 70C (-10 F to 160F)

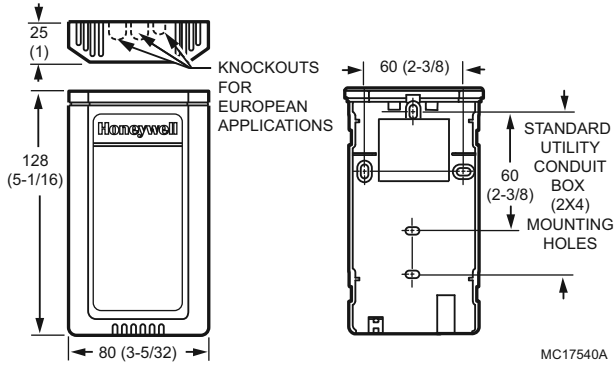
**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 0 to 100% RH

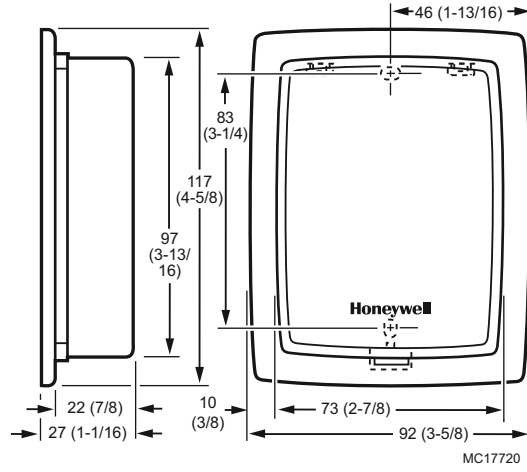
Product Number	Application Type	Accuracy (% RH)	Temperature Output	Humidity Output	Comments	Used With
H7625A1008	Wall mount	2% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7625B1006	Duct mount	2% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7635A1006	Wall mount	3% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7635B1004	Duct mount	3% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350, T775 Series 2000
H7635C1002	Outdoor mount	3% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	XL products where needed, T775 Series 2000
H7655A1001	Wall mount	5% from 30-70% RH	none	0-10Vdc	Uses different enclosure (same as T7047 Sensor). Polymer capacitance humidity sensor	XL15, XL10, T7350
H7655B1009	Duct mount	5% from 20-95% RH	20K ohm NTC	4-20mA, 0-5Vdc, or 0-10Vdc selectable	Ceramic resistance humidity sensor	Excel 15, Excel 10, T7350

# Humidity Sensors

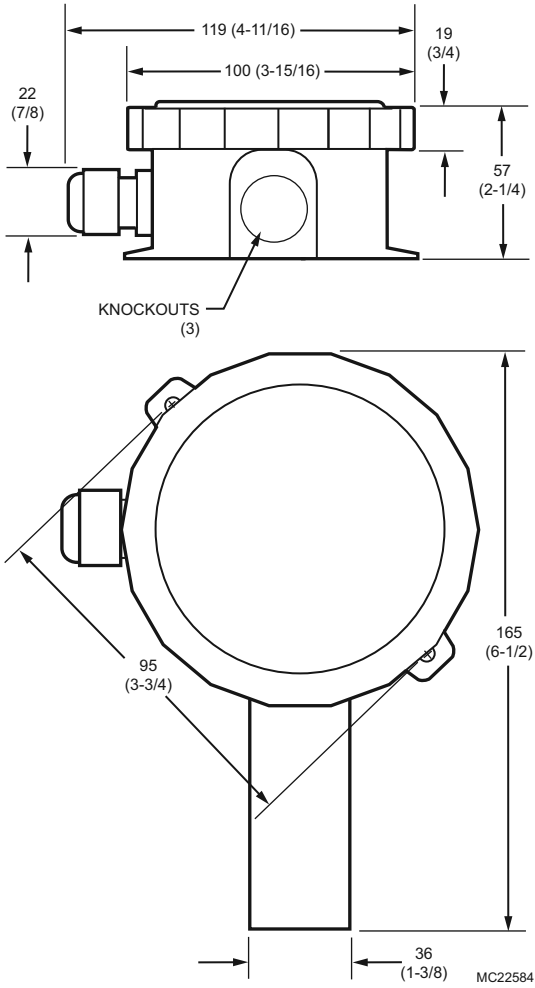
Dimensions in millimeters (inches)



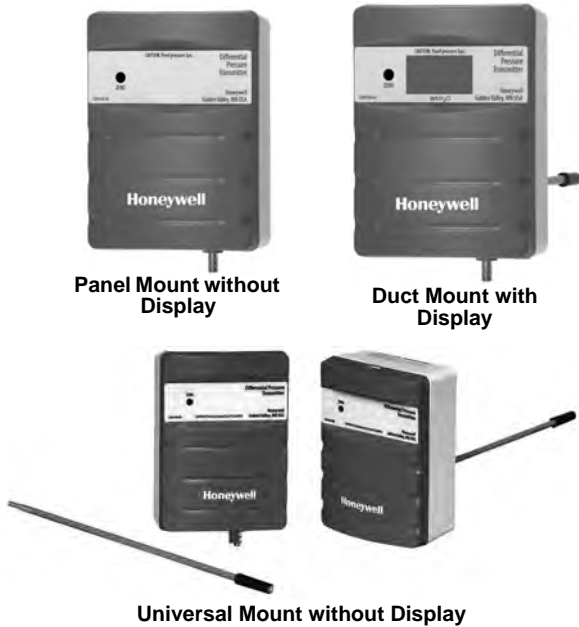
Dimensions in millimeters (inches)



Dimensions in millimeters (inches)



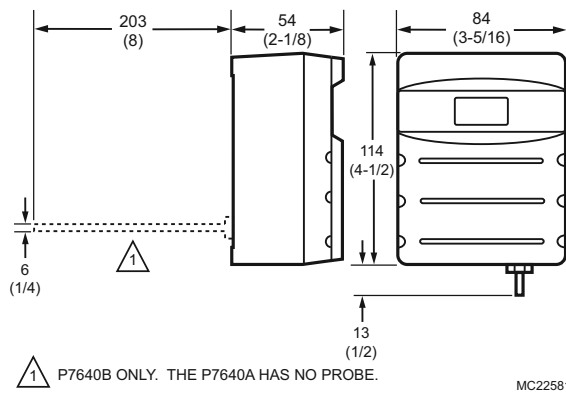
## P7640 Differential Pressure Transmitters



The P7640 Pressure Sensors are designed with field-selectable 4-20 mA, 0-5 Vdc, or 0-10 Vdc output. The P7640 offers switch selectable pressure ranges between 0-1 in. w.c./0-250 Pa or 0-10 in. w.c./0-2500PA depending on the model. Pressure ranges can be set for either uni-directional or bi-directional.

- The P7640A Panel Mount, P7640B Duct Mount and P7640U Universal Mount Differential Pressure Transmitters provide reliable, accurate measurement and control.
- Proper applications include measurement of extremely low pressure applications such as: building/room pressure, air flow, variable air volume, filter status, and duct pressure.
- They are ideal for clean rooms, hospitals, fume hoods, and computer rooms.
- Selectable inches w.c. or Pascal scale.
- Selectable fast or standard response time.
- Duct mount model comes with factory installed duct probe.
- The Universal model comes with attachable duct probe and can be used in either panel or duct mounting application.

### Dimensions in millimeters (inches)



**Connection Size:** Pneumatic: 1/4 in. Brass Hose Barb, Electrical: Unpluggable screw terminal block

**Output:** 4-20mA, 0-5Vdc or 0-10Vdc selectable

**Temperature Range:** 0C to 60C (32F to 140F)

**Accuracy:** ±1% Full Scale

**Burst Pressure:** 5 psi

**Proof Pressure:** 3 psi

**Supply Voltage:** 12 to 30 Vdc or 24 Vac

**Comments:** With autozero calibration by push button or external contact closure

Product Number	Pressure Ranges		Mounting	Display
	(Pa)	(in. wc)		
P7640U1052	0-25, 0-50, 0-100, 0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-0.1, 0-0.25, 0-0.5, 0-1, 0-2.5, 0-5, or 0-10 inches w.c., uni or bi-directional	Universal	Yes
P7640U1040	0-25, 0-50, 0-100, 0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-0.1, 0-0.25, 0-0.5, 0-1, 0-2.5, 0-5, or 0-10 inches w.c., uni or bi-directional	Universal	No
P7640B1032	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni or bi-directional	Duct mount, integral 8 in. probe	No
P7640B1024	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni or bi-directional	Duct mount, integral 8 in. probe	Yes
P7640B1016	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Duct mount, integral 8 in. probe	No
P7640B1008	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Duct mount, integral 8 in. probe	Yes
P7640A1034	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni or bi-directional	Panel mount	No
P7640A1026	0-250, 0-500, 0-1000, 0-2500 Pa uni- or bi-directional	0-10, 0-5, 0-2.5, or 0-1 inches w.c., uni or bi-directional	Panel mount	Yes
P7640A1018	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Panel mount	No
P7640A1000	0-25, 0-50, 0-100, 0-250 Pa uni- or bi-directional	0-1.0, 0-0.5, 0-0.25, or 0-0.1 inches w.c., uni- or bi-directional	Panel mount	Yes

# Pressure Sensors

## PWT Series Wet/Wet Differential Pressure Sensors



**Bypass Valve Assembly**



**Panel Mount with Display**

The PWT Series wet/wet differential pressure sensors provide reliable, accurate measurement and control of many applications, including pump differential pressure, chiller/boiler differential pressure drop, and CW/HW system differential pressure.

- The PWT Pressure Sensors incorporate microprocessor profiled sensors for exceptional accuracy and reliability.
- Field-selectable 4-20 mA, 0-5 Vdc, or 0-10 Vdc output.
- Jumper-selectable slow or fast response time.
- Switch-selectable pressure ranges.
- The jumper-selectable output switch for normal (4-20 mA) or reverse (20-4mA) operation provides application flexibility.
- Rugged, die-cast enclosure provides NEMA 4 sealing.
- Jumper-selectable port swap feature.
- All models offer both push button and digital input to zero the output.

**Dimensions, Approximate:** 102 mm high x 147 mm wide x 57 mm deep (4 in. high x 5 51/64 in. wide x 2 13/64 in. deep)

**Connection Size:** 1/8 in. NPT female, stainless steel 17-4 PH

**Operating, Storage, and Compensated Temperature Range:** -10 C to 55 C (14 F to 131 F)

**Burst Pressure:** 5x max. F.S. range

**Proof Pressure:** 2x max. F.S. range

**Supply Voltage:** 12 to 30 Vdc or 24 Vac

**Approvals:**

**CE:** CE

Product Number	Accuracy	Pressure Ranges (psi)	Mounting	Output	Display	Connection Size	Description
PWT50	±1% F.S. for 0-10, 0-25, 0-50 psid; ±2% F.S. for 0-5 psid	0-5, 0-10, 0-25, 0-50 psid	Vertical Mount	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes	1/8 in. NPT female, stainless steel 17-4 PH	Wet Diff. Pressure Transmitter
PWT250	±1% F.S. for 0-250, 0-125, & 0-50 psid; ±2% F.S. for 0-25 psid	0-25, 0-50, 0-125, 0-250 psid	Vertical Mount	4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes	1/8 in. NPT female, stainless steel 17-4 PH	Wet Diff. Pressure Transmitter
PWT100	±1% F.S. for 0-100, 0-50, 0-20 psid; ±2% F.S. for 0-10 psid	0-100, 0-50, 0-20, 0-10 psid		4-20mA, 0-5Vdc or 0-10Vdc selectable	Yes	1/8 in. NPT female, stainless steel 17-4 PH	Wet Diff. Pressure Transmitter
PWT-BV	—	—	Vertical Mount	—	No	—	Bypass Valve Manifold

## Gauge Pressure Sensors



The 50035430 Series is a two-wire 4-20mA gauge pressure sensor. This digitally compensated sensor offers an unparalleled value and performance combination, making it the ideal pressure sensing solution for demanding applications. The 50035430 series is available in pressure ranges up to 1000 psi.

- Available in 50, 150, 300, 500 and 1000 psi.
- All metal wetted parts for use in wide variety of fluid applications.
- Suitable for use with freon and ammonia based cooling systems.
- No internal elastomeric seals mean no o-ring compatibility issues.
- Less than 2 ms response time provides accurate, high speed measurement.
- Select models available with 1/4-in. SAE female Schrader connection with valve depressor.

**Output:** 4-20 mA, 2-wire

**Operating, Storage, and Compensated Temperature Range:**

-40 C to 125 C (-40 F to +257 F)

**Electrical Termination:** Cable (3 meter)

**Supply Voltage:** 9.5Vdc to 30Vdc

**Materials (Housing):** Black plastic, Amodel AS-4133 HS-PPA

**Materials in contact with media:** SST 304L and Haynes 214 alloy

**Approvals:**

**CE:** CE

Product Number	Accuracy	Pressure Ranges (psi)	Burst Pressure	Proof Pressure	Connection Size
50035430-050	± 0.50% FSS	50 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in.-18 NPT
50035430-150	±0.25% FSS	150 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in.-18 NPT
50035430-300	±0.25% FSS	300 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in.-18 NPT
50035430-500	±0.25% FSS	500 psig	10X Working Pressure Range	3X Working Pressure Range	1/4 in. SAE female Schrader
50035430-01K	±0.25% FSS	1000 psig	10X Working Pressure Range	2X Working Pressure Range	1/4 in. SAE female Schrader

## C7031 Electronic Temperature Sensors



**Electronic temperature sensors used with DDC Systems.**

- Solid state thermistor element provides accurate sensing of temperature changes.

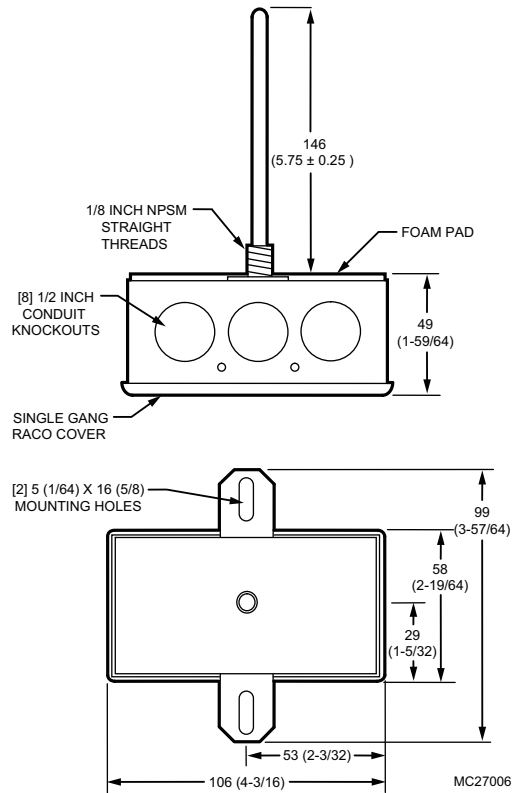
**Maximum Ambient Temperature:** 121 C (250 F)

**Shipping Temperature Range:** -34 C to +71 C (-30 F to +160 F)

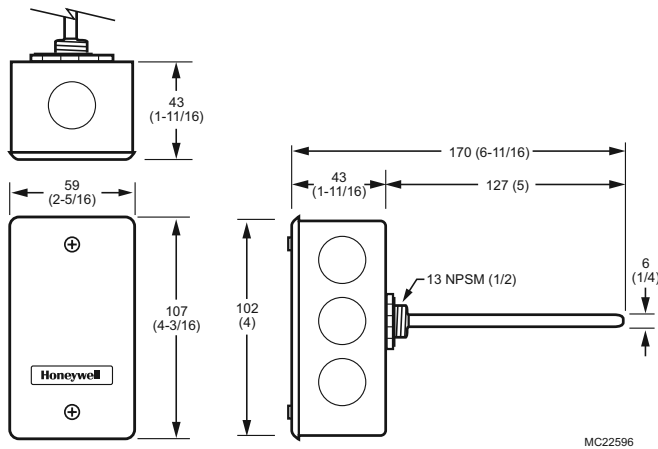
Product Number	Application	Sensor Type	Operating Temperature Range		Insertion Length		Description	Includes	Used With
			(C)	(F)	(mm)	(inch)			
C7031B2005	Duct Discharge	1097 K ohm PTC @ 77 F	-40 C to +121 C	-40 F to +250 F	152 mm	6 in.	1097 Ohm PTC 6 in. Duct Discharge Air Sensor	—	Excel 10, 50, 80, 100, 500, T775 Series 2000
C7031D2003	Hot or chilled water	PT1000, 1097 ohms @ 77 F	4 C to 116 C	40 F to 240 F	127 mm	5 in.	PT1000 Hot or Chilled Water Sensor (includes well)	Well	Excel 500, T775 Series 2000
C7031G2006	Outside air temperature	1715 @ 90F NTC	-40 C to +49 C	-40 F to +120 F	—	—	1715 ohm Outdoor Air Temperature Sensor	—	W7100 (outdoor reset)
C7031G2014	Outside air temperature	PT3000, 3484 ohms @ 77 F	-40 C to +49 C	-40 F to +120 F	—	—	PT3000 Electronic Temperature Sensor	—	T7350
C7031J2009	Duct Discharge	PT1000, 1097 ohms @ 77 F PTC	4 C to 82 C	40 F to 180 F	3658 mm	144 in.	1097 ohm Electronic Temperature Sensor	—	Excel 500, T775 Series 2000

# Temperature Sensors

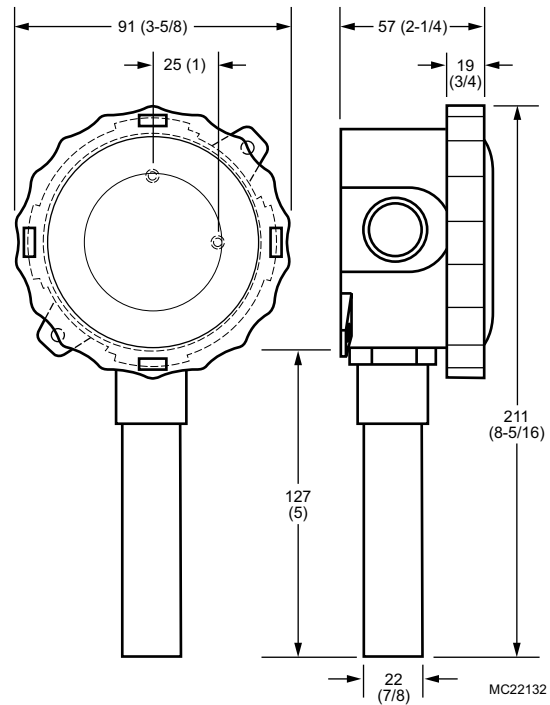
**C7031B, D Dimensions in millimeters (inches)**



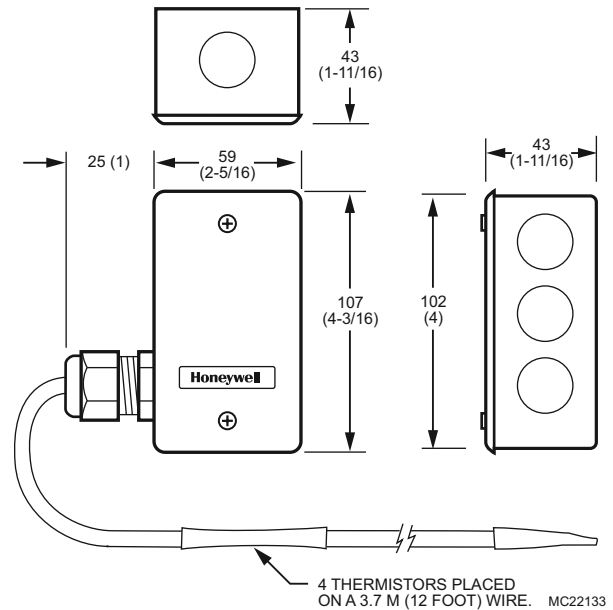
**C7031D Dimensions in millimeters (inches)**



**C7031G Dimensions in millimeters (inches)**



**C7031J Dimensions in millimeters (inches)**



## C7031 Accessories

Product Number	Description	Application
32005960-001	Immersion well for C7031D Series 2 models only	Temperature Sensor Part or Accessory

## C7031 Replacement Parts

Product Number	Description	Application
32006523-001	Temperature probe for C7031D1062	Temperature Sensor Part or Accessory



## C7041 20K ohm NTC Temperature Sensors



The C7041 Electronic Temperature Sensors are designed to be used with electronic controllers in domestic or commercial heating and cooling systems.

- The C7041 series of electronic temperature sensors are designed for use with the Excel 10, Excel 15, or any controller requiring a 20K ohm NTC non-linearized sensor input.
- Various models are available for sensing duct air temperature, averaging air temperature, water temperature, outdoor air temperature, or water pipe temperature.

**SensorType:** 20 K ohm NTC @ 77 F

**Maximum Ambient Temperature:** 150 C (302 F)

**Operating Temperature Range:** -40 C to +121 C (-40 F to +250 F)

**Shipping Temperature Range:** -34 C to +71 C (-30 F to +160 F)

**Used With:** Excel 10, 50, 80, 100, 500

- All devices consist of a temperature sensitive element and leadwires enclosed for protection from physical damage.
- Sensor element enclosures are made of various lengths and configurations for the specific applications.
- All devices have a wiring box housing to enclose the field wiring connections. C7041F outdoor sensor design, made of aluminum and stainless steel, is waterproof, and includes a sunshield.

**Accessories:**

**50001774-001** 5 inch Stainless Steel Immersion Well for Use with C7041D2001

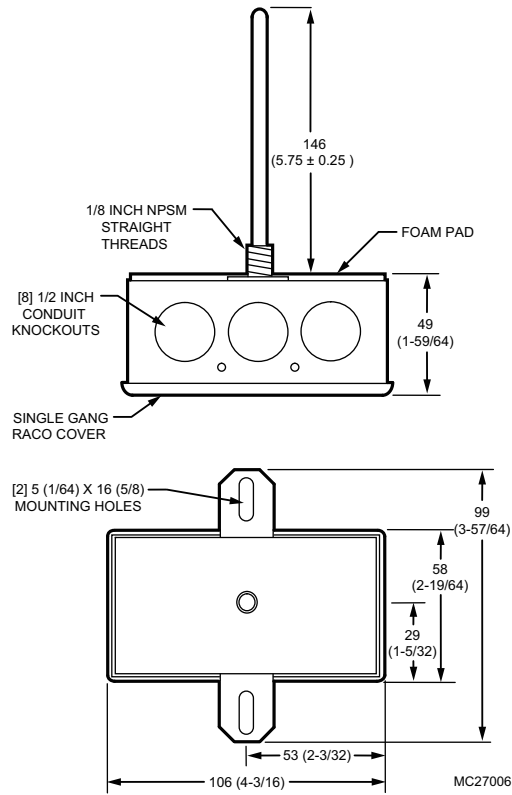
**50001775-001** Immersion well adaptor, to adapt new C7041D2001 to fit into old brass 32005960-001 well used with old C7031D1062 and C7041D1003

Product Number	Application	Insertion Length		Description
		(mm)	(inch)	
C7041B2005	Duct Discharge	152 mm	6 in.	6 in. Duct Discharge Air Sensor
C7041B2013	Duct Discharge	305 mm	12 in.	12 in. Duct Discharge Air Sensor
C7041C2003	Duct Discharge	457 mm	18 in.	18 in. Duct Discharge Air Sensor
C7041D2001	Immersion sensor for hot or chilled water, purchase well 50001774-001 separately	127 mm	5 in.	5 in. Immersion Sensor, for Hot or Chilled water
C7041F2006	Outside air temperature	—	—	Outdoor waterproof sensor with sunshield
C7041J2007	Duct discharge air (averaging)	3.66 m	12 ft.	12 ft. Duct Discharge Air Averaging Sensor
C7041K2005	Hot or chilled water (strap on)	—	—	Strap-on Sensor for Hot or Chilled Water
C7041P2004	Temperature sensor	—	—	11/16 in. Button Sensor, Stainless Steel
C7041R2000	Duct discharge air (averaging)	3.66 m	12 ft.	Flexible Copper Averaging Sensor

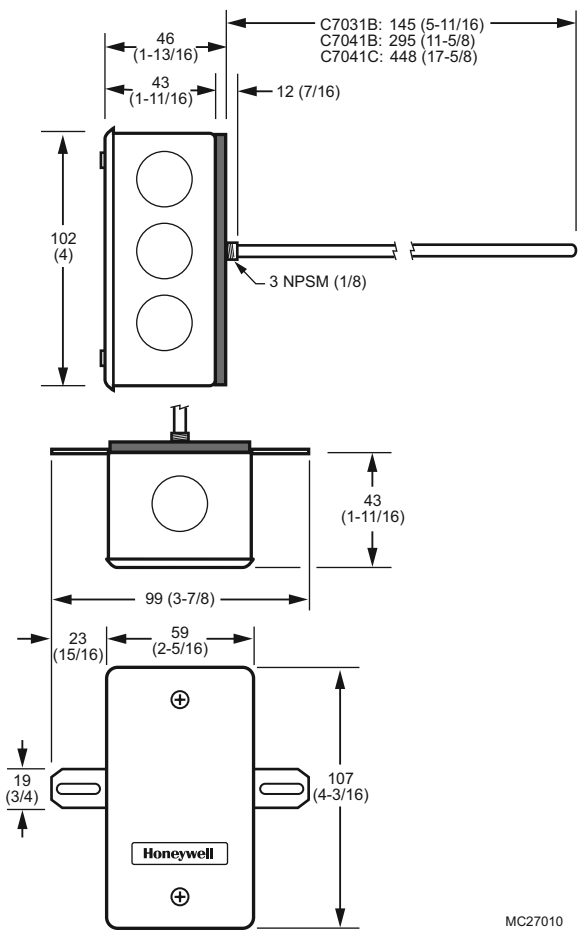
Commercial Components

# Temperature Sensors

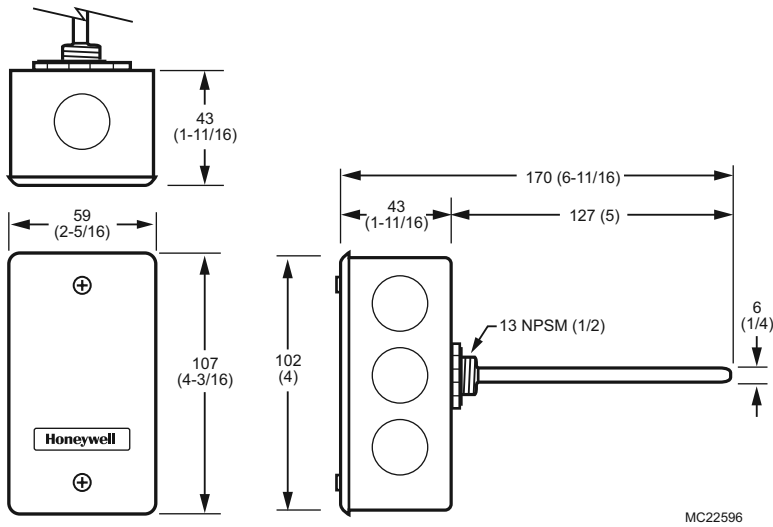
Dimensions in millimeters (inches)



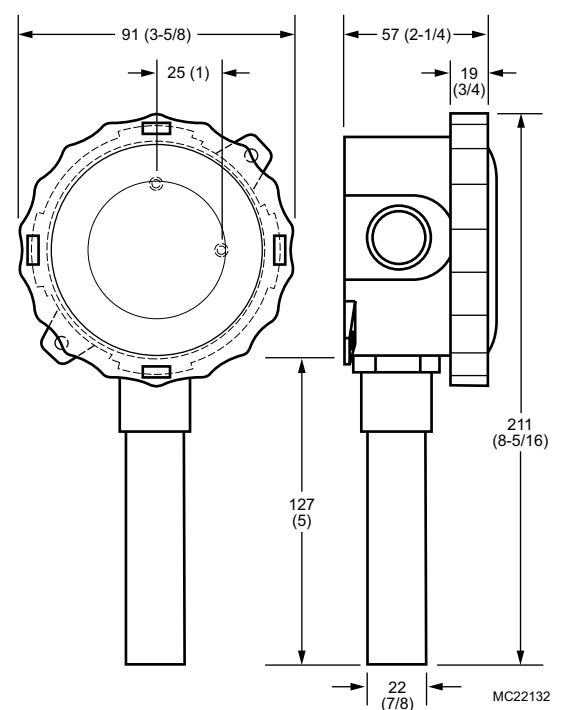
Dimensions in millimeters (inches)



C7041D dimensions in millimeters (inches)

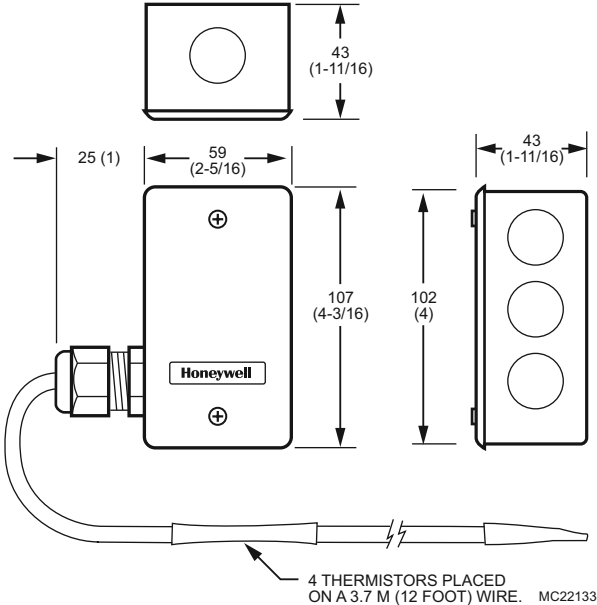


C7041F dimensions in millimeters (inches)

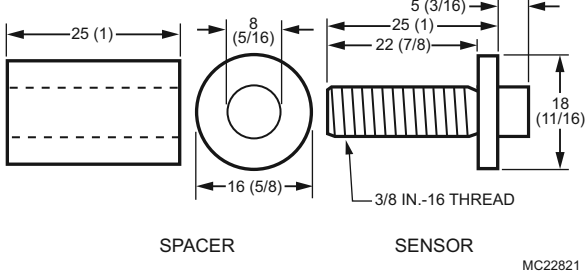


# Temperature Sensors

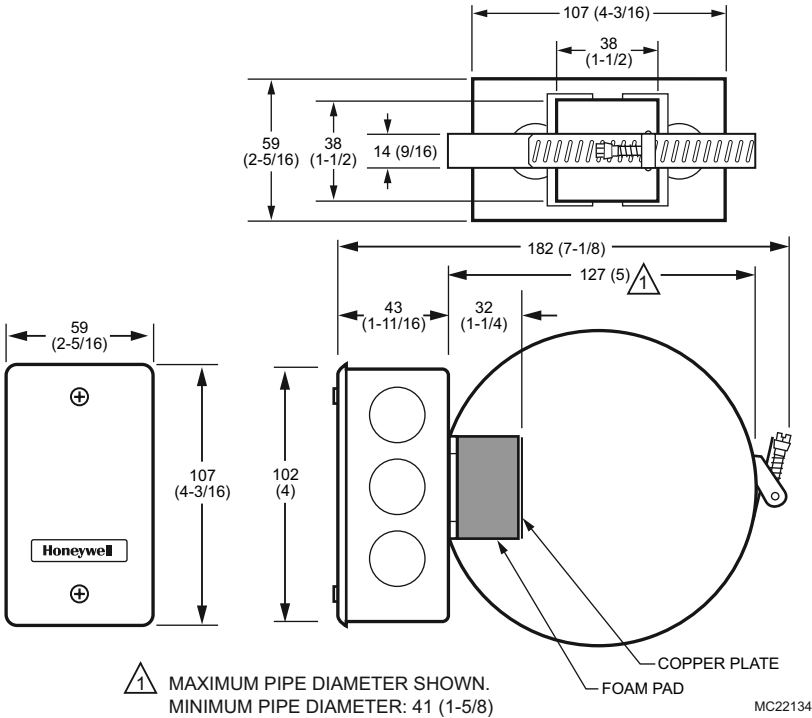
C7041J dimensions in millimeters (inches)



C7041P dimensions in millimeters (inches)



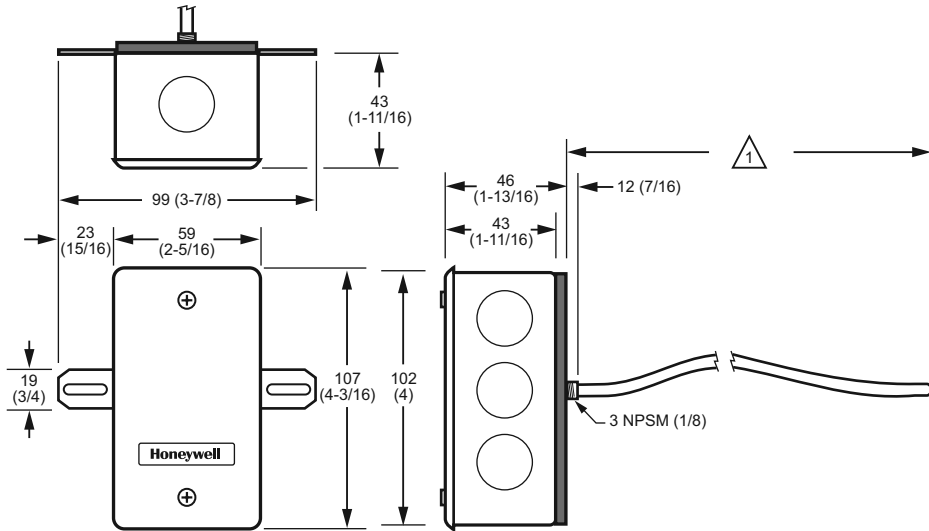
C7041K dimensions in millimeters (inches)



Commercial  
Components

# Temperature Sensors

C7041R dimensions in millimeters (inches)



1 DEPENDING ON THE MODEL, THE ELEMENT LENGTH IS EITHER 366 CM (12 FT) OR 732 CM (24 FT). MC22818

## C7041 Temperature Sensor Accessories

Product Number	Description	Used With
50001774-001	5 inch immersion well	C7031D2003 and C7041D2001 only C7031D2000, C7041D2000 only
50001775-001	Immersion well adaptor	C7031D2000, C7041D2000 series to thread into old 32005960-001

## C7046 Discharge Air Temperature Sensors



**Air Temperature Sensors function as primary and/or secondary sensors in electronic control systems.**

- No settings or calibration required.
- Solid state components not affected by dust or dirt.
- Fast reacting.
- Rugged aluminum insertion probe.
- Mounts on duct or plenum surface with integral mounting flange, or in a 2 x 4 in. junction box.

**Application:** Primary and/or secondary sensors in electronic control systems

**Dimensions, Approximate:** 25 mm high x 51 mm wide x 229 mm deep (1 in. high x 2 in. wide x 9 in. deep)

**Maximum Ambient Temperature:** 121 C (250 F)

**Operating Temperature Range:** 4 C to 66 C (40 F to 150 F)

**Shipping Temperature Range:** -34 C to +71 C (-30 F to +160 F)

**Mounting:** Mounts on flat duct or plenum surface with integral mounting flange or in a 2 in. x 4 in. (51 mm x 102 mm) junction box.

**Includes:** 6 in. leadwires

**Comments:** Quick response time. Sensor probe diameter is 1/4 in. (6 mm). 6 in. leadwires.

Product Number	Sensor Type	Insertion Length		Description	Used With
		(mm)	(inch)		
C7046A1004	3K ohm @ 77 F NTC	203 mm	8 in.	3K ohm Air Temperature Sensor	W973, W6210, W6215, W7210, W7215, W7459, W7460
C7046A1038	3K ohm @ 77 F NTC	305 mm	12 in.	3K ohm Air Temperature Sensor	W973, W6210, W6215, W7210, W7215, W7459, W7460
C7046B1010	22.8 K ohm NTC @ 77 F	152 mm	6 in.	22.8 K ohm Air Temperature Sensor	W7080
C7046C1000	3K ohm @ 77 F NTC	203 mm	8 in.	3K ohm Air Temperature Sensor	W973
C7046D1008	1097 ohm @ 77 F PTC	203 mm	8 in.	1097 ohm Electronic Temperature Sensor	Excel 600, Excel 500, Excel 100, Excel 80, and T775 Series 2000

## C7100 Averaging Duct Temperature Sensors



**Averaging Duct Temperature Sensors are used to sense temperature in discharge duct.**

- Use to troubleshoot system operation.
- Platinum positive temperature coefficient sensor.
- Factory calibrated; no settings or field calibration required.

**Application:** Averaging Duct Temperature Sensors

**Dimensions, Approximate:** 46 mm high x 46 mm wide x 336 mm deep (1 13/16 in. high x 1 13/16 in. wide x 13 1/4 in. deep)

**Maximum Ambient Temperature:** 121 C (250 F)

**Operating Temperature Range:** 4 C to 104 C (40 F to 220 F)

**Shipping Temperature Range:** -34 C to +66 C (-30 F to +150 F)

**Mounting:** Discharge Duct

**Comments:** Recessed 1/4 in. (6 mm) quick-connect terminals. 3/4 in. (19 mm) diameter sensor probe

Product Number	Sensor Type	Insertion Length		Description	Used With
		(mm)	(inch)		
C7100A1015	PT3000, 3484 ohms @ 77 F PTC	330 mm	13 in.	PT3000 Platinum Averaging Discharge Air Sensor	W7100, W8900
C7100B1013	22.8 K ohm @ 77 F NTC	330 mm	13 in.	22.8 K ohm Averaging Air Sensor	W7080
C7100C1003	PT3000, 3484 ohms @ 25C PTC	330 mm	13 in.	PT3000 Platinum Averaging Discharge Air Sensor	T775
C7100D1001	PT1000, 1097 ohms @ 77 F PTC	330 mm	13 in.	PT1000 Platinum Averaging Discharge Air Sensor	Excel 500, T775 Series 2000

# Temperature Sensors

## C7130 Wall Mount Temperature Sensor



The C7130A,B Wall-Mount Air Temperature Sensors provide the input required by the R7380J,L, W7100, W7600, W7620, and Excel 500 Control Systems to sense air temperature in indoor spaces.

- C7130A Wall-mount Temperature Sensor:
  - Intended for use as an indoor air sensor with the R7380J,L Indicating Controller, the W7100 Discharge Controller, the W7600 Direct Digital Controller, and the W7620 Direct Digital Controller.
- C7130B Wall-mount Temperature Sensor:
  - Intended for use as an indoor air sensor with the Excel 500 Controller.

**Application:** Intended for monitoring or controlling temperature in conjunction with an electronic control

**Dimensions, Approximate:** 71.4 mm high x 118 mm wide (2 13/16 in. high x 4 5/8 in. wide)

**Maximum Ambient Temperature:** 66 C (150 F)

**Operating Temperature Range:** -40 C to +38 C (-40 F to +100 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Mounting:** Wall mount

Product Number	Sensor Type	Description	Used With
C7130A1001	PT3000, 3484 ohms @ 77 F PTC	PT 3000 Temperature Sensor	R7380J,L, W7100, W7600, W7620
C7130B1009	PT1000, 1097 ohms @ 77 F PTC	PT 1000 Temperature Sensor	Excel 500, T775 Series 2000

## C7170 Immersion Sensor



Primary electronic temperature sensor for the R7380J,L, W7100 and W7505 load inputs for immersion, strap-on and duct mounting.

- Requires no setting or calibration.
- Sensor can be located up to 1195 ft. (340 m) from controller.
- Pigtail leads.

**Application:** Intended for monitoring or controlling temperature in conjunction with an electronic control

**Dimensions, Approximate:** 10 mm dia. x 66 mm long (3/8 in. dia. x 2 5/8 in. long)

**Operating Temperature Range:** -40 C to +125 C (-40 F to +250 F)

**Shipping Temperature Range:** -40 C to +150 C (-40 F to +302 F)

**Operating Humidity Range (% RH):** 90% RH at 90 F, non-condensing

**Mounting:** Immersion or strap-on discharge

Product Number	Sensor Type	Insertion Length		Description	Comments	Used With
		(mm)	(inch)			
C7170A1002	PT3000, 3484 ohms @ 77 F PTC	76 mm	3 in.	PT 3000 Temperature Sensor with 24 in. leads	24 in. pigtail leads; Use immersion well 121371A copper or 121371E steel.	R7380J,L; W7100; W7600; W7620
C7170A1010	PT3000, 3484 ohms @ 77 F PTC	76 mm	3 in.	PT 3000 Temperature Sensor with 180 in. leads	180 in. pigtail leads; Use immersion well 121371A copper or 121371E steel.	R7380J,L; W7100; W7600; W7620
C7170B1000	PT1000, 1097 ohms @ 77 F PTC	76 mm	3 in.	PT 1000 Temperature Sensor	Use immersion well 121371A copper or 121371E steel.	Excel 500, T775 Series 2000

## C7770A Duct Probe



**Direct wired temperature sensor used to sense discharge or return air temperature in a duct controlled by an Excel 10 Series 2000 Controller.**

- Primary and/or secondary sensor for use with electronic control systems.
- Integral 20 K ohm non-linear NTC thermistor.
- Rugged aluminum insertion probe.

**Application:** Primary and/or secondary sensors in electronic control systems

**Dimensions, Approximate:** 25 mm high x 51 mm wide x 177 mm deep (1 in. high x 2 in. wide x 7 in. deep)

**Operating Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Mounting:** Mounts on flat duct or plenum surface with integral mounting flange or in a 2 in. x 4 in. (51 mm x 102 mm) junction box.

**Used With:** XL10, W7751

Product Number	Sensor Type	Insertion Length		Description
		(mm)	(inch)	
C7770A1006	20 K ohm NTC non-linear	152 mm	6 in.	6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

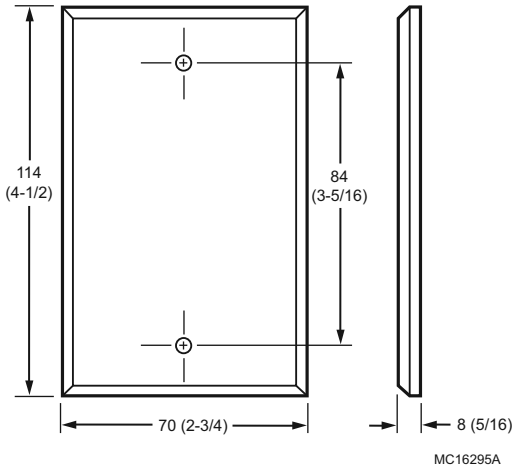
## C7772 Flush Mount Sensors



**The C7772 series of wallplate Temperature Sensors are designed to be used with the Excel 5000 family and other Honeywell controllers. The C7772 sensors provide a resistive output signal proportional to sensed room or space temperature. The C7772 is well suited for low profile wall mounted applications where durability and tamper proof construction is desired, such as schools, prisons, and institutions.**

- Low profile when mounted on industry standard utility conduit box.
- Rugged, brushed stainless steel wallplate.
- Integral foam pad isolates wallplate sensor from conduit box.
- Insulated screw terminals ensure reliable field wiring connection.
- Models available with a variety of resistive temperature sensor elements.

**Dimensions in millimeters (inches)**



**Application:** Low profile wall mounted where durability and tamper proof construction is desired

**Operating Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Mounting:** Wall mount

**Used With:** Excel 5000 family

Product Number	Sensor Type	Description	Comments
C7772A1004	20 K ohm NTC non-linear	20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo	—
C7772A1012	20 K ohm NTC non-linear	20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo	with Honeywell logo, looks very professional and facilitates finding sensor after installation

# Temperature Sensors

## T7022A Return Air Temperature Sensor



The T7022 Remote Temperature Sensor is a non-adjustable thermistor sensor. Its primary use is with the T7300 Programmable Commercial Thermostat (only in return air) to control heating or cooling equipment.

**Dimensions, Approximate:** 10 mm dia. x 70 mm long  
(3/8 in. dia. x 2 3/4 in. long)

**Operating Temperature Range:** 16 C to 32 C (60 F to 90 F)  
**Used With:** T7300, T7067B, W927

Product Number	Sensor Type	Insertion Length		Application
		(mm)	(inch)	
T7022A1010	1420 ohms @ 75 F	70 mm	2 3/4 in.	Remote Temperature Sensors for use with T7300 thermostats

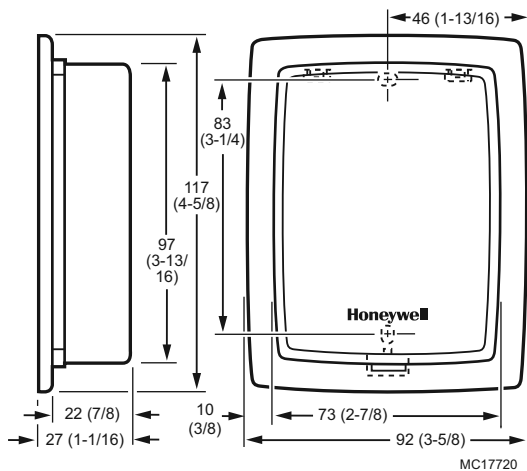
## T7047 Remote Temperature Sensors for use with T7300 Thermostats



The T7047 Electronic Thermostats, Remote Space Sensors are used with T7300 thermostats and W973 controller to provide modulating space temperature control.

- T7047C is a 2-wire remote space sensor for applications requiring remote setpoint adjustment.
- T7047G is a 2-wire remote space sensor used as one half of an averaging sensor network.
- T7047C,G contain a carbon type negative temperature coefficient (NTC) thermistor sensing element.
- T7047H is a thin-film, platinum 1K (at 0 C), positive temperature coefficient (PTC) temperature sensor only and is for use with the Excel 80/100/500/600 Controllers.
- Locking cover.

Dimensions in millimeters (inches)



**Application:** Used in Series 70 control systems to provide modulating space temperature control

**Operating Temperature Range:** 4 C to 43 C (40 F to 110 F)

**Mounting:** Mounts on wall or 2 x 4 inch vertical outlet box

Product Number	Sensor Type	Color	Comments	Used With
T7047C2007	1420 ohms @ 75 F	Taupe	Series 2000 styling	T7300/Q7300
T7047C2015	1420 ohms @ 75 F	Premier White®	Series 2000 styling	T7300/Q7300
T7047G2008	710 ohm @ 75F	Taupe	Series 2000 styling, for averaging only.	T7300/Q7300
T7047G2016	710 ohm @ 75F	Premier White®	Series 2000 styling, for averaging only.	T7300/Q7300



# Temperature Sensors

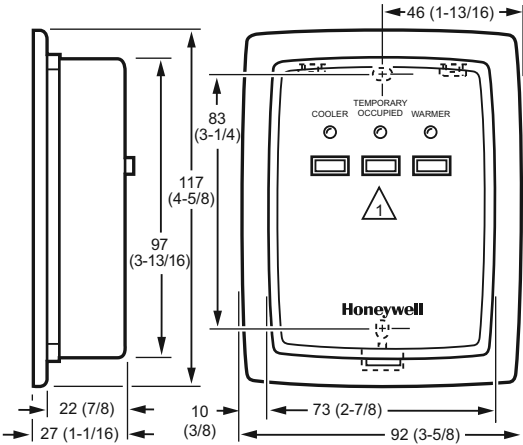
## T7147 Remote Temperature Sensors for use with T7300 Thermostats



For use with T7300/Q7300 Thermostat system to provide space temperature sensing, and switch initiation and indication of overrides from remote location.

- Factory-calibrated negative temperature coefficient (NTC) thermistor sensing element.
- Mount on wall or 2 x 4 in. vertical outlet box.
- Locking cover.
- Override button.
- Warmer/cooler buttons on some models.
- 710 ohm models are for use with certain multiple sensor configurations.
- See T7300 product literature for details.

**Dimensions in millimeters (inches)**



△ NOT ALL MODELS HAVE WARMER/COOLER FUNCTION.  
MC11186A

**Application:** Provides space temperature sensing, switch initiation, and indication of overrides from a remote location

**Operating Temperature Range:** 4 C to 43 C (40 F to 110 F)

**Shipping Temperature Range:** -34 C to +66 C (-30 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Mounting:** Mounts on wall or 2 x 4 inch vertical outlet box

**Used With:** T7300/Q7300

Product Number	Sensor Type	Color	Description	Comments
T7147A2000	1420 ohms @ 75 F	Taupe	1420 ohm Remote Sensor and Override Module	Series 2000 styling with override button
T7147A2018	1420 ohms @ 75 F	Taupe	1420 ohm Remote Sensor and Override Module	Series 2000 styling with override button, warmer and cooler buttons
T7147G2015	710 ohm @ 75F	Taupe	710 ohm Remote Sensor and Override Module	Series 2000 styling, with override button, for averaging only.
T7147G2023	710 ohm @ 75F	Taupe	710 ohm Remote Sensor and Override Module	Series 2000 styling, with override button, warmer and cooler buttons, for averaging only.

Commercial Components

# Temperature Sensors

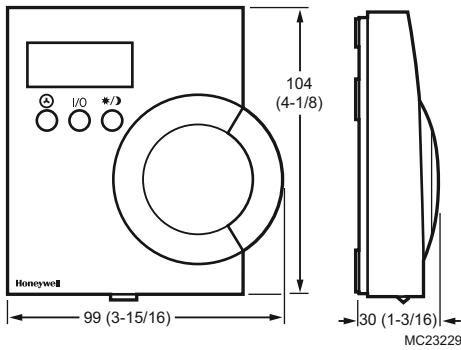
## T7560 Digital Wall Modules



The T7560 Digital Wall Module is a direct wired wall module for use with Excel 600, 500, 100, and Excel 10 Series 2000 controllers. Includes setpoint wheel, override buttons, and LCD display for temperature, setpoint, fan status, and/or humidity

- 2 models configurable to cover all applications.
- T7560B has Humidity sensor.
- Intuitive and easy to operate.

### Dimensions in millimeters (inches)



**Application:** Networked Sensor

**Operating Temperature Range:** 0 C to 40 C (32 F to 104 F)

**Shipping Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Approvals:**

**CE:** Approved

**N.E.C. Class II**

**Underwriters Laboratories, Inc. Listed:** per Standard 916

Product Number	Sensor Type	Setpoint Temperature Range		Description	Comments	Includes	Used With
		(C)	(F)				
T7560A1018	20 K ohm NTC	12 C to 30 C	55 F to 85 F	20 K ohm NTC Digital Wall Module	—	Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint and fan status	Excel 10, 100, 500, 600 Controllers
T7560A1042	20 K ohm NTC	12 C to 30 C	55 F to 85 F	20 K ohm NTC Digital Wall Module	Same as T7560A1018 except with white knob and push buttons	Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint and fan status	Excel 10, 100, 500, 600 Controllers
T7560B1016	20 K ohm NTC	12 C to 30 C	55 F to 85 F	20 K ohm NTC Digital Wall Module	—	Humidity sensor, Setpoint Wheel, Unoccupied/Occupied override, and LCD display for temperature, setpoint, fan status and humidity	Excel 10, 100, 500, 600 Controllers
T7560LONJACK	—	—	—	Lon Jack for T7560	—	—	T7560A, B

## T775 Series 2000 Sensors



The T775 temperature sensors are 1097 Ohm sensors for use with the T775 Series 2000 electronic standalone controller in commercial heating and cooling applications.

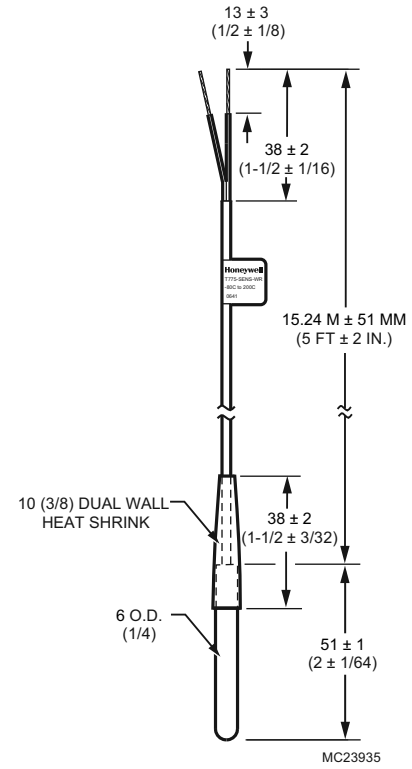
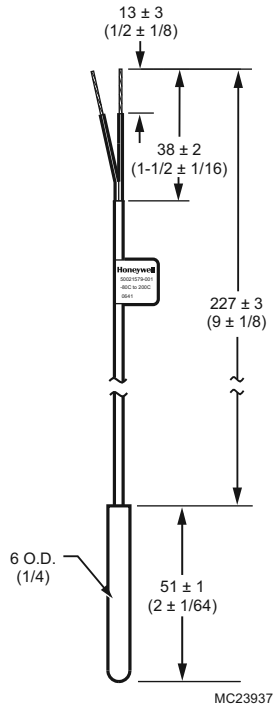
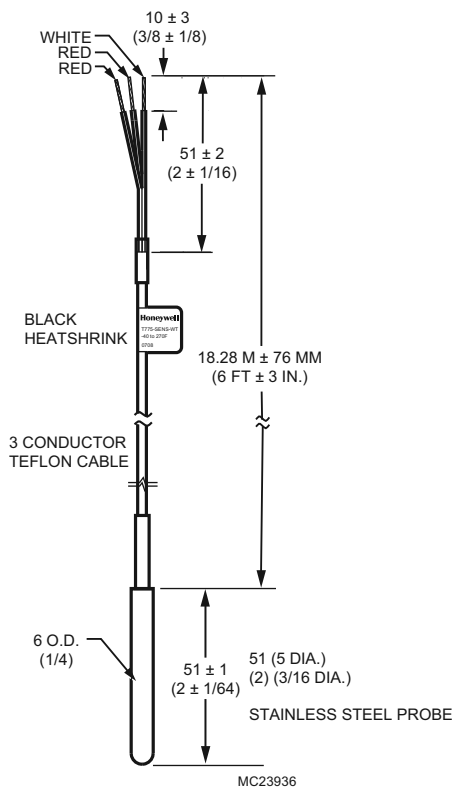
- Use the T775-SENS-OAT to measure outside air temperature.
- Some typical applications for the 50021579-001 and T775-SENSWT/WR sensors include:
  - Monitoring return air temperatures
  - Monitoring discharge air temperatures
  - Monitoring mixed air temperatures
- All sensors:
  - Fast response time and highly accurate
  - 1/2 in. (6.35 mm) stainless steel probe with a thermally conductive epoxy
  - 1,097 Ohms PTC at 77°F (25°C)
- The 50021579-001 is a standard temperature sensor for indoor applications
- The T775-SENS-WR is a water resistant sensor with 5 ft leads
- The T775-SENS-WT is a water tight sensor with 6 ft leads
- The T775-SENS-OAT is for sensing outdoor air temperature and is housed in a weatherproof case for outdoor use (knockouts allow for 1/2 in. conduit connection)
- Two year warranty

**Application:** For indoor use in applications such as monitoring return air, discharge air, and mixed air temperatures  
**Used With:** T775 Series 2000

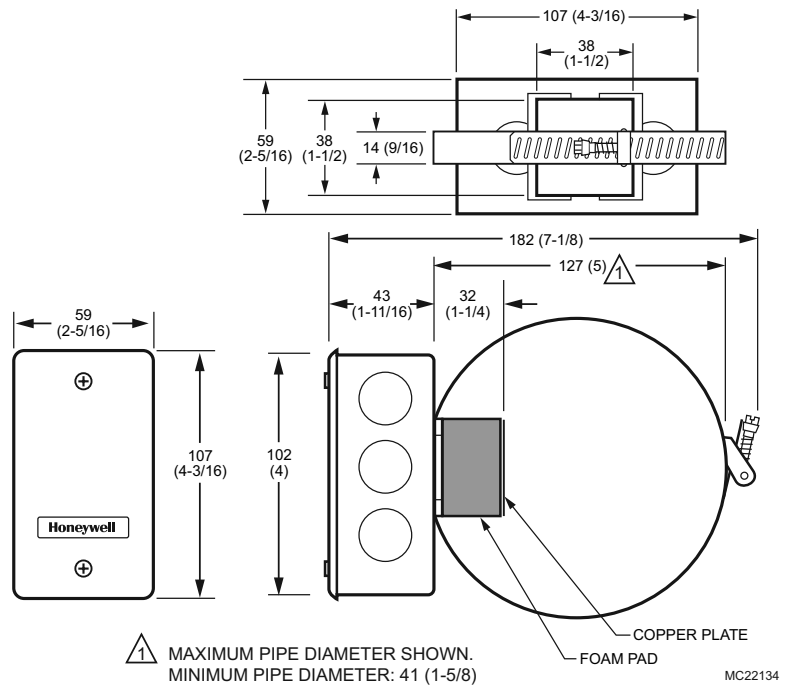
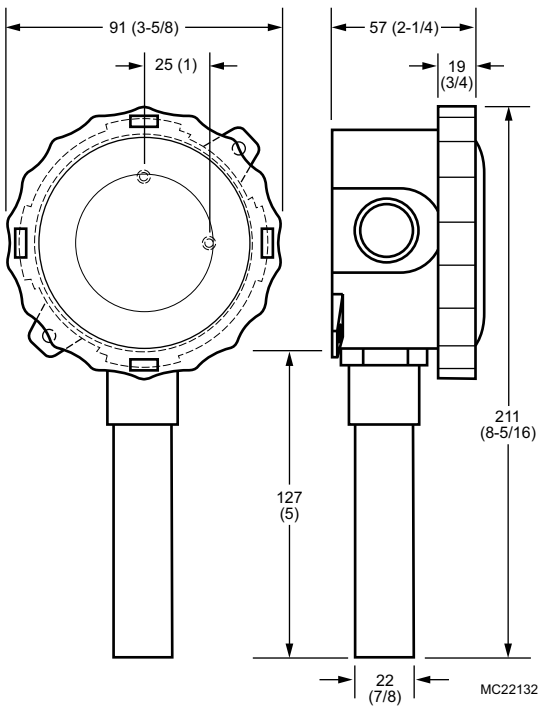
Product Number	Application	Sensor Type	Operating Temperature Range		Description
			(C)	(F)	
50021579-001	For indoor use in applications such as monitoring return air, discharge air, and mixed air temperatures	1097 ohm @ 77 F PTC	-40 C to 132 C	-40 F to 270 F	Standard Temperature Sensor for the T775 Series 2000
T775-SENS-OAT	Outside air temperature	PT1000, 1097 ohms @ 77 F PTC	-40 C to 70 C	-40 F to 158 F	1097 ohm Outdoor Air Temperature Sensor
T775-SENS-STRAP	Hot or chilled water (strap on)	PT1000, 1097 ohms @ 77 F PTC	-40 C to +121 C	-40 F to +250 F	Strap-on Sensor for Hot or Chilled Water
T775-SENS-WR	For use in applications such as monitoring return air, discharge air, and mixed air temperatures	PT1000, 1097 ohms @ 77 F PTC	-40 C to 132 C	-40 F to 270 F	Water-resistant Sensor for T775 Series 2000 .
T775-SENS-WT	For use in applications such as monitoring return air, discharge air, and mixed air temperatures	PT1000, 1097 ohms @ 77 F PTC	-40 C to 132 C	-40 F to 270 F	Water-tight Sensor for T775 Series 2000

# Temperature Sensors

Dimensions in millimeters (inches)



Dimensions in millimeters (inches)



# Temperature Sensors

## T7750 Wall Modules



T7750A



T7750C



T7750D

Temperature sensors for use with Excel 10 Series 1000 Controllers. The T7750 Wall Modules provide the following additional combination of options to the customer: analog setpoint input and for models used with Excel 10 Controllers, override (bypass) digital input contact, LED status indicator and network access jack.

- Integral linearized 20K ohm NTC thermistor.
- Vertical Mounting.
- Models available with setpoint adjustment.
- Models available with occupied/unoccupied override.
- For use only as replacement of existing T7750's.
- Not for new installations.
- All new Honeywell controllers now use T7770 Wall Modules.

**Application:** Wall Modules

**Dimensions, Approximate:** 128 mm high x 80 mm wide x 41 mm deep (5 1/32 in. high x 3 5/32 in. wide x 1 19/32 in. deep)

**Sensor Type:** 20 K ohm NTC linear

**Operating Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Mounting:** Wall mount

Product Number	Setpoint Temperature Range		Description	Comments	Used With
	(C)	(F)			
T7750A1000	12 C to 30 C	55 F to 85 F	20 K ohm NTC linear Temperature Wall Module	—	W7751
T7750C1006	12 C to 30 C	55 F to 85 F	20 K ohm NTC linear Temperature Wall Module	Has optional setpoint, override, and override LED	W7751
T7750D1004	12 C to 30 C	55 F to 85 F	20 K ohm NTC linear Temperature Wall Module	Has override, and override LED	W7751

## T7771 Wall Module



The T7771A Remote Temperature Sensors are direct wired wall modules for use with the Honeywell T7350 Commercial Programmable Thermostat. The T7771A has a space temperature sensor, LED push button setpoint adjustment, and override with LED.

- Push button setpoint adjustment with LED indicators.
- Occupied/unoccupied override (bypass) with LED.
- LONWORKS® bus jack.
- Operating range 45 to 99 F (7 to 37 C).

**Application:** Remote Room Temperature Sensor for use with T7350 thermostat

**Dimensions, Approximate:** 128 mm high x 80 mm wide x 25 mm deep (5 1/32 in. high x 3 5/32 in. wide x 1 in. deep)

**Operating Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Mounting:** Mounted on a standard 2 x 4 inch junction box or on a 60 mm diameter junction box.

**Comments:** Can be configured to output 10K ohms for use in multiple sensor averaging with T7770A.

**Used With:** T7350

**Approvals:**

N.E.C. Class II

Product Number	Sensor Type	Setpoint Temperature Range		Network Jack	Color	Description
		(C)	(F)			
T7771A1005	20 K ohm NTC non-linear	offset ± 1.67C	offset ± 3F	LonWorks Bus	White	20 K ohm NTC non-linear Temperature Wall Module

Commercial Components

# Temperature Sensors

## TR20 Series Wall Modules



TR21, TR24



TR22, TR23

The TR21, TR22, TR23, and TR24 are a family of direct wired wall modules for use with Honeywell Excel 600, 500, 100, and 80 controllers; Excel 10 W7750, W7751A, W7752, and W7753 controllers; W7761 Controller; and Spyder Unitary Controllers. All models have a space temperature sensor.

- Models available with user selectable setpoint adjustment dials in Fahrenheit, Celsius and Relative Scales
- Models available with occupied/unoccupied override (bypass) with LED
- Models available with 3-position (auto/0/1) or 5-position (auto/0/1/2/3 speed) fan switch
- LONWORKS network jack on all models except the TR21 and TR21-A models
- Models available with on board humidity sensor, humidity output: 0-10Vdc, 0-5 Vdc, 4-20ma selectable

**Application:** Networked Sensor

**Dimensions, Approximate:** 122 mm high x 76.5 mm wide x 22 mm deep (4 13/16 in. high x 3 in. wide x 7/8 in. deep)

**Operating Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Shipping Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Mounting:** Mounted on a standard 2 x 4 inch junction box or on a 60 mm diameter junction box.

**Color:** White

**Comments:** Also used with the T7350 and TB8220 Thermostats

**Used With:** Spyder, Excel 600, 500, 100, 80 and Excel 10, 15 Series Controllers

**Approvals:**

**CE:** Approved

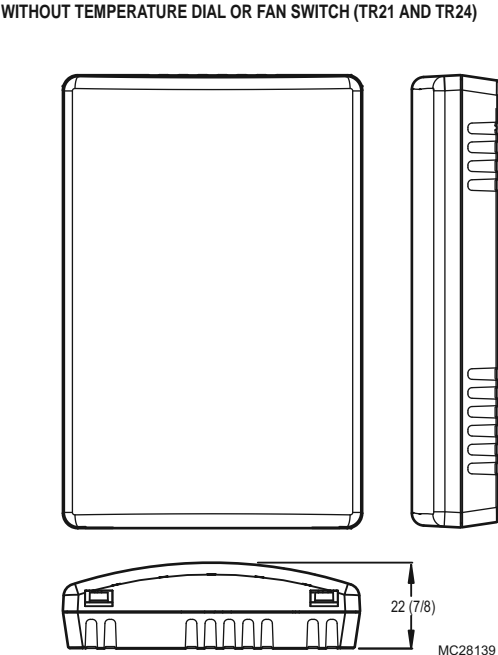
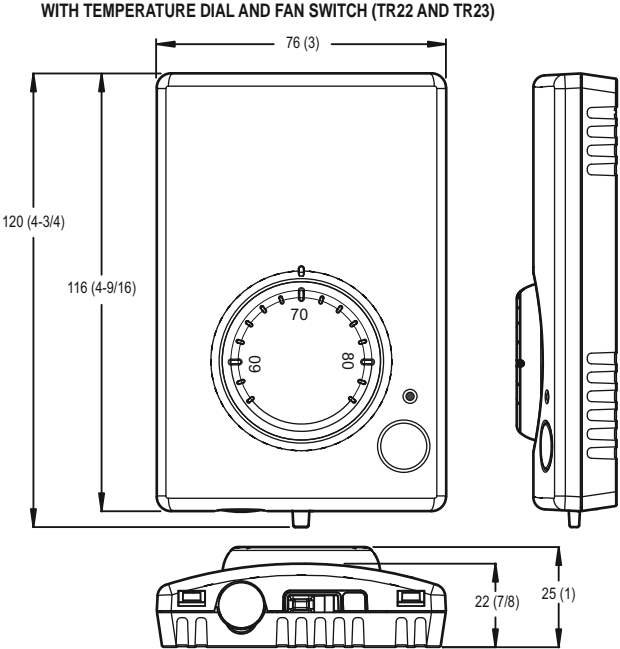
**Federal Communications Commission:** FCC Part 15, Class B

**Underwriters Laboratories, Inc.** UL94 plastic enclosure

Model Number		Sensor Element Type	Sensor Type		Selectable Setpoint Adjustment 55° to 85°F, 13° to 30°C, Or (- to +)	Override Button with LED	LON Jack	Fan Switching	Comments
Honeywell Wall Module Model	Replaces Honeywell Model		20Kohm NTC Temp	Humidity					
TR21	T7770A1006	20K ohms non-linear	✓						
TR21-A	T7770A3002	10K ohms non-linear for averaging only	✓						
TR21-H	N/A	20K ohms non-linear	✓	✓					
TR21-J	T7770A2004		✓				✓		
TR22	T7770B1004 T7770B1020 T7770B1046		✓		✓		✓		
TR23	T7770C1002 T7770C1028 T7770C1044		✓		✓	✓	✓		
TR23-KL	N/A		✓		✓	✓	✓		Bulk pack of 20 Setpoint knob not included
TR23-H	N/A		✓	✓	✓	✓	✓		
TR23-H-KL	N/A		✓	✓	✓	✓	✓		Bulk pack of 20 Setpoint knob not included
TR23-N	T7770C1051		✓		✓	✓	✓		No Honeywell logo
TR24	T7770D1000		✓			✓	✓		
TR22-F5	N/A		✓		✓		✓	5 position	
TR23-F3	T7770E1023		✓		✓	✓	✓	3 position	
TR23-F5	T7770F1005		✓		✓	✓	✓	5 position	

# Temperature Sensors

Dimensions in millimeters (inches)



MC28139

## Replacement Parts for the TR20 Series Wall Modules

Product Number	Color	Description	Comments	Used With
<b>KNOB-C</b>	White	Celsius Scale Knobs, (13 to 30C)	sold in packs of 20	TR20 Series Wall Modules
<b>KNOB-F</b>	White	Fahrenheit Scale Knobs (55F to 85F)	sold in packs of 20	TR20 Series Wall Modules
<b>KNOB-O</b>	White	Relative Scale Knobs (- to +)	sold in packs of 20	TR20 Series Wall Modules

Commercial  
Components

# Temperature Sensors

## TR20 Series Wireless Wall Sensor Kits



The WRECVR receiver and TR21-WS, TR23-WS, TR21-WK, and TR23-WK sensors are a family of wireless wall modules and receivers. All models report space temperature; TR23 models come with setpoint adjustment and override.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver
- Approximate 5 year battery life with AA Alkaline (included), 7.5 year with Lithium
- Locking screw discourages tampering and battery theft

### Dimensions, Approximate:

Sensor: 119 mm high x 77 mm wide x 22 mm deep  
 Receiver: 140 mm high x 81 mm wide x 56 mm deep  
 (Sensor: 4 11/16 in. high x 3 in. wide x 7/8 in. deep  
 Receiver: 5 1/2 in. high x 3 13/64 in. wide x 2 13/64 in. deep)

### Operating Temperature Range:

Sensor: 7 C to 37 C; Receiver: -40 to + 65.5 C  
 (Sensor: 45 F to 99 F; Receiver: -40 to +150 F)

### Operating Humidity Range (% RH): 5 to 95% RH, non-condensing

### Shipping Temperature Range: -40 C to + 65.5 C (-40 F to +150 F)

### Temperature Sensor Accuracy: ± 0.5 C across 12 C to 30 C (± 1 F across 53.6 F to 86 F)

### Battery Life: 5 years with two AA Alkaline batteries (included) 7.5 years with two AA Lithium Batteries

**Receiver Voltage:** 20-30 Vac/dc, 50/60Hz; 24 Vac typical

**Radio Frequency:** 2.4 GHz (IEEE Std 802.15.4-2003 compliant)

**Typical Range:** 100 feet

**Open Range:** 3000 feet

**Used With:** Spyder, Excel 10 W7750, W7751, W7752, W7753, T7350, T7351, TB8575, WEBS-AX™ I/O Module

**Comments:** not compatible with TB7220, TB8220, TB line voltage thermostats, XL15s, W7762, W7763

### Approvals:

**Federal Communications Commission:** FCC Part 15

**Underwriters Laboratories, Inc.** UL94 plastic enclosure

Receiver: UL94-5VA

Product Number	Description	Setpoint Temperature Range		Additional Comments	Includes
		(C)	(F)		
TR21-WK	Wireless sensor kit, ships with both sensor and receiver	—	—	—	TR21-WS and WRECVR
TR21-WKU	Wireless sensor kit, ships with both sensor and receiver	—	—	no Honeywell logo	TR21-WSU and WRECVRU
TR23-WK	Wireless sensor kit, ships with both sensor and receiver	13 C to 30 C	55 F to 85 F	—	TR23-WS and WRECVR
TR23-WKU	Wireless sensor kit, ships with both sensor and receiver	13 C to 30 C	55 F to 85 F	no Honeywell logo	TR23-WSU and RECVRU



## TR20 Series Wireless Wall Sensors



TR21



TR23

**Dimensions, Approximate:** 119 mm high x 77 mm wide x 22 mm deep  
(4 11/16 in. high x 3 in. wide x 7/8 in. deep)

**Operating Temperature Range:** 7 C to 37 C (45 F to 99 F)

**Shipping Temperature Range:** -40 C to + 65.5 C (-40 F to +150 F)

**Temperature Sensor Accuracy:** ± 0.5 C across 12 C to 30 C  
(± 1 F across 53.6 F to 86 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Mounting:** Wall mount

**Color:** White

**Battery Life:** 5 years with two AA Alkaline batteries (included)  
7.5 years with two AA Lithium Batteries

TR21-WS and TR23-WS sensors are a family of wireless wall modules. All models report space temperature; TR23 models come with setpoint adjustment and override.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver
- Approximate 5 year battery life with AA Alkaline (included), 7.5 year with Lithium
- Locking screw discourages tampering and battery theft

**Radio Frequency:** 2.4 GHz (IEEE Std 802.15.4-2003 compliant)

**Typical Range:** 100 feet

**Open Range:** 3000 feet

**Used With:** Spyder, Excel 10 W7750, W7751, W7752, W7753, T7350, T7351, TB8575, WEBS-AX™ I/O Module

**Comments:** not compatible with TB7220, TB8220, TB line voltage thermostats, XL15s, W7762, W7763

**Approvals:**

**Federal Communications Commission:** FCC Part 15

**Underwriters Laboratories, Inc.** UL94 plastic enclosure

Product Number	Description	Setpoint Temperature Range		Includes
		(C)	(F)	
TR21-WS	TR21 wireless temperature sensor	—	—	—
TR21-WSU	TR21 Wireless Temp Sensor without Honeywell logo	—	—	—
TR23-WS	TR23 Wireless temperature sensor with Setpoint (F/C/Relative) and override button	13 C to 30 C	55 F to 85 F	Selectable Setpoint dials in Fahrenheit, Celsius, and Relative (- to +), and Override Button
TR23-WSU	TR23 Wireless temperature sensor, with Setpoint (F/C/Relative) and override button, no Honeywell logo	13 C to 30 C	55 F to 85 F	Selectable Setpoint dials in Fahrenheit, Celsius, and Relative (- to +), and Override Button

## TR20 Series Wireless Wall Modules



The WRECVR receiver and TR21-WS, TR23-WS, TR21-WK, and TR23-WK sensors are a family of wireless wall modules and receivers.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver

**Application:** Receiver

**Dimensions, Approximate:** 140 mm high x 81 mm wide x 56 mm deep  
(5 1/2 in. high x 3 13/64 in. wide x 2 13/64 in. deep)

**Operating Temperature Range:** -40 to + 65.5 C (-40 to +150 F)

**Shipping Temperature Range:** -40 to + 65.5 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Receiver Voltage:** 20-30 Vac/dc, 50/60Hz; 24 Vac typical

**Radio Frequency:** 2.4 GHz (IEEE Std 802.15.4-2003 compliant)

**Typical Range:** 100 feet

**Open Range:** 3000 feet

**Approvals:**

**Federal Communications Commission:** FCC Part 15

**Underwriters Laboratories, Inc.** UL94-5VA

Product Number	Description	Comments	Used With
WRECVR	Receiver used with wireless temperature sensors	—	TR21-WS, TR23-WS
WRECVRU	Receiver used with wireless temperature sensors	no Honeywell logo	TR21-WSU, TR23-WSU

# Temperature Sensors

## Zio LCD Wall Modules



The TR70 and TR70-H are 2-wire, non-polarity sensitive, Sylk™ bus communicating wall modules for use with Spyder™ programmable controllers which are compatible with the Sylk bus.

All models have a space-temperature sensor, network bus jack, and an LCD with three softkeys and two Up/Down adjustment keys. The TR70-H model includes an onboard humidity sensor.

- Ability to control user access to controller parameters.
- Parameter access can be customized by using the Tridium Niagara Workbench tool.
- Programmable for: Home screen options, tenant access, contractor access, access to controller parameters, setpoint, override, fan, and other parameters.
- Supplied with eight pre-programmed configurations (e.g. VAV with balancing) in the wall module configuration tool.
- Ability to access and adjust most parameters in the programmable controller (except Scheduling).
- Ability to balance the VAV system from the wall module.
- Home screen can display one to three of any of the following parameters: Temperature Setpoint, Room Temperature, Room Humidity, Outdoor Humidity, Outdoor Temperature, and Time, or one of virtually any parameter in the controller.
- Network bus jack.
- Simple 2-wire terminal connection to the programmable controller and an optional 2-wire terminal connection for the network. All connections are polarity insensitive.
- Retention of user configuration, including setpoints after a power outage.

**Application Type:** Wall Module

**Dimensions, Approximate:** 84 mm wide x 117 mm high x 24 mm deep  
(3 5/16 in. wide x 4 5/8 in. high x 15/16 in. deep)

**Operating Temperature Range:** 3-1 C to 43 C (0 F to 110 F)

**Temperature Sensor Accuracy:** ±0.2 C at 25 C (±0.36 F at 77 F)

**Shipping Temperature Range:** -40 C to 65.5 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Network Communications:** Sylk Bus and Network Jack

**Network Jack:** Yes

**Mounting:** Vertical Mount

**Switch Positions (Fan):** Configurable

**Color:** White

**Comments:** Configurable with Niagara Workbench

**Used With:** Spyder Sylk Enhanced

**Approvals:**

**Canadian Standards Association: CE:** Approved

**Federal Communications Commission:** FCC Part 15

**Underwriters Laboratories, Inc.** UL94-HB plastic enclosure

Product Number	Application	Setpoint Temperature Range		Humidity Sensor Accuracy	Description
		(C)	(F)		
TR70	Temperature sensor	Default range is 10 C to 35 C; configurable for other ranges	Default range is 55 F to 85 F; configurable for other ranges	—	Zio LCD Wall Module (Temperature)
TR70-H	Temperature and Humidity Sensor	Default range is 10 C to 35 C; configurable for other ranges	Default range is 55 F to 85 F; configurable for other ranges	±5% RH from 20% to 80% RH	Zio LCD Wall Module (Temperature & Humidity)

## Class 100 Single Phase kWh Meter



The Honeywell Class 100 kWh meters are fully electronic, low-cost meters for monitoring electrical usage in multi-family, commercial and industrial applications. Monitor anything from a single lighting

**Dimensions Diagrams:** See page 496

**Application:** The Honeywell Class 100 kWh meters are fully electronic, meters for monitoring electrical usage in commercial and industrial applications.

**Accuracy:** ±1% from 1% to 100% of rated load

**Output:** Pulse

**Display:** Yes

circuit to an entire building. Ideal for both new and retrofitted facilities. Can be used for tenant monitoring and billing.

- UL/CUL Listed
- Direct-read 8-digit LCD displays accumulative kWh and "real time" kW load.
- 0-2 volt split-core current sensors allow safer installation without power interruption.
- Certified to ANSI C12.1 and C12.16.
- Parallel up to three (3) sets of current sensors for cumulative reading.
- Meter can be used in the following configurations: 1-Phase, 2-Wire; 2-Phase, 3-Wire
- Industrial-grade JIC steel enclosure with padlocking hasp and mounting flanges for indoor installations with 1-1/16 in. knockout(3/4 in. conduit) on bottom of enclosure.
- Maintains reading in the event of power failure.
- Non-volatile Memory.
- Meters can be placed up to 2,000 feet away from an electric panel (by extending current sensor leads).

**Frequency (Hz):** 50 Hz; 60 Hz

**Operating Temperature Range:** -20 C to 50 C (-4 F to 122 F)

**Operating Humidity Range (% RH):** 0-95% non-condensing

**Approvals:**

**Canadian Standards Association:** Recognized

**Underwriters Laboratories, Inc.** Listed

Product Number	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration	Number of Phases
SUB2120-100	100A	120V	2 Wire	1
SUB2120-200	200A	120V	2 Wire	1
SUB2120-25	25A	120V	2 Wire	1
SUB2120-50	50A	120V	2 Wire	1
SUB3208-100	100A	120V; 208-240V	3 Wire	1 or 2
SUB3208-200	200A	120V; 208-240V	3 Wire	1 or 2
SUB3208-25	25A	120V; 208-240V	3 Wire	1 or 2
SUB3208-50	50A	120V; 208-240V	3 Wire	1 or 2

# Submeters

## Class 200 Three Phase kWh Meter



The Honeywell Class 200 kWh meters are fully electronic, low cost meters for monitoring electrical usage in multifamily, commercial and industrial applications.

- UL/CUL Listed.
- Direct-read 8-digit LCD displays accumulative kWh and "real time" kW load.
- 0-2 volt output split-core current sensors allow for quick and safe installation without power interruption.
- Certified to ANSI C12.1 and C12.16.
- Parallel up to three (3) sets of current sensors for cumulative reading.
- Meter can be used on the following configurations: 3-Phase, 4-Wire; 3-Phase, 3-Wire; 2-Phase, 3-Wire.
- Industrial-grade JIC steel enclosure with padlocking hasp and mounting flanges for indoor installations with 1-1/16 in. knockout(3/4 in. conduit) on bottom of enclosure.
- Maintains reading in the event of power failure.
- Non-volatile Memory.
- Meters can be placed up to 2,000 feet away from an electric panel.

**Dimensions Diagrams:** See page 496

**Application:** The Honeywell Class 200 kWh meters are fully electronic, meters for monitoring electrical usage in commercial and industrial applications.

**Accuracy:** ±1% from 1% to 100% of rated load

**Output:** Pulse

**Display:** Yes

**Frequency (Hz):** 50 Hz; 60 Hz

**Operating Temperature Range:** -20 C to 50 C (-4 F to 122 F)

**Operating Humidity Range (% RH):** 0-95% non-condensing

**Approvals:**

**Canadian Standards Association:** Recognized

**Underwriters Laboratories, Inc.** Listed

Product Number	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration	Number of Phases
SUB208-100	100A	120V/208-240V	3-4 Wire	3
SUB208-1600	1600A	120V/208-240V	3-4 Wire	3
SUB208-200	200A	120V/208-240V	3-4 Wire	3
SUB208-3200	3200A	120V/208-240V	3-4 Wire	3
SUB208-400	400A	120V/208-240V	3-4 Wire	3
SUB208-800	800A	120V/208-240V	3-4 Wire	3
SUB480-100	100A	277V; 480V	3-4 Wire	3
SUB480-1600	1600A	277V; 480V	3-4 Wire	3
SUB480-200	200A	277V; 480V	3-4 Wire	3
SUB480-3200	3200A	277V; 480V	3-4 Wire	3
SUB480-400	400A	277V; 480V	3-4 Wire	3
SUB480-800	800A	277V; 480V	3-4 Wire	3

## Class 500 Advanced kWh/Demand Meter



The Class 500 Meter is a 3-element meter with communications. The device is used to monitor electric power usage of individual loads after the utility meter and store kW and kVAR data for automatic meter reading. Installation must only be performed by qualified personnel and in accordance with these instructions and all applicable local and national electrical codes.

- Direct-read 8-digit LCD display of cumulative kWh.
- Modbus Option: (Modbus RTU, Modbus TCP, BACnet)
- Provides 40 Modbus data registers.
- 0-2 volt output split-core current sensors.
- Remote mounting of current sensors up to 500 feet from meter.
- Current sensor installation diagnostic indicator.
- Communication Options: RS485 (Modbus RTU), Ethernet (Modbus TCP, BACnet)
- Modbus version supports two external inputs from gas, water, etc. meters. (Dry contact, 10 Hz max. input.)
- Available in standard JIC Industrial-grade steel enclosure.
- UL Listed; meets or exceeds ANSI C12 national accuracy standards.
- Optional power failure contact for alarming.

**Dimensions Diagrams:** See page 496

**Application:** The Class 500 Advanced KWH/Demand Meter with Full Data Stream are fully electronic, meters for monitoring electrical usage in commercial and industrial applications.

**Dimensions, Approximate:** 191 mm high x 178 mm wide x 83 mm deep (7-1/2 in. high x 7 in. wide x 3-1/4 in. deep)

**Accuracy:** ±1% from 1% to 100% of rated load

**Display:** Yes

**Frequency (Hz):** 50 Hz; 60 Hz

**Operating Temperature Range:** -20 C to 50 C (-4 F to 122 F)

**Operating Humidity Range (% RH):** 0-95% non-condensing

**Protocol:** Modbus RTU

**Approvals:**

**Canadian Standards Association:** Recognized

**Underwriters Laboratories, Inc.** Listed

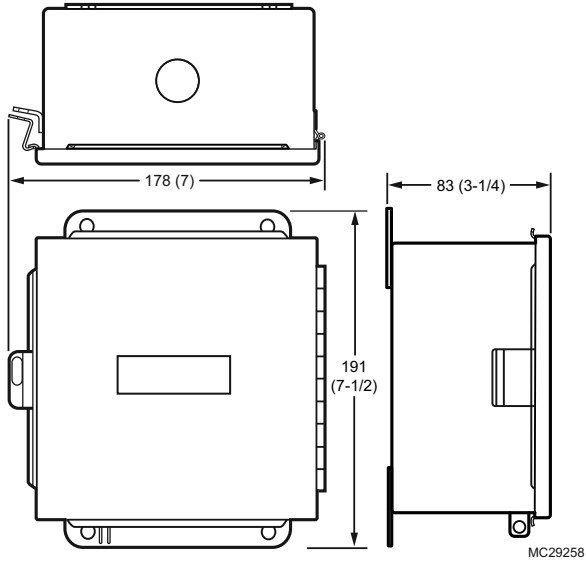
Product Number	Protocol	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration	Output	Number of Phases
SUB208-100C	Modbus RTU	100A	120V; 208-240V	3-4 Wire	RS-485	3
SUB208-1600C	Modbus RTU	1600A	120V; 208-240V	3-4 Wire	RS-485	3
SUB208-200C	Modbus RTU	200A	120V; 208-240V	3-4 Wire	RS-485	3
SUB208-3200C	Modbus RTU	3200A	120V; 208-240V	3-4 Wire	RS-485	3
SUB208-400C	Modbus RTU	400A	120V; 208-240V	3-4 Wire	RS-485	3
SUB208-800C	Modbus RTU	800A	120V; 208-240V	3-4 Wire	RS-485	3
SUB480-100C	Modbus RTU	100A	277V; 480V	3-4 Wire	RS-485	3
SUB480-1600C	Modbus RTU	1600A	277V; 480V	3-4 Wire	RS-485	3
SUB480-200C	Modbus RTU	200A	277V; 480V	3-4 Wire	RS-485	3
SUB480-3200C	Modbus RTU	3200A	277V; 480V	3-4 Wire	RS-485	3
SUB480-400C	Modbus RTU	400A	277V; 480V	3-4 Wire	RS-485	3
SUB480-800C	Modbus RTU	800A	277V; 480V	3-4 Wire	RS-485	3
SUBAC208-100C	BACnet	100A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBAC208-1600C	BACnet	1600A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBAC208-200C	BACnet	200A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBAC208-3200C	BACnet	3200A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBAC208-400C	BACnet	400A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBAC208-800C	BACnet	800A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBAC480-100C	BACnet	100A	277V; 480V	3-4 Wire	Ethernet	3
SUBAC480-1600C	BACnet	1600A	277V; 480V	3-4 Wire	Ethernet	3
SUBAC480-200C	BACnet	200A	277V; 480V	3-4 Wire	Ethernet	3
SUBAC480-3200C	BACnet	3200A	277V; 480V	3-4 Wire	Ethernet	3
SUBAC480-400C	BACnet	400A	277V; 480V	3-4 Wire	Ethernet	3
SUBAC480-800C	BACnet	800A	277V; 480V	3-4 Wire	Ethernet	3
SUBM208-100C	Modbus TCP	100A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBM208-1600C	Modbus TCP	1600A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBM208-200C	Modbus TCP	200A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBM208-3200C	Modbus TCP	3200A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBM208-400C	Modbus TCP	400A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBM208-800C	Modbus TCP	800A	120V; 208-240V	3-4 Wire	Ethernet	3
SUBM480-100C	Modbus TCP	100A	277V; 480V	3-4 Wire	Ethernet	3

# Submeters

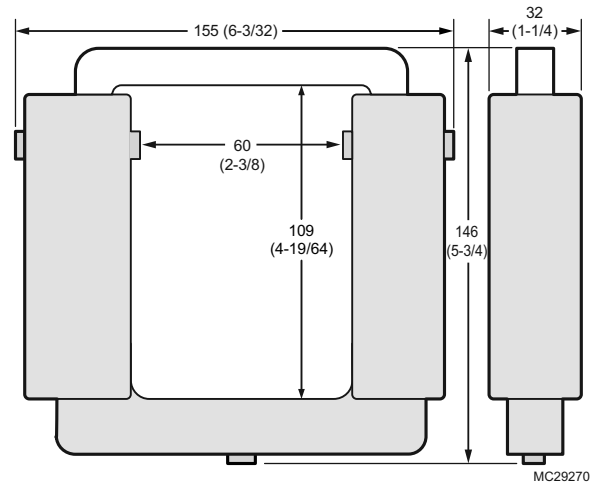
Product Number	Protocol	Current Sensor Rating (A)	Input Voltage	Input Voltage Configuration	Output	Number of Phases
SUBM480-1600C	Modbus TCP	1600A	277V; 480V	3-4 Wire	Ethernet	3
SUBM480-200C	Modbus TCP	200A	277V; 480V	3-4 Wire	Ethernet	3
SUBM480-3200C	Modbus TCP	3200A	277V; 480V	3-4 Wire	Ethernet	3
SUBM480-400C	Modbus TCP	400A	277V; 480V	3-4 Wire	Ethernet	3
SUBM480-800C	Modbus TCP	800A	277V; 480V	3-4 Wire	Ethernet	3

## Dimensions for Meters and Current Sensors

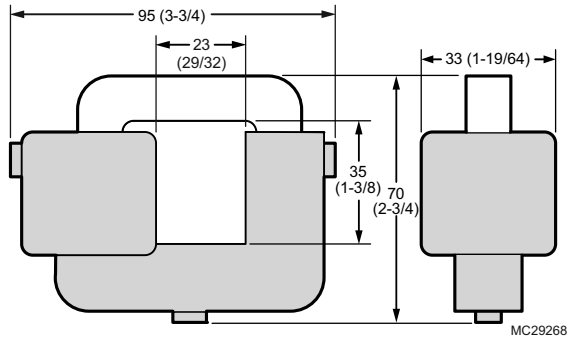
Dimensions in millimeters (inches) for  
Class 100, Class 200 and Class 500 Meters



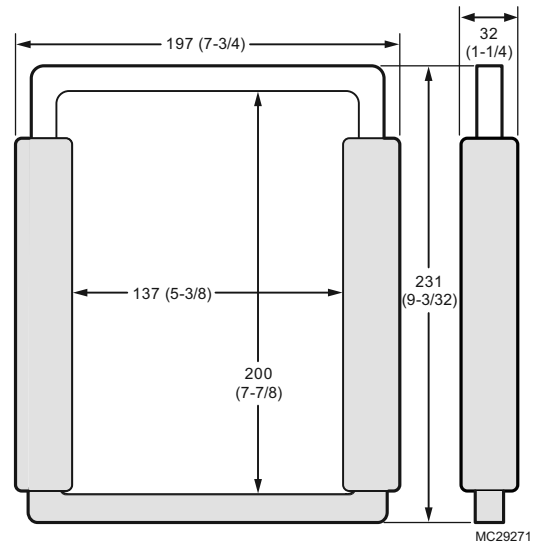
800 and 1600 Amp current sensor dimensions



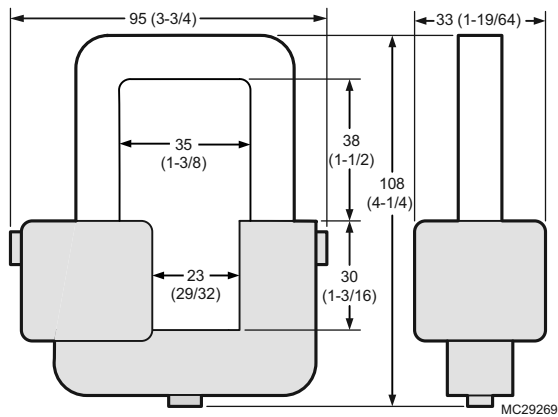
25-200 Amp current sensor dimensions



3200 Amp current sensor dimensions



400 Amp current sensor dimensions



## SXB35/SXB36 Networked Power Meters (Modbus™ RTU)



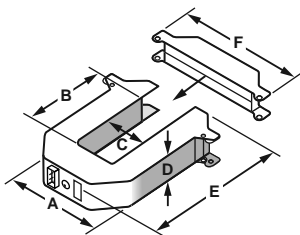
Honeywell's innovative three-phase networked (Modbus RTU) power meters combine power metering electronics and high

accuracy industrial grade CTs in a single package. There are two application-specific platforms to choose from.

The SXB35 Meters are ideal for submetering applications where only kW and kWh are required. The SXB36 Enhanced Data Stream meters output 26 energy variables including kW, kWh, volts, amps, and power factor, making them ideal for power monitoring and diagnostics.

- Monitor energy parameters (kW, kWh, kVAR, PF, Amps, Volts) at up to 63 locations on a single RS-485 network—greatly reduces wiring time and cost.
- Fast split-core installation eliminates the need to remove conductors—saves time and labor.
- Precision metering electronics and current transformers in a single package reduces the number of installed components, meaning huge labor savings.
- Smart electronics eliminate CT orientation concerns—resulting in fast, trouble-free installation.
- Certified to ANSI C12.16.

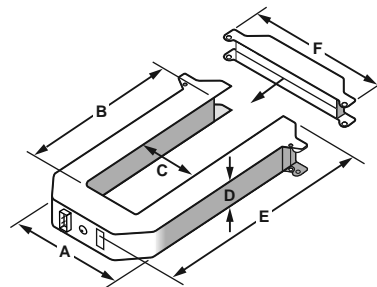
Dimensions in millimeters (inches)



### SMALL 100/300 AMP

A = 96 (3-51/64)  
B = 38 (1-1/2)  
C = 31 (1-19/64)  
D = 29 (1-3/32)  
E = 100 (4)  
F = 121 (4-51/64)

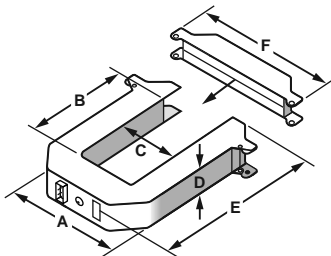
MC29225



### LARGE 800/1600/2400 AMP

A = 125 (4-29/32)  
B = 139 (5-1/2)  
C = 62 (2-1/2)  
D = 29 (1-3/32)  
E = 201 (7-29/32)  
F = 151 (6)

MC29227



### MEDIUM 400/800 AMP

A = 125 (4-29/32)  
B = 73 (2-29/32)  
C = 62 (2-1/2)  
D = 29 (1-3/32)  
E = 132 (5-13/64)  
F = 151 (5-29/32)

MC29226

**Accuracy:** ±1% total system accuracy, (10% to 100% of CT rating)

**Display:** No

**Frequency (Hz):** 50 Hz; 60 Hz

**Operating Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Operating Humidity Range (% RH):** 0-95% non-condensing

**Approvals:**

**Canadian Standards Association:** Recognized

**Underwriters Laboratories, Inc.** Listed

Product Number	Protocol	CT Size	Current Sensor Rating (A)	Input Voltage	Output	Number of Phases
SXB35-100	Modbus RTU	Small	100A	208V - 480V	RS-485	1 to 3
SXB35-1600	Modbus RTU	Large	1600A	208V - 480V	RS-485	1 to 3
SXB35-2400	Modbus RTU	Large	2400A	208V - 480V	RS-485	1 to 3
SXB35-300	Modbus RTU	Small	300A	208V - 480V	RS-485	1 to 3
SXB35-400	Modbus RTU	Medium	400A	208V - 480V	RS-485	1 to 3
SXB35-800-3	Modbus RTU	Medium	800A	208V - 480V	RS-485	1 to 3
SXB35-800-4	Modbus RTU	Large	800A	208V - 480V	RS-485	1 to 3
SXB36-100	Modbus RTU	Small	100A	208V - 480V	RS-485	1 to 3
SXB36-1600	Modbus RTU	Large	1600A	208V - 480V	RS-485	1 to 3
SXB36-2400	Modbus RTU	Large	2400A	208V - 480V	RS-485	1 to 3
SXB36-300	Modbus RTU	Small	300A	208V - 480V	RS-485	1 to 3
SXB36-400	Modbus RTU	Medium	400A	208V - 480V	RS-485	1 to 3
SXB36-800-3	Modbus RTU	Medium	800A	208V - 480V	RS-485	1 to 3
SXB36-800-4	Modbus RTU	Large	800A	208V - 480V	RS-485	1 to 3

# Submeters

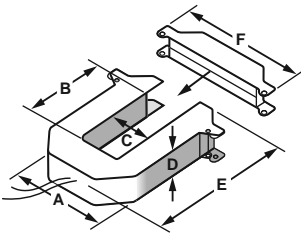
## SXB40/SXB50 Self Contained Split-Core kW/kWh Transducers



The Honeywell SXB40/SXB50 Series kW (real power)/kWh (consumption) transducers combine processing electronics and industrial grade CTs in an easy-to-install split-core package. These devices continuously measure voltage and current values for the monitored conductors and update calculations to provide highly accurate true RMS power readings. Models designed for balanced loads include one CT only, while models for unbalanced loads have three CTs.

- Fast split-core installation eliminates the need to remove conductors—perfect for retrofits.
- Precision meter electronics and current transformers in a single package reduces the number of installed components, resulting in huge labor savings.
- Smart electronics eliminate the need to be concerned with CT orientation, providing fast, trouble-free installation.
- Certified to ANSI C12.16

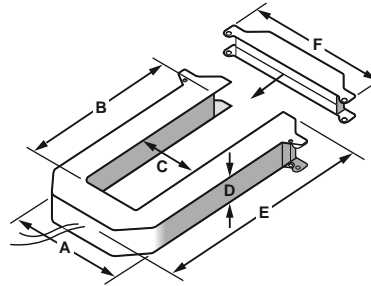
Dimensions in millimeters (inches)



**SMALL  
100/300 AMP**

- A = 96 (3-51/64)
- B = 30 (1-13/64)
- C = 31 (1-19/64)
- D = 30 (1-13/64)
- E = 100 (4)
- F = 121 (4-51/64)

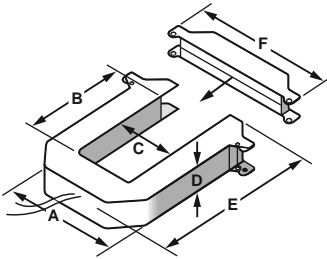
MC29198



**LARGE  
800/1600/2400 AMP**

- A = 125 (4-29/32)
- B = 139 (5-1/2)
- C = 62 (2-1/2)
- D = 30 (1-13/64)
- E = 201 (7-29/32)
- F = 151 (6)

MC29200



**MEDIUM  
400/800 AMP**

- A = 125 (4-29/32)
- B = 73 (2-29/32)
- C = 62 (2-1/2)
- D = 30 (1-13/64)
- E = 132 (5-13/64)
- F = 151 (5-29/32)

MC29199

**Application:** Ideal for monitoring electrical power in commercial and industrial facilities

**Accuracy:** ±1% total system accuracy, (10% to 100% of CT rating)

**Display:** No

**Frequency (Hz):** 50 Hz; 60 Hz

**Operating Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Operating Humidity Range (% RH):** 0-95% non-condensing

**Approvals:**

**Canadian Standards Association:** Recognized  
**Underwriters Laboratories, Inc.** Listed

Product Number	CT Size	Current Sensor Rating (A)	Input Voltage	Output	Number of Phases
SXB42-100	Small	100A	480V	4-20mA	1
SXB42-1600-4	Large	1600A	480V	4-20mA	1
SXB42-2400	Large	2400A	480V	4-20mA	1
SXB42-300	Small	300A	480V	4-20mA	1
SXB42-400	Medium	400A	480V	4-20mA	1
SXB42-800-3	Medium	800A	480V	4-20mA	1
SXB42-800-4	Large	800A	480V	4-20mA	1
SXB43-100	Small	100A	208V; 240V	4-20mA	3
SXB43-1600	Large	1600A	208V; 240V	4-20mA	3
SXB43-2400	Large	2400A	208V; 240V	4-20mA	3
SXB43-300	Small	300A	208V; 240V	4-20mA	3
SXB43-400	Medium	400A	208V; 240V	4-20mA	3
SXB43-800-3	Medium	800A	208V; 240V	4-20mA	3
SXB43-800-4	Large	800A	208V; 240V	4-20mA	3
SXB44-100	Small	100A	480V	4-20mA	3
SXB44-1600	Large	1600A	480V	4-20mA	3
SXB44-2400	Large	2400A	480V	4-20mA	3
SXB44-300	Small	300A	480V	4-20mA	3
SXB44-400	Medium	400A	480V	4-20mA	3
SXB44-800-3	Medium	800A	480V	4-20mA	3
SXB44-800-4	Large	800A	480V	4-20mA	3



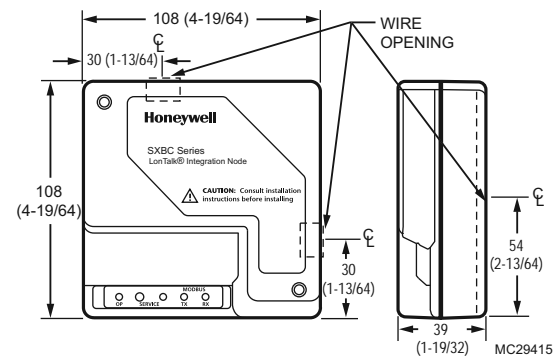
Product Number	CT Size	Current Sensor Rating (A)	Input Voltage	Output	Number of Phases
SXB51-100	Small	100A	208V; 240V	Pulse	1
SXB51-1600	Large	1600A	208V; 240V	Pulse	1
SXB51-2400	Large	2400A	208V; 240V	Pulse	1
SXB51-300	Small	300A	208V; 240V	Pulse	1
SXB51-400	Medium	400A	208V; 240V	Pulse	1
SXB51-800-3	Medium	800A	208V; 240V	Pulse	1
SXB51-800-4	Large	800A	208V; 240V	Pulse	1
SXB53-100	Small	100A	208V; 240V	Pulse	3
SXB53-1600	Large	1600A	208V; 240V	Pulse	3
SXB53-2400	Large	2400A	208V; 240V	Pulse	3
SXB53-300	Small	300A	208V; 240V	Pulse	3
SXB53-400	Medium	400A	208V; 240V	Pulse	3
SXB53-800-3	Medium	800A	208V; 240V	Pulse	3
SXB53-800-4	Large	800A	208V; 240V	Pulse	3

## SXBC-1, SXBC-5 Integration Nodes

To answer the needs for open-protocol standards and cost-effective energy information, Honeywell offers the SXBC Series of LonTalk Integration Nodes. Transducers can be connected to LonWorks networks through the SXBC devices. Couple the simplified installation of our Modbus power meters to the flexible SXBC platform and realize installation savings of up to 70% when compared to "standard" power transducers.

- Easy Integration to Honeywell networks
- Pre-configured to pass points acquired by Honeywell transducers to a Lon controller
- Easy cost-effective connectivity to LonWorks systems...makes open connectivity possible
- Flexible mounting and wiring options save time and money

Dimensions in millimeters (inches)



Product Number	Description	Application
SXBC-1	SXB36 to LonTalk™ integration node	LonTalk™ integration node
SXBC-5	SXB35 to LonTalk™ integration node	LonTalk™ integration node

# Fan Coil Thermostats

## T4039 Fan Coil Thermostat



**Control line voltage valves of a fan coil unit in cooling, manual or automatic changeover heating-cooling systems.**

- Directly operate one or two valves.
- Positive deadband separates heating and cooling circuits in automatic models.
- Includes allen wrench for cover and mounting screws.

**Dimensions, Approximate:** 118 mm high x 125 mm wide x 33 mm deep (4 5/8 in. high x 4 15/16 in. wide x 1 5/16 in. deep.)

**Mounting:** 4 in. square outlet box or 2-ganged outlet box

**Setting Temperature Range:** 13 C to 35 C, marked COOL-WARM (55 F to 95 F, marked COOL-WARM)

**Display:** No

**Electrical Ratings:** Fan Switch: 120 Vac: 5.5 AFL, 33.0 ALR; 240 Vac: 2.75 AFL, 16.5 ALR; 277 Vac: 2.4 AFL, 14.4 ALR

Thermostat (Valve load): 120 Vac: 0.32 AFL, 1.0 A ALR; 240 Vac: 0.16 AFL, 0.50 ALR; 277 Vac: 0.14 AFL, 0.43 ALR

**Voltage:** 120 to 277 Vac

**Frequency:** 50 Hz; 60 Hz

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Includes:** Allen wrench for cover and mounting screws

**Approvals:**

**Canadian Standards Association:** Certified

**Underwriters Laboratories, Inc.** File No. E34436, Vol 2, dated 3-19-73; Guide No. XAPX

**Accessories:**

**TG511A1000** Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

**TG511D1004** Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Differential Temperature		Switch Position		Changeover	Color
		(C)	(F)	System	Fan		
T4039B1008	Fan coil, cooling only	Approximately 1 C at midscale	Approximately 2 F at midscale	ON-OFF	HI-MED-LO	—	Tan
T4039M1004	4 pipe fan coil, automatic heat-cool changeover	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	ON-OFF	HI-MED-LO	Automatic	Tan
T4039M1103	4 pipe fan coil, automatic heat-cool changeover	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	ON-OFF	HI-MED-LO	Automatic	Premier White®
T4039S1040	4 pipe fan coil, manual heat-cool changeover	The differential from make of one contact to make of the opposite contact is 4 C maximum with a positive deadspot.	The differential from make of one contact to make of the opposite contact is 7 F maximum with a positive deadspot.	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan

## T6069 Fan Coil Thermostat



**T6069 thermostats control line voltage valves and/or blower motors on fan coil units in manual changeover heating/cooling systems. The thermostats feature a single System and Fan speed switch.**

- Thermostat, system and fan control switches combined in one deluxe-styled unit.
- Available in classic gold or contemporary white styling. Language-free graphic symbols.
- Manual three-speed fan control on most models.
- Suitable for single or double gang electrical boxes.
- Operates one or two valves.
- Has cycled or constant fan control.

**Dimensions, Approximate:** 118 mm high x 114 mm wide x 47 mm deep + 15 mm projection into junction box (4 5/8 in. high x 4 1/2 in. wide x 1 7/8 in. deep. + 5/8 in projection into junction box)

**Mounting:** Mounts on 2 in. x 4 in. (50mm x 75 mm) single or double-ganged vertically-oriented outlet box.

**Display:** No thermometer

**Electrical Ratings:**

- 8.0 AFL / 48 ALR / 13A resistive @ 120 Vac
- 4.4 AFL / 26.4 ALR / 7.5A resistive @208 Vac
- 4.0 AFL / 24 ALR / 6.5A resistive @240 Vac
- 3.3 AFL / 19.8 ALR 5.5A resistive @277 Vac

**Voltage:** 120 to 277 Vac

**Frequency:** 50 Hz; 60 Hz

**Approvals:**

**Canadian Standards Association:** File No. LR1322

**Underwriters Laboratories, Inc.** File No. E47434

**Accessories:**

**TG511A1000** Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

**TG511D1004** Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position		Changeover	Color
		(C)	(F)	(C)	(F)	System	Fan		
T6069A4002	2 pipe fan coil, manual heat-cool changeover, constant or cycled fan	7 C to 28 C	—	1 C	—	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069A4010	2 pipe fan coil, manual heat-cool changeover, constant or cycled fan	—	44 F to 86 F	—	2 F	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069B4000	4 pipe fan coil, manual heat-cool changeover, constant fan	7 C to 28 C	—	1 C	—	HEAT-OFF-COOL	HI-MED-LO	Manual	Premier White®
T6069B4018	4 pipe fan coil, manual heat-cool changeover, constant fan	—	44 F to 86 F	—	2 F	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069C4016	4 pipe fan coil, manual heat-cool changeover, cycled fan	—	44 F to 86 F	—	2 F	HEAT-OFF-COOL	HI-MED-LO	Manual	Tan
T6069D4014	2 pipe fan coil, seasonal auto changeover, constant or cycled fan	—	44 F to 86 F	—	2 F	ON-AUTO-OFF	HI-MED-LO	Seasonal Auto with External Aquastat® Controller	Tan

# Fan Coil Thermostats

## T6169 Fan Coil Thermostat



The T6169 thermostats control line voltage valves and/or blower motors on fan coil units in manual or automatic changeover, cooling, heating or cooling/heating systems. The thermostats feature a single fan and/or system manual switches.

- Combines thermostat, single system and/or fan control switch in one deluxe-styled unit.
- Three speed manual FAN control on some models.
- Fan can be wired for continuous (ON) or cycled (AUTO) operation.
- System switch OFF position breaks heating/cooling and fan circuits.
- Color-coded leadwire connections.
- Available in classic gold or Premier White® styling.
- Language-free graphic symbols.
- Suitable for single or double gang electrical boxes.

**Dimensions, Approximate:** 133 mm high x 114 mm wide x 47 mm deep + 15 mm projection into junction box (4 5/8 in. high x 4 1/2 in. wide x 1 7/8 in. deep. + 5/8 in projection into junction box)

**Mounting:** Mounts on 2 in. x 4 in. (50mm x 75 mm) single or double-ganged vertically-oriented outlet box.

**Display:** No thermometer

**Electrical Ratings:**

- 8.0 AFL / 48 ALR / 13A resistive @ 120 Vac
- 4.4 AFL / 26.4 ALR / 7.5A resistive @208 Vac
- 4.0 AFL / 24 ALR / 6.5A resistive @240 Vac
- 3.3 AFL / 19.8 ALR 5.5A resistive @277 Vac

**Voltage:** 120 to 277 Vac

**Frequency:** 50 Hz; 60 Hz

**Approvals:**

**Canadian Standards Association:** File No. LR1322

**Underwriters Laboratories, Inc.** File No. E47434

**Accessories:**

**TG511A1000** Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

**TG511D1004** Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position		Changeover	Color
		(C)	(F)	(C)	(F)	System	Fan		
T6169A4001	2 pipe fan coil, seasonal auto changeover, constant or cycled fan	7 C to 28 C	—	1 C	—	—	HI-OFF-MED-LO	Seasonal Auto with External Aquastat® Controller	Premier White®
T6169A4019	2 pipe fan coil, seasonal auto changeover, constant or cycled fan	—	44 F to 86 F	—	2 F	—	HI-OFF-MED-LO	Seasonal Auto with External Aquastat® Controller	Tan
T6169B4017	4 pipe fan coil, manual heat-cool changeover, no fan switching	—	44 F to 86 F	—	2 F	HEAT-OFF-COOL	—	Manual	Tan
T6169C4015	2 pipe fan coil, manual or auto changeover	—	44 F to 86 F	—	2 F	Auto-Off	—	Automatic; Manual	Tan

## Replacement Parts

Product Number	Description	Used With
272735T	Tan wallplate for covering old thermostat marks. To be used with T6069 and T6169 thermostats	T6069; T6169

## TB6575; TB8575 Digital Fan-Coil Thermostat



The TB6575A, TB6575B, and TB8575A are a family of Digital Fan-Coil thermostats for residential and commercial applications. They are great for use in hotels, condos, and school classrooms. They provide line voltage and low voltage on/off control for various fan-coil units. The three models provide control of 2 or 4 pipe fan-coil units, 120, 240, or 24 Vac, and manual or automatic heat/cool changeover. The fan can also be controlled from the thermostat, which offers three fan speeds (Low, Med, High) and Auto. Valves and auxiliary electric heaters can be controlled using a relay or contactor system switch controlled by the thermostat.

**Dimensions, Approximate:** 97 mm high x 148 mm wide x 29 mm deep (3 13/16 in. high x 5 13/16 in. wide x 1 1/8 in. deep)

**Mounting:** Direct mounting on horizontal 2 x 4 in. (50mm x 75 mm) junction box. Mounts on vertical 2 x 4 in. or 4 x 4 in junction box with optional wall plate (50033847-001).

**Electrical Ratings:** 120 Vac, Fan Rating: 6.0 A, Relay Rating: 1.0 A; 240 Vac, Fan Rating: 3.0 A, Relay Rating: 1.0 A

**Frequency:** 50 Hz; 60 Hz

**Display:** LCD

**Color:** Premier White®

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** Certified

**Underwriters Laboratories, Inc.** Meets the same requirements as UL-873

- Simple, intuitive user interface and ease of installation.
- Attractive modern styling ideal for hotels and condos.
- Digital display of ambient temperature, setpoint, mode icons when cooling or heating relays operate, when energy savings mode is active, and fan status.
- Four buttons allow manual control of system operation, fan speed, and temperature setpoint adjustment.
- VersaSpeed™ Fan Ramp Algorithm automatically adjusts Low, Medium, High fan speed.
- Optional freeze protection feature that turns on heat, if necessary.
- Activity sensing algorithm sets back thermostat to economy mode.
- Auto fan rest option sets back fan to auto mode.
- Energy savings mode -- external energy savings input from dry contact such as time switch, occupancy sensor, or hotel cardkey overrides comfort setpoint with selectable setback heating or cooling setpoints.
- Energy savings input configurable as a normally open or normally closed dry contact.
- Proportional plus integral (P+I) control algorithm for precision temperature regulation.
- Selectable C or F.
- Adjustable deadband, in auto changeover mode, for heat and cool control.
- Adjustable maximum heating and minimum cooling setpoint limits.
- Installer setup mode allows changes of operating parameters.
- EEPROM permanently retains user settings, including setpoints, during power loss (no batteries required).
- Capability to display temperature sensor failure for easier troubleshooting.
- Optional remote temperature sensor and remote pipe sensor.

### Accessories:

**50033847-001** Adapter plate for mounting TB6575/TB8575 series fan coil thermostats to vertical, single or double-gang junction box

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

**PS20** 20 K ohm Pipe sensor

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

Product Number	Application	Setting Temperature Range		Switch Position		Voltage	Changeover
		(C)	(F)	System	Fan		
TB6575A1000	2 or 4 pipe fan coil, Heat/Cool manual/auto changeover, 3-speed fan, 120 - 240 Vac	10 C to 30 C	50 F to 90 F	OFF-HEAT-COOL-AUTO	HI-MED-LOW-AUTO-OFF	120 Vac (± 10%) or 240 Vac (± 10%)	Manual/Auto
TB6575B1000	2 pipe fan coil, Heat/Cool manual/auto changeover, 3-speed fan, 120 - 240 Vac	10 C to 30 C	50 F to 90 F	OFF-HEAT-COOL-AUTO	HI-MED-LOW-AUTO-OFF	120 Vac (± 10%) or 240 Vac (± 10%)	Manual/Auto
TB8575A1000	2 or 4 pipe fan coil, Heat/Cool manual/auto changeover, 3-speed fan, 24 Vac	10 C to 30 C	50 F to 90 F	OFF-HEAT-COOL-AUTO	HI-MED-LOW-AUTO-OFF	20 to 30 Vac	Manual/Auto

## Fan Coil Thermostat Accessories

Product Number	Description	Used With
50033847-001	Adapter plate for mounting TB6575/TB8575 series fan coil thermostats to vertical, single or double-gang junction box	—
PS20	20 K ohm Pipe sensor	TB6575, TB8575
W6380B1005	Fan Coil Unit Relay Control Center for 24 Vac Fan Coil Thermostats	—

# Wireless Occupancy Solutions

## Wireless Occupancy Solution

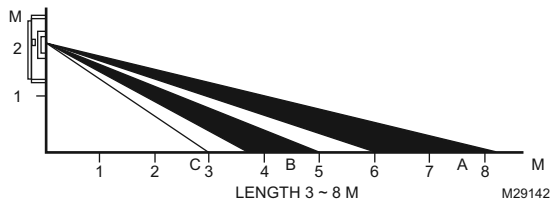


The WSK-24 Wireless Occupancy Solution automatically controls HVAC equipment by determining when a room is occupied. The WSK-24 uses the combination of an occupancy sensor and a door switch to provide optimal control. The WSK-24 is packaged in a kit that includes a 24V dry contact receiver, a wireless PIR (passive infrared receiver) occupancy sensor with mounting kit, a wireless door sensor with mounting kit, and a wiring harness.

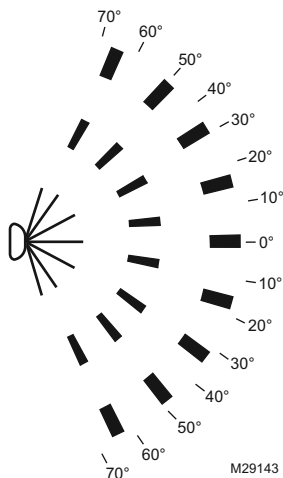
The receiver can be wired into any thermostat or controller that supports the connection of a remote setback device. The receiver communicates wirelessly to a PIR occupancy sensor, a door sensor, and an optional 2nd door/window sensor. After the receiver determines that the room is unoccupied, it closes a dry contact switch. After the thermostat or controller recognizes the contact closure, it places the thermostat in economy setback mode, which provides energy savings for when the room is unoccupied.

- Wireless system provides quick and easy installation
- Pre-configured door sensor and occupancy sensor
- Guest comfort is maintained by never turning off HVAC equipment when someone is in the room n even if they are sleeping
- Fuse protection
- Long battery life
- Low battery indication
- Receiver memory retained after power loss
- Optional sliding door/window sensor can be easily added

Side view of PIR detection pattern



Top view of PIR detection pattern



**Dimensions, Approximate:**

- Door Sensor: 58 mm high x 36 mm wide x 15 mm deep (2-19/64 in. high x 1-13/32 in. wide x 19/32 in. deep)
- Receiver: 86 mm high x 91 mm wide x 31 mm deep (3-13/32 in. high x 3-19/32 in. wide x 1-13/64 in. deep)
- PIR Sensor: 100 mm high x 71 mm wide x 28 mm deep (3-29/32 in. high x 2-51/64 in. wide x 1-3/32 in. deep)

**Open Range:** With antenna exposed: 200 ft; With antenna coiled inside receiver: 50 ft

**Typical Range:** With antenna exposed: 100 ft; With antenna coiled inside receiver: 40 ft

**Power Supply:**

- Receiver: 24 Vac/Vdc at 50/60 Hz; Standby power consumption 15 mA; Channel 1 relay output, N.O.
- Door Sensor: Two CR2032 lithium batteries
- PIR Sensor: Three AAA E92 1.5V alkaline batteries

**Battery Life:** Door Sensor: Two years (under normal usage); PIR Sensor: One year (under normal usage)

**Used With:** TB6575; TB8575; TB7100; T7350/T7351 (requires R8222 switching relay)

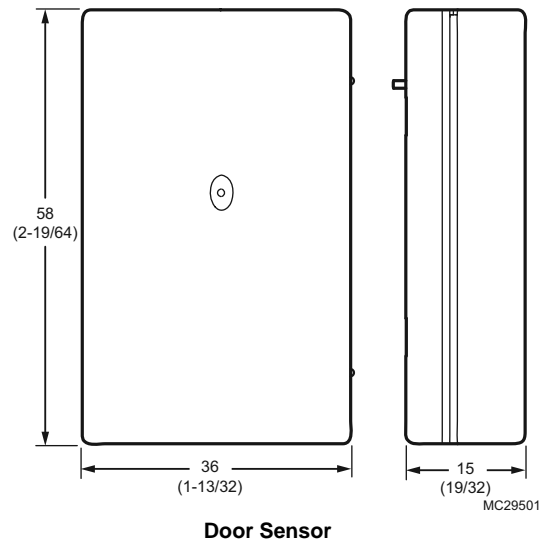
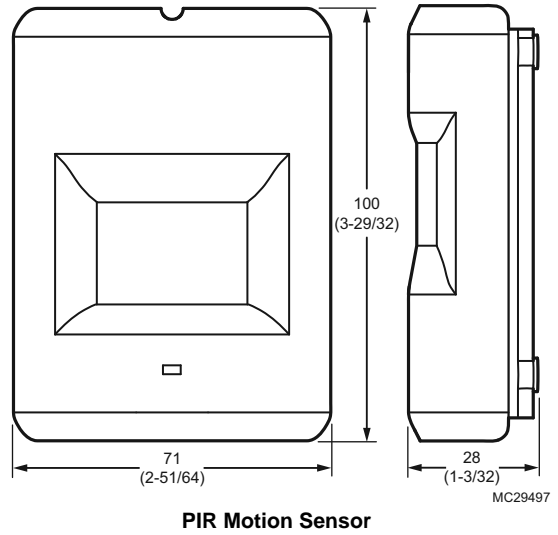
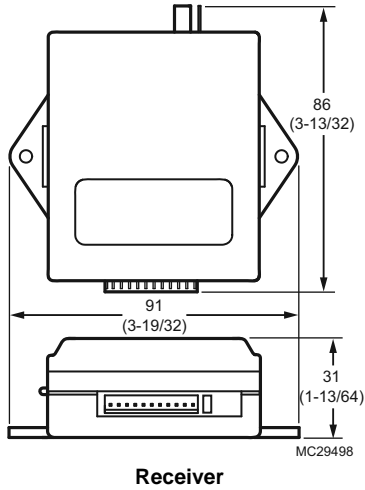
**Approvals:**

**Federal Communications Commission:** FCC Part 15, Class B

Product Number	Operating Frequency	Operating Temperature Range		PIR Detection Pattern
		(C)	(F)	
WSK-24	Door Sensor: 433.92 MHz; Receiver: 433.92 MHz	PIR Sensor: -20 C to 40 C; Door Sensor: -20 C to 60 C; Receiver: -21 C to 60 C	PIR Sensor: -4 F to 104 F; Door Sensor: -4 F to 140 F; Receiver: -5 F to 140 F	Angle: 140 degrees; Length: 3 to 8 meters when mounted 2 meters above the floor

# Wireless Occupancy Solutions

Dimensions in millimeters (inches)



## Wireless Occupancy Solution Accessories

Product Number	Description	Operating Frequency	Open Range	Typical Range	Battery Life	Used With
50037735-001	Optional Sliding Door/Window Sensor	433.92 MHz	With antenna coiled inside receiver: 50 ft With antenna exposed: 200 ft	With antenna coiled inside receiver: 40 ft With antenna exposed: 100 ft	Door Sensor: Two years (under normal usage)	WSK-24

## Wireless Occupancy Solution Replacement Parts

Product Number	Description	Operating Frequency	Operating Temperature Range		Used With
			(C)	(F)	
50037736-001	Wireless PIR Occupancy Sensor	433.92 MHz	PIR Sensor: -20 C to 40 C	PIR Sensor: -4 F to 104 F	WSK-24
50037737-001	Wireless Receiver	433.92 MHz	Receiver: -21 C to 60 C	Receiver: -5 F to 140 F	WSK-24

# Line Volt Thermostats

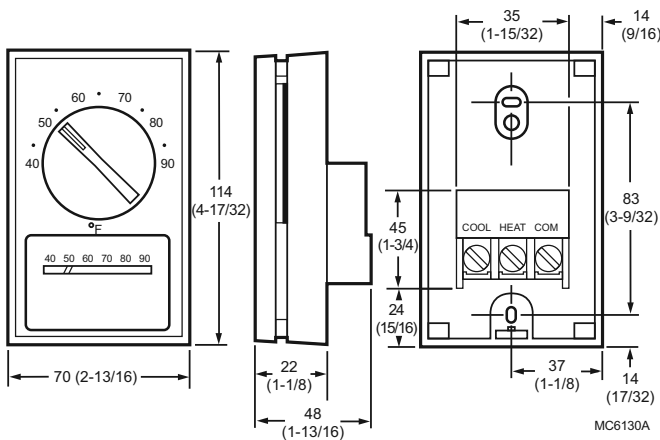
## T451;T651 Light and Medium Duty Line Voltage Thermostat



Light and Medium Duty Line Voltage Thermostats control line voltage valves, motors, contractors, electric heat, elements, duct furnaces, and fan coil units in heating/cooling systems.

- Automatic cooling and heating anticipation.
- Mount on standard vertical or horizontal outlet box.

### Dimensions in millimeters (inches)



### Electrical Ratings:

- 22 A @ 120 - 240 Vac Resistive
- 19 A @ 277 Vac Resistive.
- 9.8 FLA / 58.8 ALR @ 120 Vac
- 5.6 FLA / 33.6 ALR @ 208 Vac
- 4.9 FLA / 29.4 ALR @ 240 Vac
- 4.2 FLA / 25.2 ALR @ 277 Vac

**Electrical Connections:** Flylead

**Voltage:** 120 Vac - 227 Vac

**Frequency:** 50 Hz; 60 Hz

**Sensor Element:** Vapor filled dual diaphragm

**Color:** Champagne gold face-plate with beige cover

### Approvals:

**Canadian Standards Association:** CSA Certified, File No. LR1322

**Underwriters Laboratories, Inc.** Listed: File No. E47434, Guide No. XAPX.

### Accessories:

**TG511A1000** Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

**TG511D1004** Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position System	Switching Action	Description	Includes
		(C)	(F)	(C)	(F)				
T451A3005	Heating	—	44 F to 86 F	—	2 F	—	SPST- breaks on temperature rise	Medium Duty Line Voltage Thermostat	Vertical scaleplate with thermometer, range stops and locking cover screws, wall plate, high accuracy Dual Diaphragm sensor.
T451B3004	Heating	—	50 F to 86 F	—	2 F	—	SPST- breaks on temperature rise; with positive off	Medium Duty Line Voltage Thermostat	Vertical scaleplate with thermometer and high accuracy dual diaphragm sensor
• T651A3018	Heating and cooling	—	44 F to 86 F	—	2 F	heating and cooling	SPDT - breaks heating and makes cooling on temperature rise	Light Duty Line Voltage Thermostat.	Vertical scaleplate with thermometer, horizontal scaleplate with no thermometer, range stops and locking screws, wall plate, and high accuracy Dual Diaphragm sensor
T651A3026	Heating and cooling Celsius	7 C to 28 C	—	1 C	—	heating and cooling	SPDT - breaks heating and makes cooling on temperature rise	Light Duty Line Voltage Thermostat.	Vertical scaleplate with thermometer, range stops and locking screws, wall plate, high accuracy Dual Diaphragm sensor.

\* TRADELINE models • SUPER TRADELINE models



## T4051 Heavy Duty Thermostat



Heavy Duty Line Voltage Thermostats are used to control fan coils, fans, motor starters, valves, contactors, and circulator motors in heating and/or cooling systems.

- Provide good line voltage comfort control.
- Use with Q651A,B subbases for system and fan switching.
- Removable setpoint knob locks setpoint and prevents tampering.
- With locking cover.

**Dimensions, Approximate:** 127 mm high x 79 mm wide x 41 mm deep  
(5 in. high x 3 1/2 in. wide x 1 5/8 in. deep)

**Electrical Ratings:**

- 16 A @ 120 Vac Full Load
- 8 A @ 240 Vac Full Load
- 96 A @ 120 Vac LR
- 48 A @ 240 Vac LR

**Electrical Connections:** Screw terminals

**Voltage:** 120/240 Vac

**Frequency:** 50 Hz; 60 Hz

**Color:** Plastic cover, tan

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-1  
**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

Product Number	Application	Setting Temperature Range		Differential Temperature		Switching Action
		(C)	(F)	(C)	(F)	
T4051A1003	Heating	—	50 F to 80 F	0.6 C	1 F	SPDT

# Line Volt Thermostats

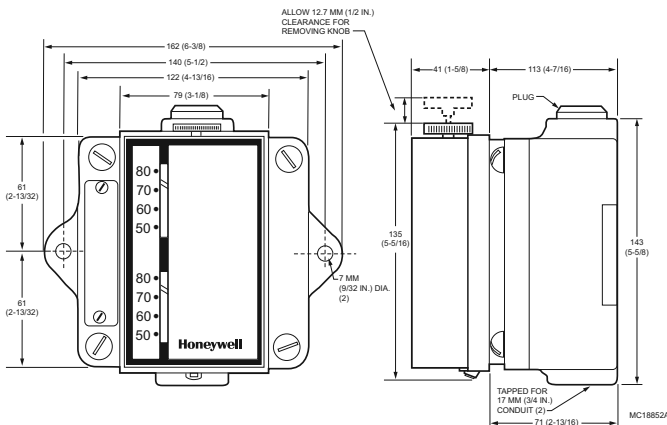
## T6051; T6052 Heavy Duty Line Voltage Thermostats



**Heavy Duty Line Voltage Thermostats used to control fan coils, fans, motor starters, valves, contactors, and circulator motors in heating and/or cooling systems.**

- Provide good line voltage comfort control.
- Use with Q651A,B subbases for system and fan switching.
- Removable setpoint knob locks setpoint and prevents tampering.
- With locking cover.

### Dimensions in millimeters (inches)



**Dimensions, Approximate:** 127 mm high x 79 mm wide x 41 mm deep  
(5 in. high x 3 1/8 in. wide x 1 5/8 in. deep)

**Sensor Element:** Vapor filled dual diaphragm

**Color:** Plastic cover, tan

### Electrical Ratings:

120 Vac: 16 AFL, 96 ALR

240 Vac: 8 AFL, 48 ALR

Resistive 22A @ 120 Vac, 19 A @ 277 Vac

Pilot Duty 125 VA

**Electrical Connections:** Screw terminals

**Voltage:** 120 Vac; 240 Vac

**Frequency:** 50 Hz; 60 Hz

### Approvals:

**Canadian Standards Association:** CSA Certified: File no. LR1620

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

### Accessories:

**135531J** Scaleplate, vertical, Celsius, 10 C to 25 C.

**23394B** Locking guard for T42, T92, T451, T498, T651, T4051, T6051, T6052

**TG511A1000** Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

**TG511D1004** Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Application	Setting Temperature Range		Differential Temperature		Switch Position System	Switching Action	Includes	Used With
		(C)	(F)	(C)	(F)				
T6051A1016	Heating and cooling	—	46 F to 84 F	—	1 F	—	SPDT	Vertical mounting	Q651A, B subbases for system and fan switching
* T6051A1057	Heating and cooling	8 C to 29 C	—	0.6 C	—	—	SPDT	Vertical mounting	Q651A, B subbases for system and fan switching
T6051B1006	Explosion-proof, Heating and cooling	—	46 F to 84 F	—	1 F	—	SPDT	Vertical mounting	—
* T6052A1015	Two stage heating or two stage cooling	—	46 F to 84 F	—	Stage 2 Heat, Stage 1 Cool: 3.2 F Stage 1 Heat, Stage 2 Cool: 2.5 F	2-stage heating or 2-stage cooling	2 SPDT switches	Vertical or horizontal mounting	Q651A, B subbases for system and fan switching
T6052A1023	Two stage heating or two stage cooling	8 C to 29 C	—	Stage 2 Heat, Stage 1 Cool: 1.8 C; Stage 1 Heat, Stage 2 Cool: 1.4 C	—	2-stage heating or 2-stage cooling	2 SPDT switches	Vertical or horizontal mounting	Q651C subbase for system and fan switching
* T6052B1013	Heating and cooling, auto changeover	—	46 F to 84 F	—	Stage 2 Cool: 3.2 F Stage 1 Heat: 2.5 F	1-stage heating-cooling	2 SPDT switches	Vertical or horizontal mounting	Q651A, B subbases for system and fan switching

\* TRADELINE models • SUPER TRADELINE models

## Q651 Switching Subbase



**Provide manual system switching for T6051 and T6052 Thermostats.**

- Provide positive OFF switching of the system.
- Mount vertically or horizontally on standard outlet box.
- Include pressure sensitive labels to identify switching positions.

**Dimensions, Approximate:** 148 mm high x 81 mm wide x 18 mm deep (5 13/16 in. high x 3 3/16 in. wide x 11/16 in. deep.)

**Electrical Ratings:**

- 16 A @ 120 Vac Full Load
- 8 A @ 240 Vac Full Load
- 96 A @ 120 Vac LR
- 48 A @ 240 Vac LR

**Voltage:** 120 or 240 Vac

**Frequency:** 60 Hz

**Used With:** Thermostat: T6051A, Thermostat Guard: TG511 and TG512

**Approvals:**

**Canadian Standards Association:** Certified

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX

**Accessories:**

**TG511A1000** Medium Universal Thermostat Guard with clear cover and base, and opaque wallplate Fits T822, T834, T8034, T841, T874 with Q674, WR1F46, and others

**TG511D1004** Medium Universal Thermostat Guard with Beige painted steel cover, opaque ring base and wallplate Fits T822, T834, T8034, T841, T874 with Q674, and others

Product Number	Switch Position		Switching Action	Includes
	System	Fan		
Q651A1009	See switch labels		Provide positive OFF switching of the system	Switch labels: HEAT-OFF-COOL, HEAT-OFF-FAN, AUTO-OFF-ON; Pressure sensitive labels to identify switching positions
Q651B1008	See switch labels		Provide positive OFF switching of the system	Switch labels: AUTO-OFF-FAN; Pressure sensitive labels to identify switching positions

## Line Volt Thermostat Replacement Parts and Accessories

Product Number	Description	Used With
135531J	Scaleplate, vertical, Celsius, 10 C to 25 C.	—
199923AA	Plastic cover for T6051/T6052 with thermometer and setpoint scale. With ground strap.	T6051/T6052
272804A	Range Stop and Locking Screws Assembly	T410, T498, T4398

# Proportional Thermostats

## T921 Proportional Thermostats



Proportional Thermostats provide low voltage, 3-wire control for valve motors, damper motors, and balancing relays in heating or cooling system applications.

- Bellows element adjusts potentiometer slider to regulate motor operation.
- Removable setting knob prevents unauthorized tampering with setpoint.

**Dimensions, Approximate:** 144 mm high x 86 mm wide x 58 mm deep (5 11/16 in. high x 3 3/8 in. wide x 2 1/4 in. deep)

**Mounting:** Wall mount

**Throttling Range:** 1.4 C (2.5 F)

Product Number	Setpoint Temperature Range		Output Signal	Includes
	(C)	(F)		
T921A1183	13 C to 29 C	—	135 Ohm potentiometer	Celsius model
* T921A1191	—	56 F to 84 F	135 Ohm potentiometer	Tradeline model which includes slotted sides and an add-on faceplate to allow thermostat to be mounted horizontally.
* T921A1522	13 C to 29 C	56 F to 84 F	3-wire control for Series 90	horizontal or vertical covers
T921G1005	—	56 F to 84 F	135 Ohm potentiometer	—

\* TRADELINE models • SUPER TRADELINE models

## Proportional Thermostat Parts and Accessories

Product Number	Description	Used With
100653A	Potentiometer Assembly for use with T921	T921
124355/0047	Adjustment screw for TA42, T921, T473	—
130224	Knob - Adjusting	—
50014156-002	Remote room sensor for the ZonePRO®	ZonePRO
50014157-001	Duct temperature sensor for the ZonePRO®	ZonePRO

# Proportional Thermostats

## ZonePRO® Modulating/Floating Control Thermostats



The ZonePRO® thermostats are for low-voltage pressure-dependent variable air volume (VAV) applications. ZonePRO can also be used for hydronic perimeter heating/cooling and bypass box with or without reheat. The four models cover modulating applications, floating applications and applications that require up to two additional outputs for reheat.

- Provides modulating (2 to 10 Vdc analog) control (TB7980)
- Provides floating control (TB6980)
- Provides 2 additional outputs (TB6980B and TB7980B)
- Provides max. and min. setpoints for heating and cooling
- Provides a night setback (NSB) terminal for energy savings

**Dimensions, Approximate:** 69 mm wide X 118 mm high X 27 mm deep (2 5/8 in. wide X 4 9/16 in. high X 1 in. deep)

**Mounting:** Wall mount

**Power Supply:** 24 Vac

**Frequency:** 60 Hz







Product Number	Setpoint Temperature Range		Output Signal	Output Signal Burden	Additional Outputs	Description
	(C)	(F)				
TB6980A1007	10 C to 35 C	50 F to 95 F	Floating	0.5A max @ 24 Vac	—	Floating control
TB6980B1006	10 C to 35 C	50F to 95F	Floating	0.5A max @ 24 Vac	1 Analog/TRIAC1 TRIAC	Floating control with 2 additional outputs
TB7980A1006	10 C to 35 C	50 F to 95 F	0-10 Vdc or 2-10 Vdc	0-10V, 10k min	—	Modulating (0-10Vdc) control
TB7980B1005	10 C to 35 C	50 F to 95 F	0-10 Vdc or 2-10 Vdc	0.5A max @ 24 Vac	1 Analog/TRIAC1 TRIAC	Modulating (0-10Vdc) control with 2 additional outputs

## ZonePRO® Modulating Thermostat Cross Reference

Product Number	Replaces	Compatible Valves	Compatible Actuators	Sensors and Accessories
TB6980A1007	T6984A1059	VC6930, VC6934, VC6936, M6410, M6435	ML6984A1006, ML6420, ML6161B2024, MN6105A1011	R841 series of electromechanical relays, 50014157-001 air duct sensor, 50014156-002 space sensor, ST6008A1003 and ST7009A1003 time clocks, 209651A wall plate, D3 and D690 dampers
TB6980B1006	T6984D1046, T6984E1043			
TB7980A1006	T7984A1057, T7984A1065	VC7930, VC7934, VC7936, M7410, M7435	ML7984A4009, ML7420, ML7161A2008, MN7505A2001	
TB7980B1005	T7984B1005, T7984C1053			







# Programmable Commercial Thermostats

## Commercial Thermostat Cross Reference

Model		Schedule Options			User Interface	Application					Power Method	Features and Functions						
		Program Options	Temporary Override	Holiday		Conventional	Heat Pump	Modulating	Fan Coil	PTAC		Real Time Clock (Automatically Updates Daylight Savings)	Permanent Memory Retention	Recovery Ramps	LonWorks Communicating Capability	Economizer Output	Multiple Keypad Lockout Levels	Dehumidification Control
	T7350H1009	365-Day	X	X	Soft Keys	3 Heat/ 3 Cool or 2 Heat/ 4 Cool	3 Heat/ 370 2 Cool	No	No	No	24 Vac	X	X	X	X	X	3	X
	T7350H1017	365-Day	Yes	X	Soft Keys	2 Heat/ 1 Cool	N/A	Two 4- 20 mA	No	No	24 Vac	X	X	X	X	X	3	X
	T7350M1008	365-Day	Yes	X	Soft Keys	1 Heat/2 Cool or 2 Heat/ 1 Cool or 2 Cool/ 1 Heat	N/A	Two 4- 20 mA	No	No	24 Vac	X	X	X	X	X	3	X
	T7350D1008 and T7351F2010	365-Day	Yes	X	Soft Keys	3 Heat/ 3 Cool or 2 Heat/ 4 Cool	3 Heat/ 2 Cool	No	No	No	24 Vac	X	X	X		X	3	X
	T7350B1002	365-Day	Yes	X	Soft Keys	3 Heat/ 2 Cool or 2 Heat/ 3 Cool	3 Heat/ 2 Cool	No	No	No	24 Vac	X	X	X		X	3	
	T7350A1004	365-Day	Yes	X	Soft Keys	1 Heat/ 2 Cool or 2 Heat/ 1 Cool	2 Heat/ 1 Cool	No	No	No	24 Vac	X	X	X		X	3	
	TB8220U1003	7-Day	Yes (Cumulative)	X	Touch-screen	2 Heat/ 2 Cool	3 Heat/ 2 Cool	No	No	No	24 Vac or Battery	X	X	X		X	4	
	TB7220U1012	7-Day	Yes (Cumulative)	X	Soft Keys	2 Heat/ 2 Cool	3 Heat/ 2 Cool	No	No	No	24 Vac or Battery	X	X	X		X	4	
	TB7100A1000	7-Day or non-programmable	Yes (Cumulative)	X	Soft Keys	1 Heat/ 1 Cool	2 Heat/ 1 Cool	No	2 or 4 pipe	2 Heat/ 1 Cool	24 Vac or Battery	Yes	X	X			5	

# Programmable Commercial Thermostats

## Commercial Thermostat Cross Reference

Model		Features and Functions		Display Information			Replacements				
		Remote Sensing	Display Size (Viewable)	On-Demand Backlighting	Continuous Backlighting	Simultaneous Display of Room and Set Temperature	Honeywell	White-Rodgers	Invensys/Robertshaw	Carrier/Totaline	TCS Basys
	T7350H1009	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	All T7300's with Q7300H subbases	No equivalent offering	No equivalent offering	No equivalent offering	SZ1022, SZ1024, SZ1031, SZ1033, SZ1035, SZ1009
	T7350H1017	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	No previous offering	No equivalent offering	No equivalent offering	No equivalent offering	SZ1017a, SZ1053
	T7350M1008	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	No previous offering	No equivalent offering	No equivalent offering	No equivalent offering	SZ1017a, SZ1053
	T7350D1008 and T7351F2010	Yes (Indoor, Outdoor, Discharge, Humidity, Occupancy)	4.2 sq. in.	No	Yes	No	All T7300's with non Q7300H subbases	All White-Rodgers Thermostats	All Invensys/Robertshaw Thermostats	All Carrier/Totaline Thermostats	SZ1022, SZ1024, SZ1031, SZ1033, SZ1035, SZ1009
	T7350B1002	Yes (Indoor, Outdoor, Discharge)	4.2 sq. in.	No	Yes	No	All T7300's with Q7300A and Q7300C subbases	All White-Rodgers Thermostats	9700i series, 300 series	All Carrier/Totaline Thermostats	SZ1022, SZ1024, SZ1031, SZ1033, SZ1009
	T7350A1004	No	4.2 sq. in.	No	Yes	No	All T7300's with Q7300A2008 subbase	1F90-371, 1F97-371, 1F96-344, 1F90-374, 1F97-374	9700i, 9701i		SZ1009
	Commercial VisionPRO® 8000 TB8220U1003	Yes (Indoor or Outdoor)	10 sq. in.	Yes	Yes	Yes	T7300 with Q7300A2016, Q7300A2008, Q7300C2004 and Q7300C2012 subbase	1F90 series, 1F80 series	9800 series, 9700i series, 300 series	P374-2100, P374-2200, P374-2300, 33CS250-01, 33CS220-01, 33CS071-01, 33CSSP2-WC, 33CSSN2-WC	
	CommercialPRO® 7000 TB7220U1012	Yes (Indoor or Outdoor)	4 sq. in.	Yes	Yes	Yes	T7300 with Q7300A2016, Q7300A2008, Q7300C2004 and Q7300C2012 subbase	1F90 series, 1F80 series	9800 series, 9700i series, 300 series	P374-2100, P374-2200, P374-2300, 33CS250-01, 33CS220-01, 33CS071-01, 33CSSP2-WC, 33CSSN2-WC	
	MultiPRO™ 7000* TB7100A1000	Yes (Indoor or Occupancy)	4 sq. in.	Yes	Yes	Yes	T8574B2016, T8575B2007, T8575C2005, T8575D2003	IF90-371, IF96-344, IF97-371, IF80-224, IF80-241, IF80-261, IF86-244, IF87-251, IF82-261, IF89-211	97012, 9610, 9700i, 300-224, 300-225, 300-226,	P274-0100, P274-1100, P374-0200, P374-0300	SZ1-61, SZ1062

\* The MultiPRO™ 7000 also replaces the following models for PSG Controls: DFC-20YU6585F, DPFC-024U2F, DPFC-024K2F, TDMS24-AH22CB

# Programmable Commercial Thermostats

## Honeywell Thermostat Sensors Cross Reference

Model Number		Sensor Element Type	Sensor Type		Selectable Setpoint Adjustment 55° to 85°F, 13° to 30°C, Or (- to +)	Override Button with LED	LON Jack	Fan Switching	Comments
Honeywell Wall Module Model	Replaces Honeywell Model		20K ohm NTC Temp	Humidity					
TR21	T7770A1006	20K ohms non-linear	✓						
TR21-A	T7770A3002	10K ohms non-linear for averaging only	✓						
TR21-H	N/A	20K ohms non-linear	✓	✓					
TR21-J	T7770A2004		✓				✓		
TR22	T7770B1004 T7770B1020 T7770B1046		✓		✓		✓		
TR23	T7770C1002 T7770C1028 T7770C1044		✓		✓	✓	✓		
TR23-KL	N/A		✓		✓	✓	✓		Bulk pack of 20 Setpoint knob not included
TR23-H	N/A		✓	✓	✓	✓	✓		
TR23-H-KL	N/A		✓	✓	✓	✓	✓		Bulk pack of 20 Setpoint knob not included
TR23-N	T7770C1051		✓		✓	✓	✓		No Honeywell logo
TR24	T7770D1000		✓			✓	✓		
TR22-F5	N/A		✓		✓		✓	5 position	
TR23-F3	T7770E1023		✓		✓	✓	✓	3 position	
TR23-F5	T7770F1005		✓		✓	✓	✓	5 position	



# Programmable Commercial Thermostats

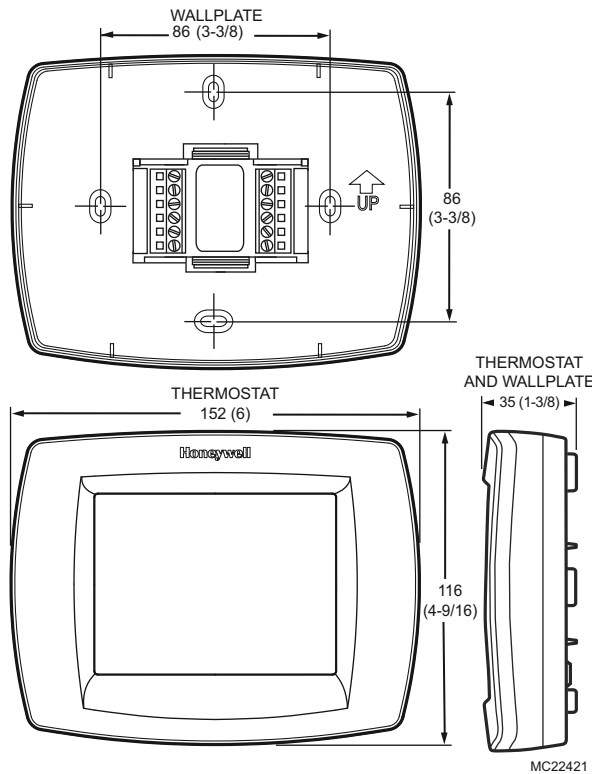
## Commercial VisionPRO® 8000



The TB8220 Commercial VisionPRO 8000 Touchscreen Programmable Thermostat is an effortless, seven day programmable thermostat that provides universal system compatibility, precise comfort control and is easy to-program. The TB8220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Touchscreen interaction Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

### Dimensions in millimeters (inches)



**Dimensions, Approximate:** 152 mm wide x 116 mm high x 35 mm deep (6 in. wide x 4 9/16 in. high x 1 3/8 in. deep)

**Color:** Premier White®

**Electrical Connections:** 24 VAC or Battery

**Network Communications:** None

**Comments:** The L-terminal is an input only; Selectable programmable or non-programmable. Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

### Accessories:

**32003796-001** Premier White® cover plate 7 7/8 in. (200 mm) x 5 1/2 in. (140 mm)

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

**C7089U1006** Remote Outdoor Sensor

**C7189U1005** Remote Indoor Sensor

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

**W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
<b>TB8220U1003</b>	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, L, A, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F

# Programmable Commercial Thermostats

## CommercialPRO 7000

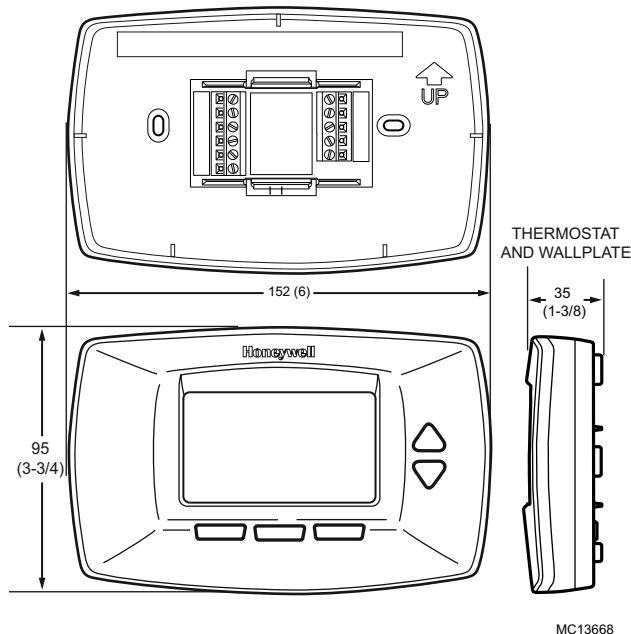


The **COMMERCIALPRO® 7000 Programmable Thermostat** is an effortless, seven-day programmable thermostat that provides universal system compatibility, precise comfort control and is easy-to-program.

The **TB7220** provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time--even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same--schedule programming--no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

### Dimensions in millimeters (inches)



**Dimensions, Approximate:** 152 mm wide x 96 mm high x 35 mm deep (6 in. wide x 3 3/4 in. high x 1 3/8 in. deep)

**Color:** Premier White®

**Electrical Connections:** 24 VAC or Battery

**Network Communications:** None

**Comments:** Selectable programmable or non-programmable. Includes A terminal to enable an economizer or control a lighting panel when used as a time of day relay

### Accessories:

**50002883-001** FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

**C7089U1006** Remote Outdoor Sensor

**C7189U1005** Remote Indoor Sensor

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

**W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
<b>TB7220U1012</b>	24 Vac heating and cooling systems; Heat Pump Systems; Conventional systems; Packaged RTU	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	R, Rc, W (O/B), W2 (W1), Y, Y2, A, G, C, S1, S2	Up to 2 Heat/2 Cool Conventional; Up to 3 Heat/2 Cool Heat Pump	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F

# Programmable Commercial Thermostats

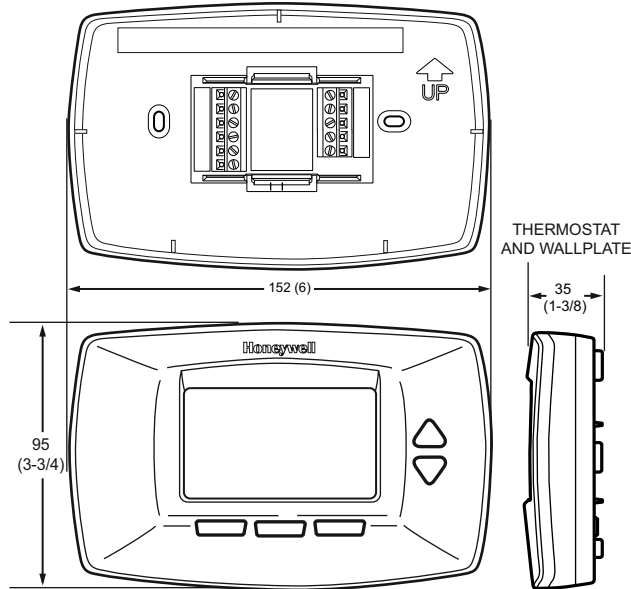
## MultiPRO™ 7000



The MultiPRO™ Multispeed and Multipurpose Thermostat is an effortless, seven-day programmable or non-programmable thermostat that provides universal system compatibility, precise comfort and is easy to program.

The MultiPRO provides temperature control for gas, oil, electric, heat pumps, PTACs, and fan-coil equipment for the following types of applications: 1H/1C conventional; Up to 2H/1C heat pump; 4 pipe fan coil (3 fan speeds); 2 pipe fan coil (3 fan speeds); 2 pipe fan coil w/Auxiliary Heat (3 fan speeds); PTAC (Hi, Lo fan speeds).

### Dimensions in millimeters (inches)



Large, clear display with backlight shows the current and set temperature and time—even in the dark.

- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving Changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday Override options allow you to override the program schedule, as desired.
- Speedy same—schedule programming—no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.
- Programmable or non-programmable modes.
- Remote setback input for occupancy sensors or timeclocks.
- VersaSpeed™ fan ramping algorithm and fan reset algorithm (fan coil and PTAC applications).
- Up to 3 fan speeds for fan coil and 2 fan speeds for PTAC applications.
- Remote Indoor air sensing option (20K ohm or 10K ohm)

**Dimensions, Approximate:** 152 mm wide x 96 mm high x 35 mm deep (6 in. wide x 3 3/4 in. high x 1 3/8 in. deep)

**Color:** Premier White®

**Electrical Connections:** 24 VAC or Battery

**Network Communications:** None

**Comments:** Includes 3 speed fan control and configurable sensor input for indoor temperature, occupancy sensor, or changeoverSelectable programmable or non-programmable.

### Accessories:

**50002883-001** FocusPRO 5000/6000 and PRO 3000/4000 Cover Plate Assembly

**TR21** 20 K ohm NTC non-linear Temperature Wall Module

**TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)

**WSK-24** Wireless Occupancy Solution

**C7189U1005** Remote Indoor Sensor

**C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion

**C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion

**C7041C2003** 20K ohm NTC Temperature Sensor with 18 in. insertion

**C7041P2004** 20K ohm NTC Stainless Steel Button Sensor, 11/16 in. dia.

**C7770A1006** 6 in. Duct Probe for Return Air 20 K ohm NTC non-linear Temperature Sensor

**C7772A1004** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor without logo

**C7772A1012** 20 K ohm NTC non-linear Wall Flush Mount Temperature Sensor with Honeywell logo

Product Number	Application	Switch Position		Terminal Designations	Stages	Setting Temperature Range	
		System	Fan			(C)	(F)
TB7100A1000	Conventional, Heat Pump, Fan Coil, and PTAC Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON; Fan Coil: HI-MED-LO-AUTO; PTAC: HI-LO-AUTO	R, Rc, W1, O/ B., Y, G, G2, G3, C, S1, S2	1 Heat/ 1Cool Conventional; Up to 2 Heat/ 1 Cool Heat Pump; 2 or 4 pipe Fan Coil; Up to 2 Heat/ 1 Cool PTAC	Heat: 4.5 C to 32 C; Cool: 10 C to 37 C	Heat: 40 F to 90 F; Cool: 50 F to 99 F

# Programmable Commercial Thermostats

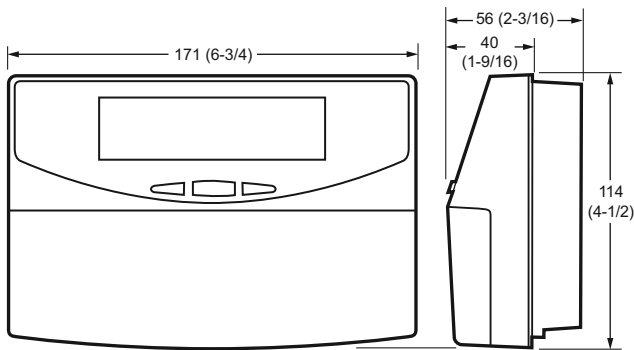
## T7350 Programmable Commercial Thermostats



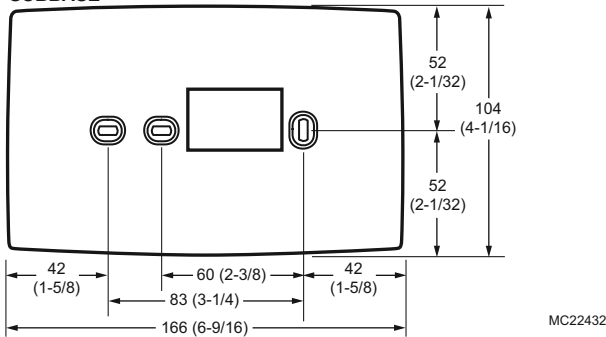
**T7350 Thermostats control 24 Vac commercial single-zone multistage conventional, heat pump and modulating HVAC equipment.**

- 365-day programming.
- Two Occupied and two Not Occupied periods per day.
- Thermostat Interface Module (TIM) connections to thermostat from PDA for advanced configuration, programming, keypad lockout, etc.
- Individual heat and cool setpoints available for Occupied and Not Occupied periods.
- P+I+D control minimizes temperature fluctuations.
- Recovery ramping control automatically optimizes equipment start times based on building load.
- Universal Versaguard™ Thermostat guards available.
- Convenient overrides allow temporary setpoint changes.
- Keypad multi-level lockout available with all models.
- Remote sensor capability - EXCEPT T7350A model - for temperature (including outdoor air and discharge air) and humidity sensors.
- Auxiliary contact interfaces with a Honeywell Economizer System (for total rooftop control integration) or as a dehumidification output.

### Dimensions in millimeters (inches)



### SUBBASE



**Dimensions, Approximate:** 171 mm wide x 114 mm high x 56 mm deep (6 3/4 in. wide x 4 1/2 in. high x 2 3/16 in. deep)

**Color:** Trident White

**Electrical Connections:** 24 Vac, 50/60 Hz; 20 to 30 Vac, 50/60 Hz.

**Network Communications:** None

### Accessories:

- TR21** 20 K ohm NTC non-linear Temperature Wall Module
- TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)
- TR21-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR22** 20 K ohm NTC non-linear Temperature Wall Module with Setpoint adjustment
- TR23** 20 K ohm NTC non-linear Temperature Wall Module with Override and Setpoint adjustment
- TR23-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR24** 20 K ohm NTC non-linear Temperature Wall Module with Override
- WSK-24** Wireless Occupancy Solution
- C7089A1002** Remote Outdoor Sensor
- C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion
- C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion
- C7041R2000** 20K ohm NTC 12 ft Flexible Copper Averaging Temperature Sensor
- H7625A1008** Humidity Transmitter, 2% RH accuracy, wall mount, with optional 20K ohm temp output
- H7625B1006** Humidity Transmitter, 2% RH accuracy, duct mount, with optional 20K ohm temp output
- H7635A1006** Humidity Transmitter, 3% RH accuracy, wall mount, with optional 20K ohm temp output
- H7635B1004** Humidity Transmitter, 3% RH accuracy, duct mount, with optional 20K ohm temp output
- H7655A1001** Humidity Transmitter, 5% RH accuracy, wall mount, without temp output
- H7655B1009** Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output
- T7771A1005** 20 K ohm NTC non-linear Temperature Wall Module
- W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Stages	Comments
		System	Fan		
<b>T7350A1004</b>	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	1 Heat / 1 Cool	—
<b>T7350B1002</b>	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	2 Heat / 2 Cool	Remote Temp, Outdoor, Discharge Air
<b>T7350D1008</b>	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	3 Heat / 3 Cool	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy
<b>T7350M1008</b>	Modulating Systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	2 Mod (4-20mA)/ 2 Relay	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy

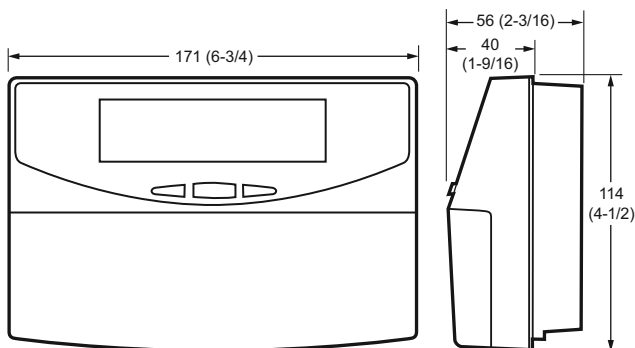
# Programmable Commercial Thermostats

## T7351F Programmable Commercial Thermostats

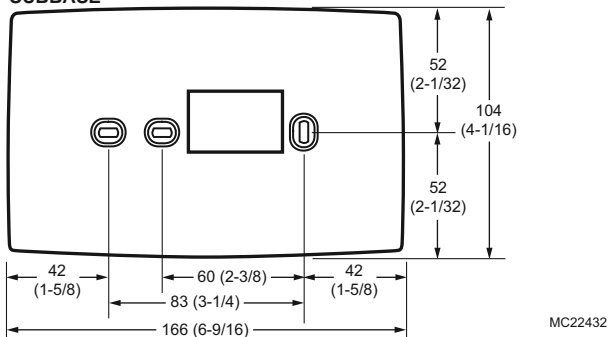


The T7351 Commercial Programmable Thermostat controls 24 Vac commercial single zone heating, ventilating and air conditioning (HVAC) equipment. The T7351 consists of a thermostat and subbase. The thermostat includes the keypad and display for 365-day programming. The subbase includes equipment control

### Dimensions in millimeters (inches)



### SUBBASE



MC22432

connections. The subbase mounts on the wall and the thermostat mounts to the subbase.

Typically used in buildings (including: restaurants, shopping malls, office buildings and banks) under 55,000 square feet.

- For single zone rooftop units, split systems, heat pumps or hot/chilled water systems.
- 365-day programming.
- Two Occupied and two Not Occupied periods per day.
- Individual heat and cool setpoints available for Occupied and Not Occupied periods.
- P+I+D control minimizes temperature fluctuations.
- Recovery ramp control automatically optimizes equipment start times based on building load.
- Convenient overrides allow temporary setpoint changes.
- Keypad multi-level lockout available with all models.
- Remote sensor capability for temperature (including outdoor air and discharge air) and humidity sensors.
- Auxiliary subbase contact typically interface with a Honeywell Economizer System (for total rooftop control integration) or act as dehumidification output.
- Universal Versaguard Thermostat guards available.

**Dimensions, Approximate:** 171 mm wide x 114 mm high x 56 mm deep (6 3/4 in. wide x 4 1/2 in. high x 2 3/16 in. deep)

**Color:** Trident White

**Electrical Connections:** 24 Vac, 50/60 Hz; 20 to 30 Vac, 50/60 Hz.

**Network Communications:** None


### Accessories:

- TR21** 20 K ohm NTC non-linear Temperature Wall Module
- TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)
- TR21-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR22** 20 K ohm NTC non-linear Temperature Wall Module with Setpoint adjustment
- TR23** 20 K ohm NTC non-linear Temperature Wall Module with Override and Setpoint adjustment
- TR23-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR24** 20 K ohm NTC non-linear Temperature Wall Module with Override
- WSK-24** Wireless Occupancy Solution
- C7089A1002** Remote Outdoor Sensor
- C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion
- C7041B2013** 20K ohm NTC Temperature Sensor with 12 in. insertion
- C7041R2000** 20K ohm NTC 12 ft Flexible Copper Averaging Temperature Sensor
- H7625A1008** Humidity Transmitter, 2% RH accuracy, wall mount, with optional 20K ohm temp output
- H7625B1006** Humidity Transmitter, 2% RH accuracy, duct mount, with optional 20K ohm temp output
- H7635A1006** Humidity Transmitter, 3% RH accuracy, wall mount, with optional 20K ohm temp output
- H7635B1004** Humidity Transmitter, 3% RH accuracy, duct mount, with optional 20K ohm temp output
- H7655A1001** Humidity Transmitter, 5% RH accuracy, wall mount, without temp output
- H7655B1009** Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output
- T7771A1005** 20 K ohm NTC non-linear Temperature Wall Module
- W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Switch Position		Stages	Comments
		System	Fan		
T7351F2010	Conventional and Heat Pump systems	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	3 Heat / 3 Cool	Remote Temp, Outdoor, Discharge Air, Humidity, Occupancy

# Programmable Commercial Thermostats

## Commercial Thermostat Accessories

Product Number	Description	Used With	
209651A	Wallplate	T7350	
50014064-001	Infra Red Thermostat Interface Module (IR-TIM), allows PDA to be connected to the T7350	T7350	



# InfraRed Thermostat Interface (IR-TIM)

## InfraRed Thermostat Interface Module (IR-TIM) - 50014064-001



This InfraRed Thermostat Interface Module (IR-TIM) allows a PDA to be connected wirelessly to the T7350 Thermostat.

### T7350 Handheld and Smartphone Compatibility List

Below is a complete list of all the tested and compatible handhelds and smartphones for programming the T7350 thermostats. These handhelds have been tested using the IR-TIM (Product number 50014064-001).

Brand	Model	Handheld or smartphone OS	InfraRed Thermostat Interface Module
Palm	i705	4.x	X
Palm	m105	3.5	X
Palm	Vx	3.5	X
Palm	m125	4.5	X
Palm	Zire71	5.2.1	X
HandEra	TRGpro	3.5x	X
Palm	Tungsten T	5.0	X
Palm	m125	4.x	X
Palm	Tungsten™ C	5.2.1	X
Palm	Tungsten T2	5.2.1	X
Palm	Tungsten T3	5.2.1	X
Palm	Zire 31™	5.2.8	X
Palm	Zire 21	5.2.1	X
Palm	Zire 71	5.2.8	X
Palm	Treo™ 650	5.4	X
Palm	E2	5.4	X
Palm	TX	5.4	X
Palm	LifeDrive	5.4	X
Sony	PEG-TJ27	5.2.1	X
Treo	650	5.4	X
Treo	680	5.4.9	X
Treo	700p	5.4.9	X
Treo	755p	5.4.9	X

### Non-Compatible T7350 Handhelds and Smartphones

The following models are not compatible with the T7350:

- Zire 22
- Treo 750
- Treo 700wx
- Treo 700w
- All handhelds and smartphones with Windows Mobile (5.0) operating system

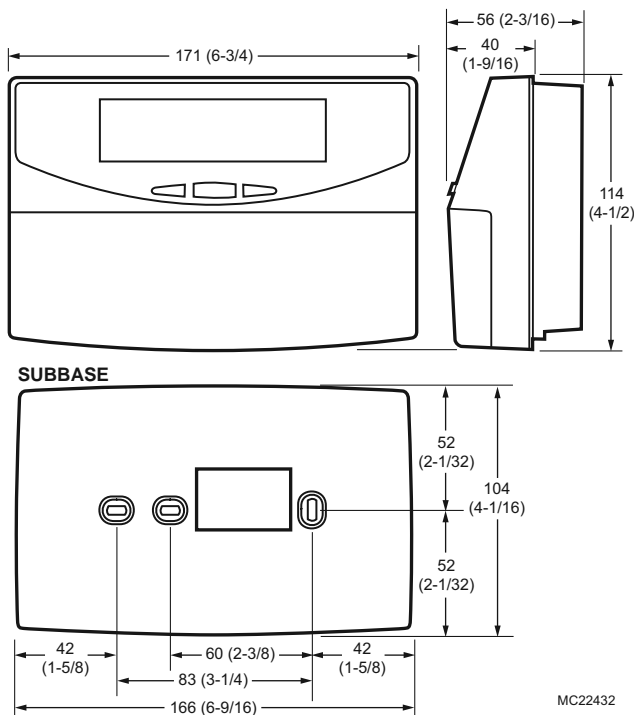
# Communicating Programmable Thermostats

## T7350 Communicating Programmable Commercial Thermostats



**T7350H Communicating Thermostats control 24 Vac commercial single-zone multistage conventional, heat pump and modulating**

**Dimensions in millimeters (inches)**



HVAC equipment. Additionally, the T7350H allows remote access and the sharing of clock, schedule, setpoints, bypass and other system parameters with other devices in a LONWORKS® network.

- 365-day programming.
- Two Occupied and two Not Occupied periods per day.
- Thermostat Interface Module (TIM) connections to thermostat from PDA for advanced configuration, programming, keypad lockout, etc.
- Individual heat and cool setpoints available for Occupied and Not Occupied periods.
- P+I+D control minimizes temperature fluctuations.
- Recovery ramping control automatically optimizes equipment start times based on building load.
- Universal Versaguard™ Thermostat guards available.
- Convenient overrides allow temporary setpoint changes.
- Keypad multi-level lockout available with all models.
- Remote sensor capability for temperature (including outdoor air and discharge air) and humidity sensors.
- Auxiliary contact interfaces with a Honeywell Economizer System (for total rooftop control integration) or as a dehumidification output

**Dimensions, Approximate:** 171 mm wide x 114 mm high x 56 mm deep (6 3/4 in. wide x 4 1/2 in. high x 2 3/16 in. deep)

**Color:** Trident White

**Network Communications:** LonWorks Bus and PDA Serial Port

### Accessories:

- TR21** 20 K ohm NTC non-linear Temperature Wall Module
- TR21-A** 10 K ohm NTC non-linear Temperature Wall Module (for averaging only)
- TR21-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR22** 20 K ohm NTC non-linear Temperature Wall Module with Setpoint adjustment
- TR23** 20 K ohm NTC non-linear Temperature Wall Module with Override and Setpoint adjustment
- TR23-H** 20 K ohm NTC non-linear Temperature Wall Module with Humidity
- TR24** 20 K ohm NTC non-linear Temperature Wall Module with Override
- WSK-24** Wireless Occupancy Solution
- C7041B2005** 20K ohm NTC Temperature Sensor with 6 in. insertion
- C7041R2000** 20K ohm NTC 12 ft Flexible Copper Averaging Temperature Sensor
- H7625A1008** Humidity Transmitter, 2% RH accuracy, wall mount, with optional 20K ohm temp output
- H7625B1006** Humidity Transmitter, 2% RH accuracy, duct mount, with optional 20K ohm temp output
- H7635A1006** Humidity Transmitter, 3% RH accuracy, wall mount, with optional 20K ohm temp output
- H7635B1004** Humidity Transmitter, 3% RH accuracy, duct mount, with optional 20K ohm temp output
- H7635C1002** Humidity Transmitter, 3% RH accuracy, outdoor mount, with optional 20K ohm temp output
- H7655A1001** Humidity Transmitter, 5% RH accuracy, wall mount, without temp output
- H7655B1009** Humidity Transmitter, 5% RH accuracy, duct mount, with optional 20K ohm temp output
- T7771A1005** 20 K ohm NTC non-linear Temperature Wall Module
- W7212A1009** Series 72 Economizer Logic Module with Demand Control Ventilation

Product Number	Application	Stages	Switch Position		Comments
			System	Fan	
<b>T7350H1009</b>	Conventional and Heat Pump systems	3 Heat / 3 Cool	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Remote Temp, Outdoor, Discharge Air, Humidity
<b>T7350H1017</b>	Modulating Systems	2 Mod (4-20mA)/ 2 Relay	HEAT-OFF-COOL-AUTO-EM.HEAT	AUTO-ON	Remote Temp, Outdoor, Discharge Air, Humidity and Occupancy



## WebStat® Controller



WebStat® allows you to step up from standalone thermostat control to the automated T7350 communicating thermostat platform without incurring any excessive direct digital control (DDC) cost or complexity. Automation features include web control, alarming, trending, scheduling, network accessibility, and floor plans. Operational savings are enabled by remote monitoring, alarming, floor plan visuals and thermostat assignment privileges for tenants, facility managers and contractors. WebStat keeps control simple by allowing Internet accessibility and flexibility for assigning user privileges.

- Remote Monitoring
- Remote Programming
- Plug-and-Play Setup
- Universal Programming, Commissioning and Graphics Tool
- Alarm Email Notification
- Trending
- Thermostat Self-Discovery
- Wiring Diagram Generation Tool

**Dimensions, Approximate:** 16.2 cm wide x 10.5 cm high x 6.4 cm deep (6 3/8 in. wide x 4 7/64 in. high x 2.5 in. deep)

**Application Size:** Up to 12 T7350H Thermostats

**Operating Temperature Range:** 32 F to 122 F (0 C to 50 C)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Shipping Temperature Range:** 32 F to 140 F (0 C to 60 C)

**Approvals:**

**Canadian Standards Association:** CSA C22.2 No. 205-M1983 Signal Equipment

**CE:** Approved

**Federal Communications Commission:** FCC part 15 Class A

**Underwriters Laboratories, Inc.** UL 916, C-UL listed

Product Number	Application	Network Communications	Commissioning Software	Compatible with	Includes	Used With
W7350A1000	Controller	LonWorks	WebStat	T7350H Communicating Thermostats	Lon Card and Power Supply	LonWorks bus

# Commercial Thermostat Resources

## Honeywell Building Controls' Web Sites / Electronic Resources

### Main Customer Web Site / Product and Technical Literature

[customer.honeywell.com](http://customer.honeywell.com)

### New Products – Buildings' Product Showcase

Contains trainings, marketing materials, and literature on new thermostat products.

[customer.honeywell.com/buildings](http://customer.honeywell.com/buildings)

### Buildings Forum

[buildingsforum.honeywell.com](http://buildingsforum.honeywell.com)

### Honeywell Promotional Materials

[honeywell.promocollection.com](http://honeywell.promocollection.com)

### Literature Ordering Site

[literature.honeywell.com](http://literature.honeywell.com)

### Applications and Downloads

Contains valuable Commercial Thermostat tools, including the Energy Estimating Tool and Commercial Thermostat Code Compliance Tool – ComCheck 3.3.1. Also contains T7350 Stat downloads, including Palm Software, PC Emulator, and Configuration Code Spreadsheet.

<http://customer.honeywell.com/Business/Cultures/en-US/Products/Applications+and+Downloads/>

### WebStat® Demo Site

[www.webstathoneywell.com](http://www.webstathoneywell.com)

User ID: honeywell  
Password: honeywell

### Rapid Zone® Website

[customer.honeywell.com/rapidzone](http://customer.honeywell.com/rapidzone)

### eLearning Training Modules

<http://customer.honeywell.com/learning>

Training presentations are available 24/7 at this site, so you can access the trainings whenever is best for you.

1. Go to the website above and log in to your customer.honeywell.com account. If you need a login, just register and you'll have access within about 24 hours.
2. Click on where it says "**Please click here to browse our eLearning Modules.**" This will open up a new window with the eLearning Training Modules.
3. From this spot you can click on the product that you want and the module will launch from your screen with visuals accompanied by an informational audio presentation. The section listings on the right will help you track your progress and know the approximate time remaining in each section as well as for the complete module. If you need to pause it, just click the pause button at the bottom of the screen. If you wish to repeat a section simply click on that section's listing on the right side of the screen. All modules feature an interactive quiz to help you review the material. After you finish this quiz, the training is complete.

### 4. Trainings Include:

#### a. Building Automation (LCBS) Products

- i. WebStat Programming and Configuration – Course #63-9625
- ii. WebStat Installation and Networking – Course #63-9626

#### b. Building Controls Products

- i. Commercial Thermostats – Course #63-9605
- ii. T7351 Basic Training – Course #63-9600
- iii. T7351 Advanced Training – Course #63-9601 (Must take Basic Training first)
- iv. Commercial VisionPRO 8000 Basic Training – Course #63-9602
- v. CommercialPRO 7000 Basic Training – Course #63-9603
- vi. ZonePRO Basic Training – Course #63-9604
- vii. MultiPRO Basic Training – Course #67-7200
- viii. SuitePRO Basic Training – Course #67-7201

## Product Resources

These sites contain information on Buildings' Products, and include access to Product Features, Marketing Materials, and Training Presentations.

### WebStat® Controller

<http://customer.honeywell.com/webstat>

### T7351 Thermostat

<http://customer.honeywell.com/t7351>

### ZonePRO® Modulating Thermostat

<http://customer.honeywell.com/zonepro>

### CommercialPRO® 7000

<http://customer.honeywell.com/cpro>

### Commercial VisionPRO® 8000

<http://customer.honeywell.com/cvp>

### SuitePRO™ Digital Fan Coil Thermostat

<http://customer.honeywell.com/suitepro>

### MultiPRO™ 7000

<http://customer.honeywell.com/multipro>

## Commercial Thermostat Literature – Useful literature on Commercial Thermostats

- 63-9610 – Commercial Thermostats Application and Cross Reference Guide
- 63-9620 - Commercial Thermostats Application and Cross Reference Guide (General Wholesaler Version)
- 95C-10897 – T6570, T8570 Digital Fan Coil Stat Product Data Sheet
- 63-2658 WebStat User Guide

## ST6008 Energy Management Timers



**Provide 24-hour or 7-day time-based switching.**

- Universal application with 24-hour or 7-day programming.
- Battery backup (quartz drive).
- Screw wiring terminals.
- Three-way override.
- Captive trippers.

**Dimensions, Approximate:** 108 mm high x 75 mm wide x 57 mm deep (4 1/4 in. high x 2 15/16 in. wide x 2 1/4 in. deep)

**Electrical Connections (in.):** Screw terminals

**Mounting:** Surface or on DIN rail

**Frequency:** 60 Hz

**Ambient Temperature Range:** -40 C to +82 C (-40 F to +180 F)

**Operating Humidity Range (% RH):** 0 to 95% RH

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR52379

**Underwriters Laboratories, Inc.** Listed File: E83486

Product Number	Clock Type	Voltage	Minimum Timing	Switching	Switch Ratings
ST6008A1006	24-hours synchronous	120 Vac	15 min	1 SPDT	1350 W tungsten; 21 A resistive @ 250 V
ST6008C1004	7-day quartz (7 day battery reserve)	120 Vac	2 hrs	1 SPDT	1350 W tungsten; 23 A resistive @ 250 V

# Pressure-regulated Control Valves

## NPT Dynamic Pressure-regulated Control Valves



The VRN2 two-way dynamic pressure-regulating control ball valves maintain constant flow of hot or chilled water in closed loop heating, ventilating, and air conditioning (HVAC) systems regardless of head pressure fluctuations above the minimum specified pressure drop. These valve assemblies can be used with Honeywell non-spring return or spring return direct coupled actuators (DCA) with minimum torque of 35 lb-in (4 Nm) on valve sizes up to 3 inches (DN80).

The built-in differential pressure regulator makes fluid flow through the valve independent of changes in supply pressure, eliminating "hunting" by the control system, even at low coil flow. The pressure regulator virtually eliminates cavitation in the valve, and decouples the control valve from the effects of piping components such as reducers and elbows.

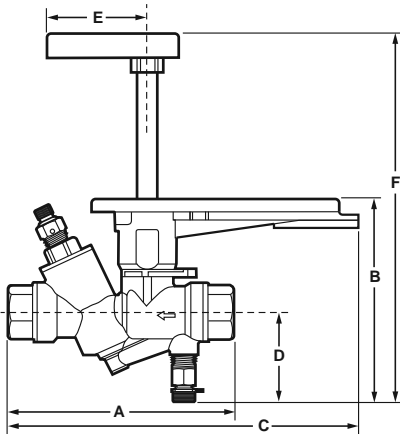
Pressure independent control valves are sized to match design coil flow regardless of coil size. VRN2 valves eliminate the need to balance the system for proper flow, and allow chillers to be

operated at design temperature differential for maximum efficiency at every load condition. When used in a system with variable speed pump drives, 3-way valves and coil bypass lines are not required. In new construction, VRN2 valves perform better than reverse return piping designs without the extra materials these systems need.

Systems that utilize the capabilities of properly installed and monitored pressure-independent control valves may qualify for LEED points. Pressure-independent control requires less flow, enabling use of smaller piping, pumps, and chillers.

- Sizes from 1/2 to 3 in. with internal (female) NPT connections.
- Controls hot or chilled water with up to 50% glycol.
- Regulated flow rates available from 1 to 95 gpm.
- Differential pressure regulator for constant pressure drop across valve seat.
- Positive pressure, rolling diaphragm regulator design for long service life for flow control accuracy of  $\pm 5\%$  over specified control range.
- Equal percentage flow characteristic using patented flow control ball insert.
- Multiple regulated flow rates available per valve size.
- Patented ball seals require low operating torque.
- Nickel-chrome plated brass or stainless steel trim.
- Choice of factory-installed actuation using Honeywell N05/S05-series direct-coupled actuators: Floating, Modulating (2-10 V), Spring Return Modulating/Floating.
- Spring return actuators field-configurable for normally open or normally closed fail-safe position.
- Actuators available with optional auxiliary switches.
- Removable, manual operating handle to control valve during installation or in an event of power failure.
- Upstream Test Port for venting or pressure gauge attachment.
- Three actuator orientations on the valve for cramped spaces.

### Dimensions in millimeters (inches)



VALVE SIZE (IN.)	DIMENSIONS IN MM (INCHES)						
	A	B	C	D	E	F <sub>Z</sub> <sup>a</sup>	F <sub>S</sub> <sup>a</sup>
1/2	145 (5-11/16)	109 (4-5/16)	218 (8-19/32)	26 (1)	64 (2-1/2)	213 (8-13/32)	182 (7-3/16)
3/4	150 (5-29/32)		221 (8-45/64)				
1	229 (9)	117 (4-19/32)	277 (10-57/64)	41 (1-5/8)		239 (9-13/32)	207 (8-3/16)
	213 (8-3/32)		269 (10-19/32)				
1-1/4	208 (8-3/16)	132 (5-3/16)	267 (10-1/2)	53 (2-3/32)		264 (10-13/32)	232 (9-3/16)
1-1/2	254 (10)		307 (12-3/32)				
2	251 (9-29/32)	132 (5-3/16)	305 (12)	53 (2-3/32)		264 (10-13/32)	232 (9-3/16)
2-1/2	263 (10-9/32)		310 (12-3/16)				
3	274 (10-13/16)	132 (5-3/16)	314 (12-13/32)	53 (2-3/32)		264 (10-13/32)	232 (9-3/16)

<sup>a</sup> LONG SHAFT SUPPLIED WITH "ZELIX" (Z) DIRECT COUPLED ACTUATORS;  
SHORT SHAFT SUPPLIED WITH "SALT" (S) NON-SPRING RETURN DCAS. MC31310

**Valve Type:** Dynamic pressure-regulated control valve

**Body Pattern:** 2-way, straight-through

**Flow Characteristic:** Equal Percentage with flow control insert

**Connection Type:** Female-NPT

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Valve Action:** Quarter-turn rotary

**Maximum Safe Operating Pressure:** 2500 kPa (360 psi)

**Maximum Safe Operating Temperature:** 120 C (248 F)

**Maximum Close-off Pressure:** 690 kPa (100 psid)

**Fluid Temperature Range:** -30 C to 121 C (-22 F to 250 F)

**Ambient Temperature Range:** -10 C to 55 C (14 F to 131 F)

**Accuracy:**  $\pm 5\%$  over specified pressure range

**Stem Travel:** (90 deg. rotation)

### Materials

**(Body):** Forged Brass ASTM B584

**(Stem):** Brass

**(Seat):** Teflon seals / EPDM O-rings

**(Regulator):** Stainless Steel

**(Plug/Ball/Disc):** Plated brass

**(Packing):** Teflon seals / EPDM O-rings

**(Diaphragm):** Hydrogenated Acrylonitrile Butadiene Rubber

# Pressure-regulated Control Valves

**Flow Characteristics: Equal Percentage with flow control insert**

Comments: 2-10V position feedback signal

Includes: MN7505 Modulating DCA

Available Accessories: SSW2 Auxiliary switch kit

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2AB3D2B	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AB3S2B	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AD3D2B	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AD3S2B	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AE3D2B	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AE3S2B	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AF3D2B	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AF3S2B	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AG3D2B	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AG3S2B	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AH3D2B	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AH3S2B	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AJ3D2B	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AJ3S2B	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BB3D2B	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BB3S2B	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BD3D2B	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BD3S2B	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BE3D2B	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BE3S2B	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BF3D2B	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BF3S2B	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BG3D2B	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BG3S2B	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BH3D2B	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BH3S2B	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BJ3D2B	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BJ3S2B	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BK3D2B	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BK3S2B	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BL3D2B	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BL3S2B	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CB3D2B	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CB3S2B	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CD3D2B	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CD3S2B	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CE3D2B	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CE3S2B	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CF3D2B	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CF3S2B	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CG3D2B	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CG3S2B	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CH3D2B	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CH3S2B	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel

Commercial Components

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2CJ3D2B	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CJ3S2B	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CK3D2B	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CK3S2B	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CL3D2B	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CL3S2B	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CM3D2B	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CM3S2B	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CN3D2B	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CN3S2B	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CP3D2B	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CP3S2B	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DM3D2B	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DM3S2B	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DN3D2B	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DN3S2B	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DP3D2B	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DP3S2B	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DQ3D2B	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DQ3S2B	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DR3D2B	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DR3S2B	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EU3D2B	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2EU3S2B	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2E13D2B	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2E13S2B	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2EM3D2B	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EM3S2B	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EN3D2B	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EN3S2B	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EP3D2B	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EP3S2B	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EQ3D2B	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EQ3S2B	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ER3D2B	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2ER3S2B	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ES3D2B	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ES3S2B	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2ET3D2B	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ET3S2B	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FU3D2B	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FU3S2B	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F13D2B	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F13S2B	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F23D2B	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F23S2B	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F33D2B	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2F33S2B	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F43D2B	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F43S2B	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F53D2B	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F53S2B	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F63D2B	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F63S2B	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FQ3D2B	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FQ3S2B	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FR3D2B	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FR3S2B	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FS3D2B	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FS3S2B	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FT3D2B	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FT3S2B	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GU3D2B	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GU3S2B	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G13D2B	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G13S2B	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G23D2B	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G23S2B	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G33D2B	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G33S2B	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G43D2B	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G43S2B	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G53D2B	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G53S2B	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G63D2B	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G63S2B	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G73D2B	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G73S2B	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G83D2B	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G83S2B	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GQ3D2B	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GQ3S2B	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GR3D2B	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GR3S2B	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GS3D2B	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GS3S2B	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GT3D2B	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GT3S2B	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HU3D2B	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HU3S2B	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H13D2B	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H13S2B	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H23D2B	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H23S2B	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

Commercial Components

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2H33D2B	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H33S2B	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H43D2B	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H43S2B	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H53D2B	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H53S2B	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H63D2B	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H63S2B	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H73D2B	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H73S2B	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H83D2B	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H83S2B	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HQ3D2B	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HQ3S2B	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HR3D2B	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HR3S2B	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HS3D2B	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HS3S2B	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HT3D2B	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HT3S2B	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

## Flow Characteristics: Equal Percentage with flow control insert

Comments: 2-10V position feedback signal

Includes: MS7505 "Zelix" Modulating Spring Return DCA

Available Accessories: SSW2 Auxiliary switch kit

\* Available Accessories: w/ position feedback signal

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2AB3D2D*	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AB3S2D	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AD3D2D	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AD3S2D	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AE3D2D	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AE3S2D	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AF3D2D	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AF3S2D	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AG3D2D	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AG3S2D	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AH3D2D	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AH3S2D	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AJ3D2D	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AJ3S2D	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BB3D2D	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BB3S2D	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BD3D2D	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BD3S2D	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BE3D2D	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BE3S2D	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel



# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2BF3D2D	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BF3S2D	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BG3D2D	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BG3S2D	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BH3D2D	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BH3S2D	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BJ3D2D	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BJ3S2D	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BK3D2D	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BK3S2D	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BL3D2D	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BL3S2D	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CB3D2D	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CB3S2D	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CD3D2D	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CD3S2D	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CE3D2D	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CE3S2D	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CF3D2D	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CF3S2D	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CG3D2D	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CG3S2D	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CH3D2D	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CH3S2D	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CJ3D2D	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CJ3S2D	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CK3D2D	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CK3S2D	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CL3D2D	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CL3S2D	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CM3D2D	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CM3S2D	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CN3D2D	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CN3S2D	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CP3D2D	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CP3S2D	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DM3D2D	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DM3S2D	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DN3D2D	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DN3S2D	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DP3D2D	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DP3S2D	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DQ3D2D	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DQ3S2D	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DR3D2D	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DR3S2D	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2EU3D2D	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2EU3S2D	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2E13D2D	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2E13S2D	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2EM3D2D	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EM3S2D	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EN3D2D	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EN3S2D	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EP3D2D	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EP3S2D	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EQ3D2D	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EQ3S2D	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ER3D2D	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2ER3S2D	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ES3D2D	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ES3S2D	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2ET3D2D	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ET3S2D	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FU3D2D	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FU3S2D	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F13D2D	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F13S2D	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F23D2D	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F23S2D	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F33D2D	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F33S2D	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F43D2D	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F43S2D	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F53D2D	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F53S2D	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F63D2D	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F63S2D	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FQ3D2D	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FQ3S2D	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FR3D2D	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FR3S2D	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FS3D2D	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FS3S2D	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FT3D2D	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FT3S2D	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GU3D2D	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GU3S2D	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G13D2D	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G13S2D	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G23D2D	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G23S2D	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2G33D2D	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G33S2D	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G43D2D	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G43S2D	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G53D2D	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G53S2D	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G63D2D	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G63S2D	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G73D2D	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G73S2D	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G83D2D	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G83S2D	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GQ3D2D	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GQ3S2D	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GR3D2D	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GR3S2D	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GS3D2D	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GS3S2D	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GT3D2D	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GT3S2D	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HU3D2D	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HU3S2D	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H13D2D	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H13S2D	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H23D2D	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H23S2D	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H33D2D	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H33S2D	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H43D2D	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H43S2D	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H53D2D	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H53S2D	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H63D2D	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H63S2D	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H73D2D	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H73S2D	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H83D2D	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H83S2D	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HQ3D2D	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HQ3S2D	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HR3D2D	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HR3S2D	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HS3D2D	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HS3S2D	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HT3D2D	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HT3S2D	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

## Flow Characteristics: Equal Percentage with flow control insert

Comments: No feedback signal

Includes: MN6105 Floating DCA

Available Accessories: SSW2 Auxiliary switch kit

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2AB3D2A	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AB3S2A	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AD3D2A	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AD3S2A	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AE3D2A	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AE3S2A	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AF3D2A	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AF3S2A	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AG3D2A	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AG3S2A	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AH3D2A	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AH3S2A	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AJ3D2A	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AJ3S2A	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BB3D2A	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BB3S2A	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BD3D2A	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BD3S2A	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BE3D2A	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BE3S2A	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BF3D2A	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BF3S2A	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BG3D2A	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BG3S2A	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BH3D2A	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BH3S2A	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BJ3D2A	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BJ3S2A	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BK3D2A	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BK3S2A	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BL3D2A	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BL3S2A	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CB3D2A	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CB3S2A	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CD3D2A	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CD3S2A	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CE3D2A	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CE3S2A	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CF3D2A	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CF3S2A	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CG3D2A	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CG3S2A	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CH3D2A	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CH3S2A	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2CJ3D2A	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CJ3S2A	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CK3D2A	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CK3S2A	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CL3D2A	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CL3S2A	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CM3D2A	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CM3S2A	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CN3D2A	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CN3S2A	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CP3D2A	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CP3S2A	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DM3D2A	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DM3S2A	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DN3D2A	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DN3S2A	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DP3D2A	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DP3S2A	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DQ3D2A	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DQ3S2A	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DR3D2A	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DR3S2A	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EU3D2A	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2EU3S2A	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2E13D2A	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2E13S2A	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2EM3D2A	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EM3S2A	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EN3D2A	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EN3S2A	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EP3D2A	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EP3S2A	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EQ3D2A	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EQ3S2A	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ER3D2A	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2ER3S2A	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ES3D2A	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ES3S2A	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2ET3D2A	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ET3S2A	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FU3D2A	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FU3S2A	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F13D2A	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F13S2A	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F23D2A	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F23S2A	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F33D2A	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2F33S2A	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F43D2A	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F43S2A	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F53D2A	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F53S2A	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F63D2A	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F63S2A	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FQ3D2A	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FQ3S2A	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FR3D2A	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FR3S2A	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FS3D2A	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FS3S2A	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FT3D2A	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FT3S2A	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GU3D2A	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GU3S2A	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G13D2A	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G13S2A	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G23D2A	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G23S2A	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G33D2A	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G33S2A	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G43D2A	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G43S2A	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G53D2A	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G53S2A	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G63D2A	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G63S2A	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G73D2A	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G73S2A	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G83D2A	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G83S2A	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GQ3D2A	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GQ3S2A	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GR3D2A	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GR3S2A	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GS3D2A	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GS3S2A	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GT3D2A	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GT3S2A	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HU3D2A	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HU3S2A	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H13D2A	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H13S2A	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H23D2A	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H23S2A	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2H33D2A	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H33S2A	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H43D2A	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H43S2A	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H53D2A	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H53S2A	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H63D2A	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H63S2A	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H73D2A	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H73S2A	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H83D2A	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H83S2A	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HQ3D2A	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HQ3S2A	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HR3D2A	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HR3S2A	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HS3D2A	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HS3S2A	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HT3D2A	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HT3S2A	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

## Flow Characteristics: Equal Percentage with flow control insert

Comments: No feedback signal

Includes: Two shafts, universal anti-rotation bar

Available Accessories: DCA, minimum 35 lb-in torque

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2AB3DFX	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AB3SFX	DN15	1/2 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AD3DFX	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AD3SFX	DN15	1/2 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AE3DFX	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AE3SFX	DN15	1/2 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AF3DFX	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AF3SFX	DN15	1/2 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AG3DFX	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AG3SFX	DN15	1/2 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AH3DFX	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AH3SFX	DN15	1/2 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2AJ3DFX	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2AJ3SFX	DN15	1/2 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BB3DFX	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BB3SFX	DN20	3/4 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BD3DFX	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BD3SFX	DN20	3/4 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BE3DFX	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BE3SFX	DN20	3/4 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BF3DFX	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2BF3SFX	DN20	3/4 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BG3DFX	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BG3SFX	DN20	3/4 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BH3DFX	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BH3SFX	DN20	3/4 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BJ3DFX	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BJ3SFX	DN20	3/4 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BK3DFX	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BK3SFX	DN20	3/4 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2BL3DFX	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BL3SFX	DN20	3/4 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CB3DFX	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CB3SFX	DN25	1 in.	0.23 m <sup>3</sup> /h	1.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CD3DFX	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CD3SFX	DN25	1 in.	0.45 m <sup>3</sup> /h	2.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CE3DFX	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CE3SFX	DN25	1 in.	0.68 m <sup>3</sup> /h	3.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CF3DFX	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CF3SFX	DN25	1 in.	0.91 m <sup>3</sup> /h	4.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CG3DFX	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CG3SFX	DN25	1 in.	1.14 m <sup>3</sup> /h	5.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CH3DFX	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CH3SFX	DN25	1 in.	1.36 m <sup>3</sup> /h	6.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CJ3DFX	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CJ3SFX	DN25	1 in.	1.59 m <sup>3</sup> /h	7.0 gpm	6.5 ft	21 kPa	3.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CK3DFX	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CK3SFX	DN25	1 in.	1.82 m <sup>3</sup> /h	8.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CL3DFX	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2CL3SFX	DN25	1 in.	2.04 m <sup>3</sup> /h	9.0 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2CM3DFX	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CM3SFX	DN25	1 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CN3DFX	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CN3SFX	DN25	1 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2CP3DFX	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2CP3SFX	DN25	1 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DM3DFX	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DM3SFX	DN32	1-1/4 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DN3DFX	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DN3SFX	DN32	1-1/4 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DP3DFX	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DP3SFX	DN32	1-1/4 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DQ3DFX	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DQ3SFX	DN32	1-1/4 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2DR3DFX	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2DR3SFX	DN32	1-1/4 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EU3DFX	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2EU3SFX	DN40	1-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel



# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2E13DFX	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2E13SFX	DN40	1-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2EM3DFX	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EM3SFX	DN40	1-1/2 in.	2.27 m <sup>3</sup> /h	10 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EN3DFX	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EN3SFX	DN40	1-1/2 in.	3.41 m <sup>3</sup> /h	15 gpm	6.5 ft	21 kPa	3.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EP3DFX	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EP3SFX	DN40	1-1/2 in.	4.54 m <sup>3</sup> /h	20 gpm	8.7 ft	28 kPa	4.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2EQ3DFX	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2EQ3SFX	DN40	1-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ER3DFX	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Plated brass	Brass
VRN2ER3SFX	DN40	1-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	10.9 ft	34 kPa	5.0 psid	109 ft	340 kPa	50 psid	Stainless Steel	Stainless Steel
VRN2ES3DFX	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ES3SFX	DN40	1-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2ET3DFX	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2ET3SFX	DN40	1-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FU3DFX	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FU3SFX	DN50	2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F13DFX	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F13SFX	DN50	2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F23DFX	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F23SFX	DN50	2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F33DFX	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F33SFX	DN50	2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F43DFX	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F43SFX	DN50	2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F53DFX	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F53SFX	DN50	2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2F63DFX	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2F63SFX	DN50	2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FQ3DFX	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FQ3SFX	DN50	2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FR3DFX	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FR3SFX	DN50	2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FS3DFX	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FS3SFX	DN50	2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2FT3DFX	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2FT3SFX	DN50	2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GU3DFX	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GU3SFX	DN65	2-1/2 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G13DFX	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G13SFX	DN65	2-1/2 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G23DFX	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G23SFX	DN65	2-1/2 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G33DFX	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G33SFX	DN65	2-1/2 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G43DFX	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2G43SFX	DN65	2-1/2 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G53DFX	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G53SFX	DN65	2-1/2 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G63DFX	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G63SFX	DN65	2-1/2 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G73DFX	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G73SFX	DN65	2-1/2 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G83DFX	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G83SFX	DN65	2-1/2 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GQ3DFX	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GQ3SFX	DN65	2-1/2 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GR3DFX	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GR3SFX	DN65	2-1/2 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GS3DFX	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GS3SFX	DN65	2-1/2 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2GT3DFX	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2GT3SFX	DN65	2-1/2 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HU3DFX	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HU3SFX	DN80	3 in.	10 m <sup>3</sup> /h	45 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H13DFX	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H13SFX	DN80	3 in.	11 m <sup>3</sup> /h	50 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H23DFX	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H23SFX	DN80	3 in.	12 m <sup>3</sup> /h	55 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H33DFX	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H33SFX	DN80	3 in.	14 m <sup>3</sup> /h	60 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H43DFX	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H43SFX	DN80	3 in.	15 m <sup>3</sup> /h	65 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H53DFX	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H53SFX	DN80	3 in.	16 m <sup>3</sup> /h	70 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H63DFX	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H63SFX	DN80	3 in.	17 m <sup>3</sup> /h	75 gpm	15.2 ft	48 kPa	7.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H73DFX	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H73SFX	DN80	3 in.	18 m <sup>3</sup> /h	80 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H83DFX	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H83SFX	DN80	3 in.	19 m <sup>3</sup> /h	85 gpm	21.8 ft	69 kPa	10.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HQ3DFX	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HQ3SFX	DN80	3 in.	5.68 m <sup>3</sup> /h	25 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HR3DFX	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HR3SFX	DN80	3 in.	6.81 m <sup>3</sup> /h	30 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HS3DFX	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HS3SFX	DN80	3 in.	7.95 m <sup>3</sup> /h	35 gpm	8.7 ft	28 kPa	4.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2HT3DFX	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2HT3SFX	DN80	3 in.	9.08 m <sup>3</sup> /h	40 gpm	13.1 ft	41 kPa	6.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

## Flow Characteristics: Full port ball

Comments: Full port ball; 2-10 V position feedback signal

Includes: MN6105 Floating DCA

Available Accessories: SSW2 Auxiliary switch kit

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2BM3D2A	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BM3S2A	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2DS3D2A	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2DS3S2A	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G93D2A	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G93S2A	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H93D2A	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H93S2A	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

## Flow Characteristics: Full port ball

Comments: Full port ball; 2-10 V position feedback signal

Includes: MN7505 Modulating DCA

Available Accessories: SSW2 Auxiliary switch kit

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2BM3D2B	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BM3S2B	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2DS3D2B	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2DS3S2B	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G93D2B	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G93S2B	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H93D2B	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H93S2B	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

## Flow Characteristics: Full port ball

Comments: Full port ball; 2-10 V position feedback signal

Includes: MS7505 "Zelix" Modulating Spring Return DCA

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2BM3D2D	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BM3S2D	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2DS3D2D	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2DS3S2D	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G93D2D	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G93S2D	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H93D2D	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H93S2D	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

## Flow Characteristics: Full port ball

**Comments:** Full port ball; 2-10 V position feedback signal

**Includes:** Two shafts, universal anti-rotation bar

**Available Accessories:** DCA, minimum 27 lb-in torque

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Materials	
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VRN2BM3DFX	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Plated brass	Brass
VRN2BM3SFX	DN20	3/4 in.	2.27 m <sup>3</sup> /h	10 gpm	13.1 ft	41 kPa	6.0 psid	76 ft	240 kPa	35 psid	Stainless Steel	Stainless Steel
VRN2DS3DFX	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2DS3SFX	DN32	1-1/4 in.	7.95 m <sup>3</sup> /h	35 gpm	14.1 ft	45 kPa	6.5 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2G93DFX	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2G93SFX	DN65	2-1/2 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel
VRN2H93DFX	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Plated brass	Brass
VRN2H93SFX	DN80	3 in.	22 m <sup>3</sup> /h	95 gpm	26.1 ft	83 kPa	12.0 psid	126 ft	400 kPa	58 psid	Stainless Steel	Stainless Steel

# Pressure-regulated Control Valves

## Wafer Flanged Dynamic Pressure-regulated Control Valves



The VRW2 two-way dynamic pressure-regulating control valves maintain constant flow of hot and chilled water in closed-loop heating, ventilating, and air conditioning (HVAC) systems regardless of head pressure fluctuations above minimum specified pressure drop. These valves come complete with proportional, stay-in-place or electronic fail-safe actuators.

The built-in differential pressure regulator makes fluid flow through the valve independent of changes in supply pressure, eliminating "hunting" by the control system, even at low coil flow.

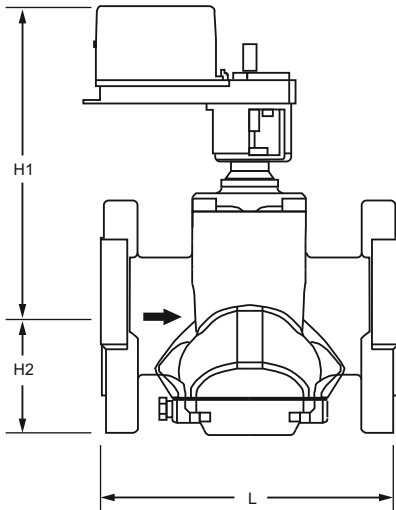
The pressure regulator virtually eliminates cavitation in the valve, and decouples the control valve from the effects of piping components such as reducers and elbows.

Pressure independent control valves are sized to match design coil flow regardless of coil size. VRW2 valves eliminate the need to balance the system for proper flow, and allow chillers to be operated at design temperature differential for maximum efficiency at every load condition. When used in a system with variable speed pump drives, 3-way valves and coil bypass lines are not required.

Systems that utilize the capabilities of properly installed, adjusted, and monitored pressure-independent control valves may qualify for LEED points.

- Multi-sized bodies from 2 1/2 to 6 inch pipes with wafer flanged connections.
- Combination ANSI/ASME Class 150/300 pressure rating.
- Controls hot or chilled water with up to 50% glycol.
- Regulated flow rates available from 39 to 469 gpm.
- Stainless steel pressure regulator maintains constant pressure drop across valve seat.
- Positive pressure, rolling diaphragm regulator design provides flow control accuracy of  $\pm 5\%$  over specified pressure range.
- Equal percentage flow characteristic using multi turn, non-rising, characterized plug.
- High close-off rating.
- 50 discrete, selectable flow rates available per valve size.
- Stainless steel trim.
- Six-turn actuator with floating or modulating inputs available with stay-in-place or electronic fail-safe action.
- Fail-safe actuators field-configurable for normally open or normally closed power failure return position.
- Two Test Ports for venting or pressure gauge attachment.

Dimensions in millimeters (inches)



L		H1		H2	
MM	INCHES	MM	INCHES	MM	INCHES
224	8-3/4	246	9-3/4	95	3-3/4
320	12-5/8	290	11-3/8	135	5-1/4
422	16-5/8	338	13-1/4	180	7-1/8

MC31311

**Valve Type:** Wafer flanged dynamic pressure-regulated control valve

**Body Pattern:** 2-way, straight-through

**Flow Characteristic:** Equal Percentage

**Connection Type:** Wafer flange

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Valve Action:** Multi-turn linear

**Leakage Rating:** 0.2% max.

**Maximum Safe Operating Pressure:** 4000 kPa (580 psig)

**Maximum Safe Operating Temperature:** 120 C (248 F)

**Maximum Close-off Pressure:** 700 kPa (101 psid)

**Fluid Temperature Range:** -20 C to 120 C (-4 F to 248 F)

**Ambient Temperature Range:** -10 C to 55 C (14 F to 131 F)

**Accuracy:**  $\pm 5\%$  over specified pressure range

**Stem Travel:** (1 to 6 Rotations in 51 equal, field-selectable increments)

**ANSI/ ASME Class:** 150/300

**Comments:** 2 - 10V position feedback signal

**Materials**

**(Body):** Ductile Iron, ASTM A536ñ65T, Class 60-45-18

**(Stem):** Stainless Steel

**(Seat):** 316 Stainless steel

**(Regulator):** 316 Stainless steel

**(Plug/Ball/Disc):** 316 stainless steel

**(Packing):** EPDM and Nitrile O-rings

**(Diaphragm):** EPDM

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Includes
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	
VRW2JV4SMB	DN65; DN80	2-1/2 in.; 3 in.	25 m <sup>3</sup> /h	112 gpm	11.1 ft	35 kPa	5.1 psid	126 ft	400 kPa	58 psid	Modulating/Floating actuator
VRW2JV4SMD	DN65; DN80	2-1/2 in.; 3 in.	25 m <sup>3</sup> /h	112 gpm	11.1 ft	35 kPa	5.1 psid	126 ft	400 kPa	58 psid	Modulating/Floating Fail-safe actuator

# Pressure-regulated Control Valves

Product Number	Valve Size		Maximum Flow		Minimum head loss			Maximum head loss			Includes
	DN	inch	(m <sup>3</sup> /h)	(gpm)	(ft)	(kPa)	(psi)	(ft)	(kPa)	(psi)	
VRW2JW4SMB	DN65; DN80	2-1/2 in.; 3 in.	35 m <sup>3</sup> /h	155 gpm	25.3 ft	80 kPa	11.6 psid	126 ft	400 kPa	58 psid	Modulating/Floating actuator
VRW2JW4SMD	DN65; DN80	2-1/2 in.; 3 in.	35 m <sup>3</sup> /h	155 gpm	25.3 ft	80 kPa	11.6 psid	126 ft	400 kPa	58 psid	Modulating/Floating Fail-safe actuator
VRW2KV4SMB	DN80; DN100	3in.; 4 in.	33 m <sup>3</sup> /h	147 gpm	11.1 ft	35 kPa	5.1 psid	126 ft	400 kPa	58 psid	Modulating/Floating actuator
VRW2KV4SMD	DN80; DN100	3in.; 4 in.	33 m <sup>3</sup> /h	147 gpm	11.1 ft	35 kPa	5.1 psid	126 ft	400 kPa	58 psid	Modulating/Floating Fail-safe actuator
VRW2KW4SMB	DN80; DN100	3in.; 4 in.	50 m <sup>3</sup> /h	222 gpm	18.7 ft	59 kPa	8.6 psid	126 ft	400 kPa	58 psid	Modulating/Floating actuator
VRW2KW4SMD	DN80; DN100	3in.; 4 in.	50 m <sup>3</sup> /h	222 gpm	18.7 ft	59 kPa	8.6 psid	126 ft	400 kPa	58 psid	Modulating/Floating Fail-safe actuator
VRW2LV4SMB	DN125; DN150	6 in.; 5 in.	84 m <sup>3</sup> /h	370 gpm	11.1 ft	35 kPa	5.1 psid	126 ft	400 kPa	58 psid	Modulating/Floating actuator
VRW2LV4SMD	DN125; DN150	6 in.; 5 in.	84 m <sup>3</sup> /h	370 gpm	11.1 ft	35 kPa	5.1 psid	126 ft	400 kPa	58 psid	Modulating/Floating Fail-safe actuator
VRW2LW4SMB	DN125; DN150	6 in.; 5 in.	106 m <sup>3</sup> /h	469 gpm	18.7 ft	59 kPa	8.6 psid	126 ft	400 kPa	58 psid	Modulating/Floating actuator
VRW2LW4SMD	DN125; DN150	6 in.; 5 in.	106 m <sup>3</sup> /h	469 gpm	18.7 ft	59 kPa	8.6 psid	126 ft	400 kPa	58 psid	Modulating/Floating Fail-safe actuator

# Control Ball Valves

## VBF2; VBF3; VBN2; VBN3 Control Ball Valves

Valve	Fitting	Body/Flow	Size	C <sub>v</sub>	T / P	Trim	Enclosure	Actuator
VB = valve, ball								
F = Flanged								
N = Female NPT threaded								
2 = 2 way								
3 = 3 way								
			inch	S.I. metric				
A			1/2	DN15				
B			3/4	DN20				
C			1	DN25				
D			1-1/4	DN32				
E			1-1/2	DN40				
F			2	DN50				
G			2-1/2	DN65				
H			3	DN80				
J			4	DN100				
K			5	DN125				
L			6	DN150				
B			CV Designator (specific values vary by valve size)					
C								
D								
E								
F								
....								
S								
T								
U								
1								
2								
3								
4								
5								
6								
7								
1 = ANSI Valve construction								
3 = ANSI 300 Valve construction								
P = Plated (chrome or nickel)								
S = Stainless Steel								
0 = no enclosure								
R = NEMA 3R enclosure								
X = no actuator								
A = NSR, Floating, conduit								
B = NSR, Modulating								
C = SR, 2-Position, 24 Vac								
D = SR, Floating/Modulating								
F = NSR, Floating, open terminal strip, 1/2 and 3/4 inch only								

VB	F	2	A	B	1	S	0	A
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Commercial Components

# Control Ball Valves

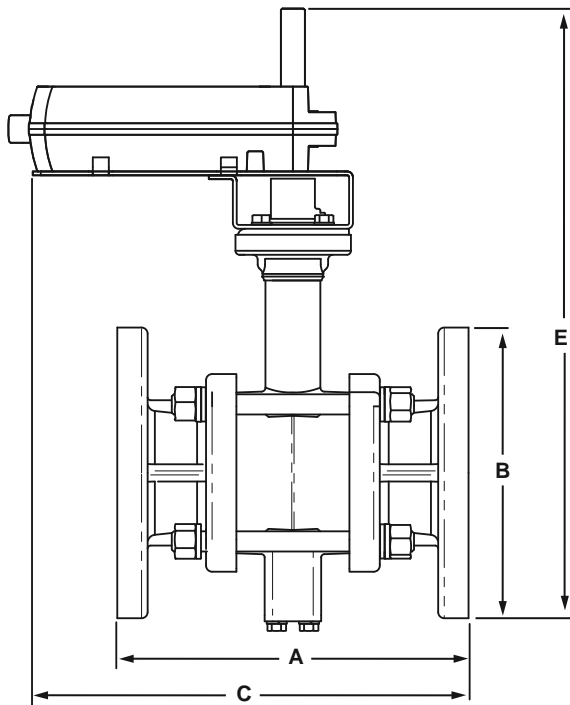
## VBF2 Two-way Flanged Control Ball Valve



The VBF2 Two-Way Ball Valve Assemblies, with and without actuators, control hot and chilled water with glycol solutions up to 50% in closed loop heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 4 to 6 inch with ANSI Class 125 flanged connections.
- Equal percentage or linear flow characteristics.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 24V 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV leakage specification (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Option of four actuator mounting positions on the valve.
- Wide range of Cv choices from 91 to 650.
- Valve ball and stem 316 stainless steel.

Dimensions in millimeters (inches)



**Valve Type:** Control Ball Valve

**Body Pattern:** Two-way

**Connection Type:** Flanged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Leakage Rating:** ANSI Class IV (0.01% of Cv maximum)

**Maximum Safe Operating Pressure:** 1655 kPa (240 psi)

**Flow Characteristic:** Equal Percentage

**Fluid Temperature Range:** -30 C to +121 C (-22 F to +250 F)

**Materials**

**(Body):** Cast Iron

**(Stem):** 316 Stainless Steel

**(Seat):** Teflon™

**(Plug/Ball/Disc):** 316 stainless steel

Size (in.)	Model Number	A mm (in.)	B mm (in.)	C mm (in.)	D (depth) (not shown) mm (in.)	E mm (in.)	Wt. kg (lb)
4	VBF2J	278 (11)	229 (9)	337 (13-1/4)	229 (9)	476 (18-3/4)	31 (65)
5	VBF2K	352 (12-3/8)	254 (10)	362 (14-1/4)	254 (10)	483 (19)	34 (75)
6	VBF2L	352 (13-7/8)	278 (11)	384 (15-1/8)	278 (11)	505 (19-7/8)	41 (90)

MC13732

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(k <sub>vs</sub> )	(Cv)		
VBF2JS1S0A	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Floating	None
VBF2JS1S0B	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Modulating	None
VBF2JS1S0C	DN100	4 in.	78 kvs	91 Cv	Spring Return 2-Position, 24Vac	None
VBF2JS1S0D	DN100	4 in.	78 kvs	91 Cv	Spring Return Floating/Modulating	None



# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(k <sub>vs</sub> )	(Cv)		
VBF2JS1S0X	DN100	4 in.	78 kvs	91 Cv	No pre-assembled actuator	None
VBF2JS1SRA	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Floating	NEMA 3R
VBF2JS1SRB	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2JS1SRC	DN100	4 in.	78 kvs	91 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2JS1SRD	DN100	4 in.	78 kvs	91 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2JT1S0A	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Floating	None
VBF2JT1S0B	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Modulating	None
VBF2JT1S0C	DN100	4 in.	101 kvs	118 Cv	Spring Return 2-Position, 24Vac	None
VBF2JT1S0D	DN100	4 in.	101 kvs	118 Cv	Spring Return Floating/Modulating	None
VBF2JT1S0X	DN100	4 in.	101 kvs	118 Cv	No pre-assembled actuator	None
VBF2JT1SRA	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Floating	NEMA 3R
VBF2JT1SRB	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2JT1SRC	DN100	4 in.	101 kvs	118 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2JT1SRD	DN100	4 in.	101 kvs	118 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2JU1S0A	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Floating	None
VBF2JU1S0B	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Modulating	None
VBF2JU1S0C	DN100	4 in.	131 kvs	152 Cv	Spring Return 2-Position, 24Vac	None
VBF2JU1S0D	DN100	4 in.	131 kvs	152 Cv	Spring Return Floating/Modulating	None
VBF2JU1S0X	DN100	4 in.	131 kvs	152 Cv	No pre-assembled actuator	None
VBF2JU1SRA	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Floating	NEMA 3R
VBF2JU1SRB	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2JU1SRC	DN100	4 in.	131 kvs	152 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2JU1SRD	DN100	4 in.	131 kvs	152 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2J11S0A	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Floating	None
VBF2J11S0B	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Modulating	None
VBF2J11S0C	DN100	4 in.	169 kvs	197 Cv	Spring Return 2-Position, 24Vac	None
VBF2J11S0D	DN100	4 in.	169 kvs	197 Cv	Spring Return Floating/Modulating	None
VBF2J11S0X	DN100	4 in.	169 kvs	197 Cv	No pre-assembled actuator	None
VBF2J11SRA	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Floating	NEMA 3R
VBF2J11SRB	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2J11SRC	DN100	4 in.	169 kvs	197 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2J11SRD	DN100	4 in.	169 kvs	197 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2J21S0A	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Floating	None
VBF2J21S0B	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Modulating	None
VBF2J21S0C	DN100	4 in.	218 kvs	254 Cv	Spring Return 2-Position, 24Vac	None
VBF2J21S0D	DN100	4 in.	218 kvs	254 Cv	Spring Return Floating/Modulating	None
VBF2J21S0X	DN100	4 in.	218 kvs	254 Cv	No pre-assembled actuator	None
VBF2J21SRA	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Floating	NEMA 3R
VBF2J21SRB	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2J21SRC	DN100	4 in.	218 kvs	254 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2J21SRD	DN100	4 in.	218 kvs	254 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2KU1S0A	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Floating	None
VBF2KU1S0B	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Modulating	None
VBF2KU1S0C	DN125	5 in.	124 kvs	144 Cv	Spring Return 2-Position, 24Vac	None
VBF2KU1S0D	DN125	5 in.	124 kvs	144 Cv	Spring Return Floating/Modulating	None
VBF2KU1S0X	DN125	5 in.	124 kvs	144 Cv	No pre-assembled actuator	None
VBF2KU1SRA	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Floating	NEMA 3R
VBF2KU1SRB	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2KU1SRC	DN125	5 in.	124 kvs	144 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2KU1SRD	DN125	5 in.	124 kvs	144 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2K11S0A	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Floating	None
VBF2K11S0B	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Modulating	None
VBF2K11S0C	DN125	5 in.	159 kvs	185 Cv	Spring Return 2-Position, 24Vac	None
VBF2K11S0D	DN125	5 in.	159 kvs	185 Cv	Spring Return Floating/Modulating	None
VBF2K11S0X	DN125	5 in.	159 kvs	185 Cv	No pre-assembled actuator	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(kvs)	(Cv)		
VBF2K11SRA	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Floating	NEMA 3R
VBF2K11SRB	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2K11SRC	DN125	5 in.	159 kvs	185 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2K11SRD	DN125	5 in.	159 kvs	185 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2K21S0A	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Floating	None
VBF2K21S0B	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Modulating	None
VBF2K21S0C	DN125	5 in.	206 kvs	240 Cv	Spring Return 2-Position, 24Vac	None
VBF2K21S0D	DN125	5 in.	206 kvs	240 Cv	Spring Return Floating/Modulating	None
VBF2K21S0X	DN125	5 in.	206 kvs	240 Cv	No pre-assembled actuator	None
VBF2K21SRA	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Floating	NEMA 3R
VBF2K21SRB	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2K21SRC	DN125	5 in.	206 kvs	240 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2K21SRD	DN125	5 in.	206 kvs	240 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2K31S0A	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Floating	None
VBF2K31S0B	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Modulating	None
VBF2K31S0C	DN125	5 in.	266 kvs	309 Cv	Spring Return 2-Position, 24Vac	None
VBF2K31S0D	DN125	5 in.	266 kvs	309 Cv	Spring Return Floating/Modulating	None
VBF2K31S0X	DN125	5 in.	266 kvs	309 Cv	No pre-assembled actuator	None
VBF2K31SRA	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Floating	NEMA 3R
VBF2K31SRB	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2K31SRC	DN125	5 in.	266 kvs	309 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2K31SRD	DN125	5 in.	266 kvs	309 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2K41S0A	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Floating	None
VBF2K41S0B	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Modulating	None
VBF2K41S0C	DN125	5 in.	344 kvs	400 Cv	Spring Return 2-Position, 24Vac	None
VBF2K41S0X	DN125	5 in.	344 kvs	400 Cv	No pre-assembled actuator	None
VBF2K41SRA	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Floating	NEMA 3R
VBF2K41SRB	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2K41SRC	DN125	5 in.	344 kvs	400 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L11S0A	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Floating	None
VBF2L11S0B	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Modulating	None
VBF2L11S0C	DN150	6 in.	179 kvs	208 Cv	Spring Return 2-Position, 24Vac	None
VBF2L11S0D	DN150	6 in.	179 kvs	208 Cv	Spring Return Floating/Modulating	None
VBF2L11S0X	DN150	6 in.	179 kvs	208 Cv	No pre-assembled actuator	None
VBF2L11SRA	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Floating	NEMA 3R
VBF2L11SRB	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2L11SRC	DN150	6 in.	179 kvs	208 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L11SRD	DN150	6 in.	179 kvs	208 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2L21S0A	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Floating	None
VBF2L21S0B	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Modulating	None
VBF2L21S0C	DN150	6 in.	230 kvs	268 Cv	Spring Return 2-Position, 24Vac	None
VBF2L21S0D	DN150	6 in.	230 kvs	268 Cv	Spring Return Floating/Modulating	None
VBF2L21S0X	DN150	6 in.	230 kvs	268 Cv	No pre-assembled actuator	None
VBF2L21SRA	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Floating	NEMA 3R
VBF2L21SRB	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2L21SRC	DN150	6 in.	230 kvs	268 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L21SRD	DN150	6 in.	230 kvs	268 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF2L41S0A	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Floating	None
VBF2L41S0B	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Modulating	None
VBF2L41S0C	DN150	6 in.	298 kvs	346 Cv	Spring Return 2-Position, 24Vac	None
VBF2L41S0X	DN150	6 in.	298 kvs	346 Cv	No pre-assembled actuator	None
VBF2L41SRA	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Floating	NEMA 3R
VBF2L41SRB	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2L41SRC	DN150	6 in.	298 kvs	346 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L51S0A	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Floating	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(k <sub>vs</sub> )	(Cv)		
VBF2L51S0B	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Modulating	None
VBF2L51S0C	DN150	6 in.	379 kvs	441 Cv	Spring Return 2-Position, 24Vac	None
VBF2L51S0X	DN150	6 in.	379 kvs	441 Cv	No pre-assembled actuator	None
VBF2L51SRA	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Floating	NEMA 3R
VBF2L51SRB	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2L51SRC	DN150	6 in.	379 kvs	441 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L61S0A	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Floating	None
VBF2L61S0B	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Modulating	None
VBF2L61S0C	DN150	6 in.	496 kvs	577 Cv	Spring Return 2-Position, 24Vac	None
VBF2L61S0X	DN150	6 in.	496 kvs	577 Cv	No pre-assembled actuator	None
VBF2L61SRA	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Floating	NEMA 3R
VBF2L61SRB	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2L61SRC	DN150	6 in.	496 kvs	577 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF2L71S0A	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Floating	None
VBF2L71S0B	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Modulating	None
VBF2L71S0C	DN150	6 in.	559 kvs	650 Cv	Spring Return 2-Position, 24Vac	None
VBF2L71S0X	DN150	6 in.	559 kvs	650 Cv	No pre-assembled actuator	None
VBF2L71SRA	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Floating	NEMA 3R
VBF2L71SRB	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Modulating	NEMA 3R
VBF2L71SRC	DN150	6 in.	559 kvs	650 Cv	Spring Return 2-Position, 24Vac	NEMA 3R

# Control Ball Valves

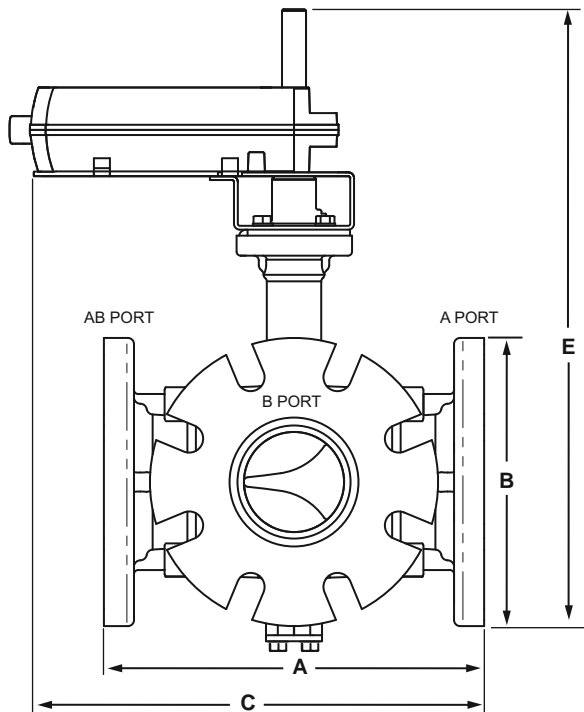
## VBF3 Three-way Flanged Control Ball Valve



The VBF3 Three-Way Ball Valve Assemblies, with and without actuators, control hot and chilled water with glycol solutions up to 50% in closed loop heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 4 to 6 inch with ANSI Class 125 flanged connections.
- Equal percentage or linear flow characteristics.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 24V 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV A-port seat leakage (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Option of four actuator mounting positions on the valve.
- Wide range of Cv choices from 91 to 650.
- Valve ball and stem 316 stainless steel.
- Non-isolating mixing or diverting control.

### Dimensions in millimeters (inches)



**Valve Type:** Control Ball Valve

**Body Pattern:** Three-way

**Connection Type:** Flanged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Leakage Rating:** ANSI Class IV (A port only); B port ~2% leakage

**Flow Characteristic:** Linear (B-AB); Equal Percentage (A-AB)

**Maximum Safe Operating Pressure:** 1655 kPa (240 psi)

**Fluid Temperature Range:** -30 C to +121 C (-22 F to +250 F)

#### Materials

**(Body):** Cast Iron

**(Stem):** 316 Stainless Steel

**(Seat):** Teflon™

**(Plug/Ball/Disc):** 316 stainless steel

Size (in.)	Model Number	A mm (in.)	B mm (in.)	C mm (in.)	D (depth) (not shown) mm (in.)	E mm (in.)	Wt. kg (lb)
4	VBF3J	278 (11-7/8)	229 (9)	337 (14-1/8)	229 (10-3/8)	470 (18-1/2)	34 (75)
5	VBF3K	352 (13-7/8)	254 (10)	362 (15-1/8)	254 (12)	483 (19-3/8)	41 (90)
6	VBF3L	403 (15-7/8)	278 (11)	410 (16-1/8)	521 (13-3/8)	521 (20-1/2)	48 (105)

MC13733A

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)		
VBF3JS1S0A	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Floating	None
VBF3JS1S0B	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Modulating	None
VBF3JS1S0C	DN100	4 in.	78 kvs	91 Cv	Spring Return 2-Position, 24Vac	None
VBF3JS1S0D	DN100	4 in.	78 kvs	91 Cv	Spring Return Floating/Modulating	None
VBF3JS1S0X	DN100	4 in.	78 kvs	91 Cv	No pre-assembled actuator	None
VBF3JS1SRA	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Floating	NEMA 3R
VBF3JS1SRB	DN100	4 in.	78 kvs	91 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3JS1SRC	DN100	4 in.	78 kvs	91 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3JS1SRD	DN100	4 in.	78 kvs	91 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3JT1S0A	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Floating	None
VBF3JT1S0B	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Modulating	None
VBF3JT1S0C	DN100	4 in.	101 kvs	118 Cv	Spring Return 2-Position, 24Vac	None
VBF3JT1S0D	DN100	4 in.	101 kvs	118 Cv	Spring Return Floating/Modulating	None
VBF3JT1S0X	DN100	4 in.	101 kvs	118 Cv	No pre-assembled actuator	None
VBF3JT1SRA	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Floating	NEMA 3R
VBF3JT1SRB	DN100	4 in.	101 kvs	118 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3JT1SRC	DN100	4 in.	101 kvs	118 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3JT1SRD	DN100	4 in.	101 kvs	118 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3JU1S0A	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Floating	None
VBF3JU1S0B	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Modulating	None
VBF3JU1S0C	DN100	4 in.	131 kvs	152 Cv	Spring Return 2-Position, 24Vac	None
VBF3JU1S0D	DN100	4 in.	131 kvs	152 Cv	Spring Return Floating/Modulating	None
VBF3JU1S0X	DN100	4 in.	131 kvs	152 Cv	No pre-assembled actuator	None
VBF3JU1SRA	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Floating	NEMA 3R
VBF3JU1SRB	DN100	4 in.	131 kvs	152 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3JU1SRC	DN100	4 in.	131 kvs	152 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3JU1SRD	DN100	4 in.	131 kvs	152 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3J11S0A	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Floating	None
VBF3J11S0B	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Modulating	None
VBF3J11S0C	DN100	4 in.	169 kvs	197 Cv	Spring Return 2-Position, 24Vac	None
VBF3J11S0D	DN100	4 in.	169 kvs	197 Cv	Spring Return Floating/Modulating	None
VBF3J11S0X	DN100	4 in.	169 kvs	197 Cv	No pre-assembled actuator	None
VBF3J11SRA	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Floating	NEMA 3R
VBF3J11SRB	DN100	4 in.	169 kvs	197 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3J11SRC	DN100	4 in.	169 kvs	197 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3J11SRD	DN100	4 in.	169 kvs	197 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3J21S0A	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Floating	None
VBF3J21S0B	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Modulating	None
VBF3J21S0C	DN100	4 in.	218 kvs	254 Cv	Spring Return 2-Position, 24Vac	None
VBF3J21S0D	DN100	4 in.	218 kvs	254 Cv	Spring Return Floating/Modulating	None
VBF3J21S0X	DN100	4 in.	218 kvs	254 Cv	No pre-assembled actuator	None
VBF3J21SRA	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Floating	NEMA 3R
VBF3J21SRB	DN100	4 in.	218 kvs	254 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3J21SRC	DN100	4 in.	218 kvs	254 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3J21SRD	DN100	4 in.	218 kvs	254 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3J31S0A	DN100	4 in.	281 kvs	327 Cv	Non-Spring Return Floating	None
VBF3J31S0B	DN100	4 in.	281 kvs	327 Cv	Non-Spring Return Modulating	None
VBF3J31S0C	DN100	4 in.	281 kvs	327 Cv	Spring Return 2-Position, 24Vac	None
VBF3J31S0D	DN100	4 in.	281 kvs	327 Cv	Spring Return Floating/Modulating	None
VBF3J31S0X	DN100	4 in.	281 kvs	327 Cv	No pre-assembled actuator	None
VBF3J31SRA	DN100	4 in.	281 kvs	327 Cv	Non-Spring Return Floating	NEMA 3R
VBF3J31SRB	DN100	4 in.	281 kvs	327 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3J31SRC	DN100	4 in.	281 kvs	327 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3J31SRD	DN100	4 in.	281 kvs	327 Cv	Spring Return Floating/Modulating	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(k <sub>vs</sub> )	(Cv)		
VBF3KU1S0A	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Floating	None
VBF3KU1S0B	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Modulating	None
VBF3KU1S0C	DN125	5 in.	124 kvs	144 Cv	Spring Return 2-Position, 24Vac	None
VBF3KU1S0D	DN125	5 in.	124 kvs	144 Cv	Spring Return Floating/Modulating	None
VBF3KU1S0X	DN125	5 in.	124 kvs	144 Cv	No pre-assembled actuator	None
VBF3KU1SRA	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Floating	NEMA 3R
VBF3KU1SRB	DN125	5 in.	124 kvs	144 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3KU1SRC	DN125	5 in.	124 kvs	144 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3KU1SRD	DN125	5 in.	124 kvs	144 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3K11S0A	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Floating	None
VBF3K11S0B	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Modulating	None
VBF3K11S0C	DN125	5 in.	159 kvs	185 Cv	Spring Return 2-Position, 24Vac	None
VBF3K11S0D	DN125	5 in.	159 kvs	185 Cv	Spring Return Floating/Modulating	None
VBF3K11S0X	DN125	5 in.	159 kvs	185 Cv	No pre-assembled actuator	None
VBF3K11SRA	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Floating	NEMA 3R
VBF3K11SRB	DN125	5 in.	159 kvs	185 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3K11SRC	DN125	5 in.	159 kvs	185 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K11SRD	DN125	5 in.	159 kvs	185 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3K21S0A	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Floating	None
VBF3K21S0B	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Modulating	None
VBF3K21S0C	DN125	5 in.	206 kvs	240 Cv	Spring Return 2-Position, 24Vac	None
VBF3K21S0D	DN125	5 in.	206 kvs	240 Cv	Spring Return Floating/Modulating	None
VBF3K21S0X	DN125	5 in.	206 kvs	240 Cv	No pre-assembled actuator	None
VBF3K21SRA	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Floating	NEMA 3R
VBF3K21SRB	DN125	5 in.	206 kvs	240 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3K21SRC	DN125	5 in.	206 kvs	240 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K21SRD	DN125	5 in.	206 kvs	240 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3K31S0A	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Floating	None
VBF3K31S0B	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Modulating	None
VBF3K31S0C	DN125	5 in.	266 kvs	309 Cv	Spring Return 2-Position, 24Vac	None
VBF3K31S0D	DN125	5 in.	266 kvs	309 Cv	Spring Return Floating/Modulating	None
VBF3K31S0X	DN125	5 in.	266 kvs	309 Cv	No pre-assembled actuator	None
VBF3K31SRA	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Floating	NEMA 3R
VBF3K31SRB	DN125	5 in.	266 kvs	309 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3K31SRC	DN125	5 in.	266 kvs	309 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3K31SRD	DN125	5 in.	266 kvs	309 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3K41S0A	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Floating	None
VBF3K41S0B	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Modulating	None
VBF3K41S0C	DN125	5 in.	344 kvs	400 Cv	Spring Return 2-Position, 24Vac	None
VBF3K41S0X	DN125	5 in.	344 kvs	400 Cv	No pre-assembled actuator	None
VBF3K41SRA	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Floating	NEMA 3R
VBF3K41SRB	DN125	5 in.	344 kvs	400 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3K41SRC	DN125	5 in.	344 kvs	400 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L11S0A	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Floating	None
VBF3L11S0B	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Modulating	None
VBF3L11S0C	DN150	6 in.	179 kvs	208 Cv	Spring Return 2-Position, 24Vac	None
VBF3L11S0D	DN150	6 in.	179 kvs	208 Cv	Spring Return Floating/Modulating	None
VBF3L11S0X	DN150	6 in.	179 kvs	208 Cv	No pre-assembled actuator	None
VBF3L11SRA	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Floating	NEMA 3R
VBF3L11SRB	DN150	6 in.	179 kvs	208 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3L11SRC	DN150	6 in.	179 kvs	208 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L11SRD	DN150	6 in.	179 kvs	208 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3L21S0A	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Floating	None
VBF3L21S0B	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Modulating	None
VBF3L21S0C	DN150	6 in.	230 kvs	268 Cv	Spring Return 2-Position, 24Vac	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Actuation	Weather Enclosure
	DN	inch	(k <sub>vs</sub> )	(Cv)		
VBF3L21S0D	DN150	6 in.	230 kvs	268 Cv	Spring Return Floating/Modulating	None
VBF3L21S0X	DN150	6 in.	230 kvs	268 Cv	No pre-assembled actuator	None
VBF3L21SRA	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Floating	NEMA 3R
VBF3L21SRB	DN150	6 in.	230 kvs	268 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3L21SRC	DN150	6 in.	230 kvs	268 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L21SRD	DN150	6 in.	230 kvs	268 Cv	Spring Return Floating/Modulating	NEMA 3R
VBF3L41S0A	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Floating	None
VBF3L41S0B	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Modulating	None
VBF3L41S0C	DN150	6 in.	298 kvs	346 Cv	Spring Return 2-Position, 24Vac	None
VBF3L41S0X	DN150	6 in.	298 kvs	346 Cv	No pre-assembled actuator	None
VBF3L41SRA	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Floating	NEMA 3R
VBF3L41SRB	DN150	6 in.	298 kvs	346 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3L41SRC	DN150	6 in.	298 kvs	346 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L51S0A	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Floating	None
VBF3L51S0B	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Modulating	None
VBF3L51S0C	DN150	6 in.	379 kvs	441 Cv	Spring Return 2-Position, 24Vac	None
VBF3L51S0X	DN150	6 in.	379 kvs	441 Cv	No pre-assembled actuator	None
VBF3L51SRA	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Floating	NEMA 3R
VBF3L51SRB	DN150	6 in.	379 kvs	441 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3L51SRC	DN150	6 in.	379 kvs	441 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L61S0A	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Floating	None
VBF3L61S0B	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Modulating	None
VBF3L61S0C	DN150	6 in.	496 kvs	577 Cv	Spring Return 2-Position, 24Vac	None
VBF3L61S0X	DN150	6 in.	496 kvs	577 Cv	No pre-assembled actuator	None
VBF3L61SRA	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Floating	NEMA 3R
VBF3L61SRB	DN150	6 in.	496 kvs	577 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3L61SRC	DN150	6 in.	496 kvs	577 Cv	Spring Return 2-Position, 24Vac	NEMA 3R
VBF3L71S0A	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Floating	None
VBF3L71S0B	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Modulating	None
VBF3L71S0C	DN150	6 in.	559 kvs	650 Cv	Spring Return 2-Position, 24Vac	None
VBF3L71S0X	DN150	6 in.	559 kvs	650 Cv	No pre-assembled actuator	None
VBF3L71SRA	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Floating	NEMA 3R
VBF3L71SRB	DN150	6 in.	559 kvs	650 Cv	Non-Spring Return Modulating	NEMA 3R
VBF3L71SRC	DN150	6 in.	559 kvs	650 Cv	Spring Return 2-Position, 24Vac	NEMA 3R

# Control Ball Valves

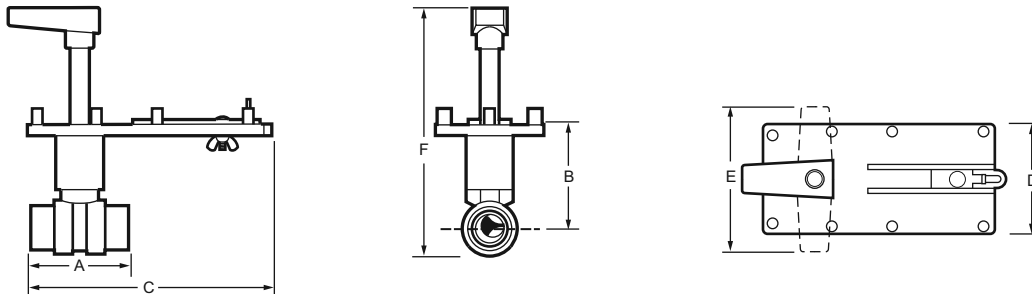
## VBN2 Two-way Threaded Control Ball Valve



The VBN2 Two-Way Control Ball Valves control hot and chilled water with glycol solutions up to 50% in heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 1/2 to 3 inches with internal (female) NPT connections.
- Equal percentage or linear flow characteristics.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV seat leakage specification (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Actuator can be mounted on the valve in any of four positions.
- Field-serviceable stem assembly.
- Wide Cv choices from 0.38 to 266.
- Nickel-chrome plated brass or 316 stainless steel ball and stem.

### Dimensions in millimeters (inches)



Pipe Size			Cv Designators	Dimensions in Millimeters (in)						Weight		Replacement Stem Assembly**				
In.	(DN)	Code		A	B	C	D	E	F	kg	(lb)					
1/2	(15)	VBN2A...	B, D, E, F, G, H, K*	60 (2-3/8)	69 (2-3/4)	169 (6-5/8)	76 (3)	102 (4)	206 (8-1/8)	0.5	(1.0)	9667-326 9667-329 (SS)				
			J	67 (2-5/8)	72 (2-7/8)	166 (6-1/2)			211 (8-5/16)							
3/4	(20)	VBN2B...	B, D, E, G, H, J, L*	76 (3)	79 (3-1/8)	170 (6-11/16)			187 (7)				206 (8-1/8)	0.6	(1.4)	9667-327 9667-330 (SS)
			K, M*										72 (2-7/8)			
1	(25)	VBN2C...	J	(70) 2-3/4		180 (7-1/16)							220 (8-11/16)	0.6	(1.4)	
			H, L, P*	(77) 3-1/16	77 (3-1/16)	171 (6-3/4)							225 (8-7/8)	1.1	(2.4)	
			M, N*	109 (4-5/16)	82 (3-1/4)	188 (7-3/8)				231 (9-1/16)	1.1	(2.4)				
1-1/4	(32)	VBN2D...	H, J, K, L, N*	76 (3)	79 (3-1/8)	170 (6-11/16)				220 (8-11/16)	0.6	(1.4)	9667-330 (SS)			
			M, S*	92 (3-5/8)	82 (3-1/4)	187 (7)				231 (9-1/16)	1.1	(2.4)				
1-1/2	(40)	VBN2E...	L, M, R*	87 (3-7/16)	95 (3-3/4)	179 (7-1/16)			183 (7-3/16)	192 (7-9/16)	225 (8-7/8)	1.5	(3.2)	9667-328 9667-331 (SS)		
			N, 1*	103 (4-1/16)			103 (4-1/16)	188 (7-7/16)				266 (10-1/2)	2.3		(5.0)	
2	(50)	VBN2F...	N, T*	101 (4)	103 (4-1/16)	188 (7-7/16)	192 (7-9/16)	196 (7-11/16)	266 (10-1/2)	2.5	(5.5)					
			P, R, S, 1, 2*	125 (4-15/16)					188 (7-7/16)		272 (10-11/16)	2.7	(5.9)			
2-1/2	(65)	VBN2G...	N, P, R, S, U, 1*	135 (5-5/16)												
3	(80)	VBN2H...	N, P, R, T, U*	146 (5-3/4)												

\* Indicates full port valve: no flow characterizing insert.

\*\* Replacement stems available in brass or stainless steel--use according to valve part number.

MC13729B



# Control Ball Valves

**Valve Type:** Control Ball Valve  
**Body Pattern:** Two-way  
**Connection Type:** Female NPT  
**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.  
**Leakage Rating:** ANSI Class IV (0.01% of Cv maximum)  
**Maximum Safe Operating Pressure:** 2482 kPa (360 psi)

**Fluid Temperature Range:** -30 C to +121 C (-22 F to +250 F)

**Materials**  
**(Body):** Brass  
**(Seat):** Teflon™ seals with EPDM O-rings  
**(Flow Control Insert) :** Noryl®

## Valves with Equal Percentage Flow Characteristics

**Actuation:** No pre-assembled actuator  
**Weather Enclosure:** None

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials	
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VBN2AB3P0X	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AB3S0X	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AD3P0X	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AD3S0X	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AE3P0X	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AE3S0X	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AF3P0X	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AF3S0X	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AG3P0X	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AG3S0X	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AH3P0X	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AH3S0X	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AJ3P0X	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AJ3S0X	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BB3P0X	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BB3S0X	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BD3P0X	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BE3P0X	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BE3S0X	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BG3P0X	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BG3S0X	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BH3P0X	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BH3S0X	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BJ3P0X	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BJ3S0X	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BK3P0X	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BK3S0X	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2CL3P0X	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2CL3S0X	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2CM3P0X	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2CM3S0X	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2CH3P0X	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2CH3S0X	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2CJ3P0X	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2CJ3S0X	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DK3P0X	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2DK3S0X	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DL3P0X	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2DL3S0X	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DH3P0X	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2DH3S0X	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DM3P0X	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2DM3S0X	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DN3P0X	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials	
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VBN2DN3S0X	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DJ3P0X	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2DJ3S0X	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2EL3P0X	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2EL3S0X	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2EM3P0X	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2EM3S0X	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2EN3P0X	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2EN3S0X	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2F13P0X	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2F13S0X	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2FN3P0X	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2FN3S0X	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2FP3P0X	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2FP3S0X	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2FR3P0X	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2FR3S0X	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2FS3P0X	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2FS3S0X	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2GU3P0X	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2GU3S0X	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2GN3P0X	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2GN3S0X	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2GP3P0X	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2GP3S0X	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2GR3P0X	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2GR3S0X	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2GS3P0X	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2GS3S0X	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2HT3P0X	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2HT3S0X	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2HN3P0X	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2HN3S0X	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2HP3P0X	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2HP3S0X	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2HR3P0X	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2HR3S0X	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel

## Valves with Equal Percentage Flow Characteristics; Non-Spring Return Actuator

Actuation: Non-Spring Return Floating

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AB3P0A	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AB3PRA	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AB3S0A	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AB3SRA	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AD3P0A	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AD3PRA	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AD3S0A	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AD3SRA	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AE3P0A	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AE3PRA	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AE3S0A	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AE3SRA	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AF3P0A	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AF3PRA	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AF3S0A	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AF3SRA	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AG3P0A	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AG3PRA	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AG3S0A	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AG3SRA	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AH3P0A	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AH3PRA	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AH3S0A	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AH3SRA	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AJ3P0A	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AJ3PRA	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AJ3S0A	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AJ3SRA	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BB3P0A	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BB3PRA	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BB3S0A	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BB3SRA	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BD3P0A	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BD3PRA	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BD3S0A	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BD3SRA	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BE3P0A	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BE3PRA	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BE3S0A	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BE3SRA	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BG3P0A	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BG3PRA	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BG3S0A	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BG3SRA	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BH3P0A	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BH3PRA	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BH3S0A	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BH3SRA	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BJ3P0A	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BJ3PRA	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BJ3S0A	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BJ3SRA	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BK3P0A	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BK3PRA	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BK3S0A	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BK3SRA	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CL3P0A	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CL3PRA	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CL3S0A	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CL3SRA	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CM3P0A	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2CM3PRA	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CM3S0A	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CM3SRA	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CH3P0A	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CH3PRA	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CH3S0A	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CH3SRA	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CJ3P0A	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CJ3PRA	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CJ3S0A	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CJ3SRA	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DK3P0A	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DK3PRA	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DK3S0A	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DK3SRA	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DL3P0A	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DL3PRA	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DL3S0A	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DL3SRA	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DH3P0A	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DH3PRA	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DH3S0A	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DH3SRA	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DM3P0A	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DM3PRA	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DM3S0A	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DM3SRA	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DN3P0A	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DN3PRA	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DN3S0A	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DN3SRA	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DJ3P0A	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DJ3PRA	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DJ3S0A	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DJ3SRA	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EL3P0A	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EL3PRA	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EL3S0A	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EL3SRA	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EM3P0A	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EM3PRA	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EM3S0A	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EM3SRA	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EN3P0A	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EN3PRA	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EN3S0A	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EN3SRA	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F13P0A	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F13PRA	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F13S0A	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F13SRA	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FN3P0A	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2FN3PRA	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FN3S0A	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FN3SRA	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FP3P0A	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FP3PRA	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FP3S0A	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FP3SRA	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FR3P0A	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FR3PRA	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FR3S0A	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FR3SRA	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FS3P0A	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FS3PRA	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FS3S0A	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FS3SRA	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GU3P0A	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GU3PRA	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GU3S0A	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GU3SRA	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GN3P0A	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GN3PRA	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GN3S0A	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GN3SRA	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GP3P0A	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GP3PRA	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GP3S0A	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GP3SRA	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GR3P0A	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GR3PRA	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GR3S0A	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GR3SRA	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GS3P0A	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GS3PRA	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GS3S0A	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GS3SRA	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HT3P0A	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HT3PRA	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HT3S0A	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HT3SRA	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HN3P0A	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HN3PRA	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HN3S0A	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HN3SRA	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HP3P0A	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HP3PRA	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HP3S0A	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HP3SRA	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HR3P0A	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HR3PRA	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HR3S0A	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HR3SRA	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

## Valves with Equal Percentage Flow Characteristics; Non-Spring Return Actuator

Actuation: Non-Spring Return Floating, open terminal strip

Weather Enclosure: None

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials	
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VBN2AB3P0F	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AB3S0F	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AD3P0F	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AD3S0F	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AE3P0F	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AE3S0F	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AF3P0F	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AF3S0F	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AG3P0F	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AG3S0F	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AH3P0F	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AH3S0F	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2AJ3P0F	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AJ3S0F	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BB3P0F	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BB3S0F	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BD3S0X	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BD3P0F	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BD3S0F	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BE3P0F	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BE3S0F	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BG3P0F	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BG3S0F	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BH3P0F	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BH3S0F	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BJ3P0F	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BJ3S0F	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BK3P0F	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BK3S0F	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel

## Valves with Equal Percentage Flow Characteristics; Non-Spring Return Actuator

Actuation: Non-Spring Return Modulating

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AB3P0B	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AB3PRB	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AB3S0B	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AB3SRB	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AD3P0B	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AD3PRB	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AD3S0B	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AD3SRB	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AE3P0B	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AE3PRB	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AE3S0B	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AE3SRB	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AF3P0B	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AF3PRB	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AF3S0B	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AF3SRB	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AG3P0B	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AG3PRB	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AG3S0B	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AG3SRB	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AH3P0B	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AH3PRB	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AH3S0B	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AH3SRB	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AJ3P0B	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AJ3PRB	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AJ3S0B	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AJ3SRB	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BB3P0B	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BB3PRB	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BB3S0B	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BB3SRB	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BD3P0B	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BD3PRB	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BD3S0B	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BD3SRB	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BE3P0B	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BE3PRB	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BE3S0B	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BE3SRB	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BG3P0B	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BG3PRB	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BG3S0B	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BG3SRB	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BH3P0B	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BH3PRB	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BH3S0B	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BH3SRB	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BJ3P0B	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BJ3PRB	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BJ3S0B	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BJ3SRB	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BK3P0B	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BK3PRB	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BK3S0B	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BK3SRB	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CL3P0B	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CL3PRB	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CL3S0B	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CL3SRB	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CM3P0B	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CM3PRB	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CM3S0B	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CM3SRB	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CH3P0B	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CH3PRB	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CH3S0B	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2CH3SRB	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CJ3P0B	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CJ3PRB	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CJ3S0B	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CJ3SRB	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DK3P0B	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DK3PRB	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DK3S0B	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DK3SRB	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DL3P0B	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DL3PRB	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DL3S0B	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DL3SRB	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DH3P0B	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DH3PRB	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DH3S0B	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DH3SRB	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DM3P0B	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DM3PRB	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DM3S0B	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DM3SRB	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DN3P0B	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DN3PRB	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DN3S0B	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DN3SRB	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DJ3P0B	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DJ3PRB	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DJ3S0B	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DJ3SRB	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EL3P0B	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EL3PRB	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EL3S0B	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EL3SRB	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EM3P0B	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EM3PRB	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EM3S0B	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EM3SRB	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EN3P0B	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EN3PRB	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EN3S0B	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EN3SRB	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F13P0B	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F13PRB	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F13S0B	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F13SRB	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FN3P0B	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FN3PRB	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FN3S0B	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FN3SRB	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FP3P0B	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FP3PRB	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FP3S0B	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None



# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2FP3SRB	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FR3P0B	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FR3PRB	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FR3S0B	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FR3SRB	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FS3P0B	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FS3PRB	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FS3S0B	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FS3SRB	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GU3P0B	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GU3PRB	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GU3S0B	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GU3SRB	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GN3P0B	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GN3PRB	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GN3S0B	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GN3SRB	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GP3P0B	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GP3PRB	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GP3S0B	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GP3SRB	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GR3P0B	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GR3PRB	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GR3S0B	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GR3SRB	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GS3P0B	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GS3PRB	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GS3S0B	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GS3SRB	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HT3P0B	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HT3PRB	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HT3S0B	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HT3SRB	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HN3P0B	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HN3PRB	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HN3S0B	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HN3SRB	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HP3P0B	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HP3PRB	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HP3S0B	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HP3SRB	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HR3P0B	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HR3PRB	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HR3S0B	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HR3SRB	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

## Valves with Equal Percentage Flow Characteristics; Spring Return Actuator

Actuation: Spring Return 2-Position, 24Vac

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AB3P0C	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AB3PRC	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AB3S0C	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AB3SRC	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AD3P0C	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AD3PRC	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AD3S0C	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AD3SRC	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AE3P0C	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AE3PRC	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AE3S0C	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AE3SRC	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AF3P0C	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AF3PRC	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AF3S0C	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AF3SRC	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AG3P0C	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AG3PRC	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AG3S0C	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AG3SRC	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AH3P0C	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AH3PRC	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AH3S0C	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AH3SRC	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AJ3P0C	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AJ3PRC	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AJ3S0C	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AJ3SRC	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BB3P0C	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BB3PRC	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BB3S0C	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BB3SRC	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BD3P0C	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BD3PRC	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BD3S0C	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BD3SRC	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BE3P0C	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BE3PRC	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BE3S0C	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BE3SRC	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BG3P0C	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BG3PRC	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BG3S0C	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BG3SRC	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BH3P0C	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BH3PRC	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BH3S0C	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BH3SRC	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BJ3P0C	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BJ3PRC	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2BJ3S0C	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BJ3SRC	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BK3P0C	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BK3PRC	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BK3S0C	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BK3SRC	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CL3P0C	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CL3PRC	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CL3S0C	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CL3SRC	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CM3P0C	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CM3PRC	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CM3S0C	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CM3SRC	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CH3P0C	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CH3PRC	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CH3S0C	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CH3SRC	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CJ3P0C	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CJ3PRC	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CJ3S0C	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CJ3SRC	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DK3P0C	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DK3PRC	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DK3S0C	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DK3SRC	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DL3P0C	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DL3PRC	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DL3S0C	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DL3SRC	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DH3P0C	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DH3PRC	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DH3S0C	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DH3SRC	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DM3P0C	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DM3PRC	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DM3S0C	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DM3SRC	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DN3P0C	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DN3PRC	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DN3S0C	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DN3SRC	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DJ3P0C	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DJ3PRC	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DJ3S0C	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DJ3SRC	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EL3P0C	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EL3PRC	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EL3S0C	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EL3SRC	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EM3P0C	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EM3PRC	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2EM3S0C	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EM3SRC	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EN3P0C	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EN3PRC	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EN3S0C	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EN3SRC	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F13P0C	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F13PRC	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F13S0C	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F13SRC	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FN3P0C	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FN3PRC	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FN3S0C	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FN3SRC	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FP3P0C	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FP3PRC	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FP3S0C	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FP3SRC	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FR3P0C	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FR3PRC	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FR3S0C	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FR3SRC	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FS3P0C	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FS3PRC	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FS3S0C	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FS3SRC	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GU3P0C	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GU3PRC	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GU3S0C	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GU3SRC	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GN3P0C	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GN3PRC	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GN3S0C	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GN3SRC	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GP3P0C	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GP3PRC	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GP3S0C	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GP3SRC	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GR3P0C	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GR3PRC	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GR3S0C	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GR3SRC	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GS3P0C	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GS3PRC	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GS3S0C	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GS3SRC	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HT3P0C	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HT3PRC	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HT3S0C	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HT3SRC	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HN3P0C	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HN3PRC	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2HN3S0C	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HN3SRC	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HP3P0C	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HP3PRC	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HP3S0C	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HP3SRC	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HR3P0C	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HR3PRC	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HR3S0C	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HR3SRC	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

## Valves with Equal Percentage Flow Characteristics; Spring Return Actuator

Actuation: Spring Return Floating/Modulating

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AB3P0D	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AB3PRD	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AB3S0D	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AB3SRD	DN15	1/2 in.	0.33 kvs	0.38 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AD3P0D	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AD3PRD	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AD3S0D	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AD3SRD	DN15	1/2 in.	0.58 kvs	0.68 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AE3P0D	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AE3PRD	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AE3S0D	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AE3SRD	DN15	1/2 in.	1.1 kvs	1.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AF3P0D	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AF3PRD	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AF3S0D	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AF3SRD	DN15	1/2 in.	1.7 kvs	2.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AG3P0D	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AG3PRD	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AG3S0D	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AG3SRD	DN15	1/2 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AH3P0D	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AH3PRD	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AH3S0D	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AH3SRD	DN15	1/2 in.	4.0 kvs	4.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2AJ3P0D	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AJ3PRD	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AJ3S0D	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AJ3SRD	DN15	1/2 in.	6.9 kvs	8.0 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BB3P0D	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BB3PRD	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BB3S0D	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BB3SRD	DN20	3/4 in.	0.27 kvs	0.31 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BD3P0D	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BD3PRD	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BD3S0D	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BD3SRD	DN20	3/4 in.	0.54 kvs	0.63 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2BE3P0D	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BE3PRD	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BE3S0D	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BE3SRD	DN20	3/4 in.	1.0 kvs	1.2 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BG3P0D	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BG3PRD	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BG3S0D	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BG3SRD	DN20	3/4 in.	2.2 kvs	2.6 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BH3P0D	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BH3PRD	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BH3S0D	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BH3SRD	DN20	3/4 in.	3.7 kvs	4.3 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BJ3P0D	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BJ3PRD	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BJ3S0D	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BJ3SRD	DN20	3/4 in.	6.4 kvs	7.4 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BK3P0D	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BK3PRD	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BK3S0D	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BK3SRD	DN20	3/4 in.	8.7 kvs	10.1 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CL3P0D	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CL3PRD	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CL3S0D	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CL3SRD	DN25	1 in.	13.2 kvs	15.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CM3P0D	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CM3PRD	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CM3S0D	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CM3SRD	DN25	1 in.	22 kvs	26 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CH3P0D	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CH3PRD	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CH3S0D	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CH3SRD	DN25	1 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CJ3P0D	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CJ3PRD	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CJ3S0D	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CJ3SRD	DN25	1 in.	7.7 kvs	9.0 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DK3P0D	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DK3PRD	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DK3S0D	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DK3SRD	DN32	1 1/4 in.	12.8 kvs	14.9 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DL3P0D	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DL3PRD	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DL3S0D	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DL3SRD	DN32	1 1/4 in.	22 kvs	25 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DH3P0D	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DH3PRD	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DH3S0D	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DH3SRD	DN32	1 1/4 in.	3.8 kvs	4.4 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DM3P0D	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DM3PRD	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DM3S0D	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DM3SRD	DN32	1 1/4 in.	32 kvs	37 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2DN3P0D	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DN3PRD	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DN3S0D	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DN3SRD	DN32	1 1/4 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DJ3P0D	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DJ3PRD	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DJ3S0D	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DJ3SRD	DN32	1 1/4 in.	7.1 kvs	8.3 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EL3P0D	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EL3PRD	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EL3S0D	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EL3SRD	DN40	1 1/2 in.	19.8 kvs	23 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EM3P0D	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EM3PRD	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EM3S0D	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EM3SRD	DN40	1 1/2 in.	26 kvs	30 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2EN3P0D	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2EN3PRD	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2EN3S0D	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2EN3SRD	DN40	1 1/2 in.	35 kvs	41 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F13P0D	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F13PRD	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F13S0D	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F13SRD	DN50	2 in.	181 kvs	210 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FN3P0D	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FN3PRD	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FN3S0D	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FN3SRD	DN50	2 in.	36 kvs	42 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FP3P0D	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FP3PRD	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FP3S0D	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FP3SRD	DN50	2 in.	49 kvs	57 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FR3P0D	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FR3PRD	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FR3S0D	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FR3SRD	DN50	2 in.	61 kvs	71 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FS3P0D	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FS3PRD	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FS3S0D	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FS3SRD	DN50	2 in.	86 kvs	100 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GU3P0D	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GU3PRD	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GU3S0D	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GU3SRD	DN65	2 1/2 in.	139 kvs	162 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GN3P0D	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GN3PRD	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GN3S0D	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GN3SRD	DN65	2 1/2 in.	39 kvs	45 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GP3P0D	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GP3PRD	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GP3S0D	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GP3SRD	DN65	2 1/2 in.	47 kvs	55 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2GR3P0D	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GR3PRD	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GR3S0D	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GR3SRD	DN65	2 1/2 in.	62 kvs	72 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2GS3P0D	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2GS3PRD	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2GS3S0D	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2GS3SRD	DN65	2 1/2 in.	87 kvs	101 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HT3P0D	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HT3PRD	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HT3S0D	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HT3SRD	DN80	3 in.	107 kvs	124 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HN3P0D	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HN3PRD	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HN3S0D	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HN3SRD	DN80	3 in.	42 kvs	49 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HP3P0D	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HP3PRD	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HP3S0D	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HP3SRD	DN80	3 in.	54 kvs	63 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HR3P0D	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HR3PRD	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HR3S0D	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HR3SRD	DN80	3 in.	71 kvs	82 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

## Valves with Linear Flow Characteristics

Actuation: No pre-assembled actuator

Weather Enclosure: None

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials	
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VBN2AK3P0X	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AK3S0X	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BL3P0X	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BL3S0X	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BM3P0X	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BM3S0X	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2CN3P0X	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2CN3S0X	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2CP3P0X	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2CP3S0X	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2DS3P0X	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2DS3S0X	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2E13P0X	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2E13S0X	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2ER3P0X	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2ER3S0X	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2F23P0X	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2F23S0X	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2FT3P0X	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2FT3S0X	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel
VBN2G13P0X	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2G13S0X	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel



# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials	
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VBN2HU3P0X	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass
VBN2HU3S0X	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel

## Valves with Linear Flow Characteristics; Non-Spring Return Actuator

Actuation: Non-Spring Return Floating

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AK3P0A	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AK3PRA	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AK3S0A	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AK3SRA	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BL3P0A	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BL3PRA	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BL3S0A	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BL3SRA	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BM3P0A	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BM3PRA	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BM3S0A	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BM3SRA	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CN3P0A	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CN3PRA	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CN3S0A	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CN3SRA	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CP3P0A	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CP3PRA	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CP3S0A	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CP3SRA	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DS3P0A	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DS3PRA	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DS3S0A	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DS3SRA	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2E13P0A	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2E13PRA	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2E13S0A	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2E13SRA	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2ER3P0A	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2ER3PRA	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2ER3S0A	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2ER3SRA	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F23P0A	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F23PRA	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F23S0A	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F23SRA	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FT3P0A	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FT3PRA	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FT3S0A	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FT3SRA	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2G13P0A	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2G13PRA	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2G13S0A	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2G13SRA	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2HU3P0A	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HU3PRA	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HU3S0A	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HU3SRA	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

## Valves with Linear Flow Characteristics; Non-Spring Return Actuator

Actuation: Non-Spring Return Floating, open terminal strip

Weather Enclosure: None

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials	
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)
VBN2AK3P0F	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2AK3S0F	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BL3P0F	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BL3S0F	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel
VBN2BM3P0F	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass
VBN2BM3S0F	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel

## Valves with Linear Flow Characteristics; Non-Spring Return Actuator

Actuation: Non-Spring Return Modulating

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AK3P0B	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AK3PRB	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AK3S0B	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AK3SRB	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BL3P0B	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BL3PRB	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BL3S0B	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BL3SRB	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BM3P0B	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BM3PRB	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BM3S0B	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BM3SRB	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CN3P0B	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CN3PRB	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CN3S0B	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CN3SRB	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CP3P0B	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CP3PRB	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CP3S0B	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CP3SRB	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DS3P0B	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DS3PRB	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DS3S0B	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DS3SRB	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2E13P0B	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2E13PRB	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2E13S0B	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2E13SRB	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2ER3P0B	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2ER3PRB	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2ER3S0B	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2ER3SRB	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F23P0B	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F23PRB	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F23S0B	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F23SRB	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FT3P0B	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FT3PRB	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FT3S0B	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FT3SRB	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2G13P0B	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2G13PRB	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2G13S0B	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2G13SRB	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HU3P0B	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HU3PRB	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HU3S0B	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HU3SRB	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

## Valves with Linear Flow Characteristics; Spring Return Actuator

Actuation: Spring Return 2-Position, 24Vac

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AK3P0C	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AK3PRC	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AK3S0C	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AK3SRC	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BL3P0C	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BL3PRC	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BL3S0C	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BL3SRC	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BM3P0C	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BM3PRC	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BM3S0C	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BM3SRC	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CN3P0C	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CN3PRC	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CN3S0C	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CN3SRC	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CP3P0C	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CP3PRC	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CP3S0C	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CP3SRC	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DS3P0C	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DS3PRC	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DS3S0C	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DS3SRC	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2E13P0C	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2E13PRC	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2E13S0C	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2E13SRC	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2ER3P0C	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2ER3PRC	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2ER3S0C	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2ER3SRC	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F23P0C	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F23PRC	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F23S0C	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F23SRC	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FT3P0C	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FT3PRC	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FT3S0C	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FT3SRC	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2G13P0C	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2G13PRC	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2G13S0C	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2G13SRC	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HU3P0C	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HU3PRC	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HU3S0C	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HU3SRC	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

## Valves with Linear Flow Characteristics; Spring Return Actuator

Actuation: Spring Return Floating/Modulating

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2AK3P0D	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2AK3PRD	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2AK3S0D	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2AK3SRD	DN15	1/2 in.	10.1 kvs	11.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BL3P0D	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BL3PRD	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BL3S0D	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BL3SRD	DN20	3/4 in.	12.6 kvs	14.7 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2BM3P0D	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	None
VBN2BM3PRD	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2BM3S0D	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	None
VBN2BM3SRD	DN20	3/4 in.	25 kvs	29 Cv	896 kPa	130 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CN3P0D	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CN3PRD	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CN3S0D	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CN3SRD	DN25	1 in.	38 kvs	44 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2CP3P0D	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2CP3PRD	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2CP3S0D	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2CP3SRD	DN25	1 in.	46 kvs	54 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2DS3P0D	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2DS3PRD	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2DS3S0D	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2DS3SRD	DN32	1 1/4 in.	88 kvs	102 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2E13P0D	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2E13PRD	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Materials		Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(Plug/Ball/Disc)	(Stem)	
VBN2E13S0D	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2E13SRD	DN40	1 1/2 in.	148 kvs	172 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2ER3P0D	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2ER3PRD	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2ER3S0D	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2ER3SRD	DN40	1 1/2 in.	64 kvs	74 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2F23P0D	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2F23PRD	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2F23S0D	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2F23SRD	DN50	2 in.	229 kvs	266 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2FT3P0D	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2FT3PRD	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2FT3S0D	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2FT3SRD	DN50	2 in.	93 kvs	108 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2G13P0D	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2G13PRD	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2G13S0D	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2G13SRD	DN65	2 1/2 in.	174 kvs	202 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R
VBN2HU3P0D	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	None
VBN2HU3PRD	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	Nickel-plated brass ball	Brass	NEMA 3R
VBN2HU3S0D	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	None
VBN2HU3SRD	DN80	3 in.	125 kvs	145 Cv	689 kPa	100 psi	316 stainless steel	316 Stainless Steel	NEMA 3R

# Control Ball Valves

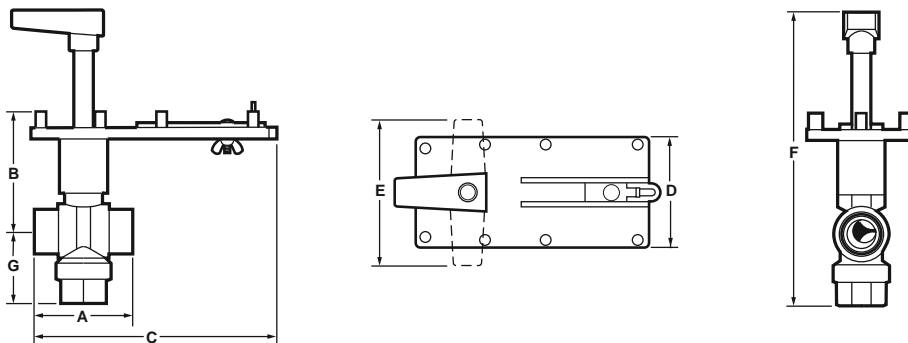
## VBN3 Three-way Threaded Control Ball Valve



The VBN3 Three-Way Control Ball Valves control hot and chilled water with glycol solutions up to 50% in heating, ventilating, and air conditioning (HVAC) systems to provide two-position or modulating functions. These valve assemblies can be ordered with or without factory-mounted non-spring return or spring return direct-coupled actuators (DCA).

- Sizes from 1/2 to 2-1/2 inches with internal (female) NPT connections.
- Equal percentage or linear flow characteristics.
- Reduced B-port Cv for constant loop flow.
- Choice of four, factory-installed actuation control schemes: Floating, Modulating (2-10 V), Spring Return 2-Position, Spring Return Modulating/Floating.
- Field configurable for normally open or normally closed fail-safe position.
- Removable manual operating handle to control valve during installation or in an event of power failure.
- ANSI Class IV seat leakage specification (0.01% of Cv).
- Optional NEMA 3R (IP54) rated enclosure for outdoor applications.
- Actuator can be mounted on the valve in any of four positions.
- Wide Cv choices from 0.33 to 109.
- Valve installs in a globe valve "T" pattern, no extra elbows or piping required.
- Field-serviceable stem assembly.
- Nickel-chrome plated brass ball and stem.
- Mixing or Diverting control.

### Dimensions in millimeters (inches)



Pipe Size			Cv Designators	Dimensions in Millimeters (in)						Weight		Replacement Stem Assembly**		
In.	(DN)	Code		A	B	C	D	E	F	G	kg		(lb)	
1/2	(15)	VBN3A...	B, D, E, F, H, J	89 (3-1/2)	84 (3-5/16)	178 (7)	76 (3)	102 (4)	239 (9-3/8)	51 (2)	1.1	(2.4)	9667-326	
3/4	(20)	VBN3B...	C, D, E, F, G, K*	71 (2-13/16)		165 (6-1/2)			224 (8-13/16)	0.9	(2.0)			
1	(25)	VBN3C...	C, D, E, F, G	97 (3-13/16)		185 (7-5/16)			241 (9-1/2)	52 (2-1/16)	1.3	(2.8)		
			J, L	76 (3)	97 (3-13/16)	173 (6-13/16)			249 (9-13/16)	62 (2-7/16)	1.2	(2.6)	9667-327	
			H, K, M	114 (4-5/16)	102 (4)	198 (7-13/16)			274 (10-13/16)	80 (3-1/8)	1.5	(3.3)		
1-1/4	(32)	VBN3D...	H, J, L*	76 (3)	97 (3-13/16)	173 (6-13/16)			249 (9-13/16)	72 (2-13/16)	1.1	(2.5)		
			K, M, N*	91 (3-5/8)	102 (4)	185 (7-5/16)			262 (10-5/16)	61 (2-7/16)	1.3	(2.8)		
1-1/2	(40)	VBN3E...	H, J, K, M*	114 (4-5/16)	114 (4-5/16)	198 (7-13/16)			185 (7-5/16)	274 (10-13/16)	69 (2-3/4)	1.5	(3.3)	9667-328
			L, P	102 (4)		279 (11)								
2	(50)	VBN3F...	L, N, P	127 (5)	147 (5-13/16)	198 (6-13/16)					312 (12-5/16)	98 (3-7/8)	1.7	
			R, T				104 (4-1/8)							
2-1/2	(65)	VBN3G...	P, R, S*											

\* Indicates full A-port: no flow characterizing insert.

MC13730A

**Valve Type:** Control Ball Valve

**Body Pattern:** Three-way

**Connection Type:** Female NPT

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Leakage Rating:** ANSI Class IV (0.01% of Cv maximum)

**Maximum Safe Operating Pressure:** 2482 kPa (360 psi)

**Flow Characteristic:** Linear (B-AB); Equal Percentage (A-AB)

**Fluid Temperature Range:** -30 C to +121 C (-22 F to +250 F)

**Materials**

**(Body):** Brass

**(Stem):** Brass

**(Seat):** Teflon™ seals with EPDM O-rings

**(Plug/Ball/Disc):** Nickel-plated brass ball

**(Flow Control Insert) :** Noryl®

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3AB3P0X	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3AB3P0A	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3AB3P0F	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3AB3PRA	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3AB3P0B	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3AB3PRB	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3AB3P0C	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3AB3PRC	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3AB3P0D	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3AB3PRD	DN15	1/2 in.	0.28 kvs	0.33 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3AC3P0X	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3AC3P0A	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3AC3P0F	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3AC3PRA	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3AC3P0B	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3AC3PRB	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3AC3P0C	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3AC3PRC	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3AC3P0D	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3AC3PRD	DN15	1/2 in.	0.5 kvs	0.59 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3AE3P0X	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3AE3P0A	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3AE3P0F	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3AE3PRA	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3AE3P0B	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3AE3PRB	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3AE3P0C	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3AE3PRC	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3AE3P0D	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3AE3PRD	DN15	1/2 in.	0.86 kvs	1.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3AF3P0X	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3AF3P0A	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3AF3P0F	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3AF3PRA	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3AF3P0B	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3AF3PRB	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3AF3P0C	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3AF3PRC	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3AF3P0D	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3AF3PRD	DN15	1/2 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3AH3P0X	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3AH3P0A	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3AH3P0F	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3AH3PRA	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3AH3P0B	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3AH3PRB	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3AH3P0C	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3AH3PRC	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3AH3P0D	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3AH3PRD	DN15	1/2 in.	3.7 kvs	4.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3AJ3P0X	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	No pre-assembled actuator	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3AJ3P0A	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3AJ3P0F	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3AJ3PRA	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3AJ3P0B	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3AJ3PRB	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3AJ3P0C	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3AJ3PRC	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3AJ3P0D	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3AJ3PRD	DN15	1/2 in.	6.9 kvs	8.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BC3P0F	DN20	3/4 in.	0.34 kvs	0.4 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BC3P0X	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BC3P0A	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3BC3PRA	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BC3P0B	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BC3PRB	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BC3P0C	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BC3PRC	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BC3P0D	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BC3PRD	DN20	3/4 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BD3P0F	DN20	3/4 in.	0.57 kvs	0.65 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BD3P0X	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BD3P0A	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3BD3PRA	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BD3P0B	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BD3PRB	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BD3P0C	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BD3PRC	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BD3P0D	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BD3PRD	DN20	3/4 in.	0.57 kvs	0.66 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BE3P0X	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BE3P0A	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3BE3P0F	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BE3PRA	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BE3P0B	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BE3PRB	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BE3P0C	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BE3PRC	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BE3P0D	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BE3PRD	DN20	3/4 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BK3P0X	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BK3P0A	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3BK3P0F	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BK3PRA	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BK3P0B	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BK3PRB	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BK3P0C	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BK3PRC	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BK3P0D	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BK3PRD	DN20	3/4 in.	9.5 kvs	11.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BF3P0F	DN20	3/4 in.	2.1 kvs	2.3 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BF3P0X	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BF3P0A	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Floating	None



# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3BF3PRA	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BF3P0B	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BF3PRB	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BF3P0C	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BF3PRC	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BF3P0D	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BF3PRD	DN20	3/4 in.	2.1 kvs	2.4 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BG3P0X	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BG3P0A	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3BG3P0F	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BG3PRA	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BG3P0B	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BG3PRB	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BG3P0C	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BG3PRC	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BG3P0D	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BG3PRD	DN20	3/4 in.	3.3 kvs	3.8 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3BJ3P0X	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3BJ3P0A	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3BJ3P0F	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Non-Spring Return Floating, open terminal strip	None
VBN3BJ3PRA	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3BJ3P0B	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3BJ3PRB	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3BJ3P0C	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3BJ3PRC	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3BJ3P0D	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3BJ3PRD	DN20	3/4 in.	6.5 kvs	7.0 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CC3P0X	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CC3P0A	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CC3PRA	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CC3P0B	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CC3PRB	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CC3P0C	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CC3PRC	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CC3P0D	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CC3PRD	DN25	1 in.	0.34 kvs	0.40 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CD3P0X	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CD3P0A	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CD3PRA	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CD3P0B	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CD3PRB	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CD3P0C	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CD3PRC	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CD3P0D	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CD3PRD	DN25	1 in.	0.56 kvs	0.65 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CE3P0X	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CE3P0A	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CE3PRA	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CE3P0B	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CE3PRB	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CE3P0C	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CE3PRC	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3CE3P0D	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CE3PRD	DN25	1 in.	1.1 kvs	1.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CK3P0X	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CK3P0A	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CK3PRA	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CK3P0B	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CK3PRB	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CK3P0C	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CK3PRC	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CK3P0D	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CK3PRD	DN25	1 in.	12.8 kvs	14.9 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CF3P0X	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CF3P0A	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CF3PRA	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CF3P0B	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CF3PRB	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CF3P0C	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CF3PRC	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CF3P0D	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CF3PRD	DN25	1 in.	2.0 kvs	2.3 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CL3P0X	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CL3P0A	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CL3PRA	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CL3P0B	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CL3PRB	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CL3P0C	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CL3PRC	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CL3P0D	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CL3PRD	DN25	1 in.	18.9 kvs	22 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CG3P0X	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CG3P0A	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CG3PRA	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CG3P0B	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CG3PRB	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CG3P0C	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CG3PRC	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CG3P0D	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CG3PRD	DN25	1 in.	3.0 kvs	3.5 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CM3P0X	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CM3P0A	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CM3PRA	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CM3P0B	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CM3PRB	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CM3P0C	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CM3PRC	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CM3P0D	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CM3PRD	DN25	1 in.	27 kvs	31 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CH3P0X	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CH3P0A	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CH3PRA	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CH3P0B	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CH3PRB	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3CH3P0C	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CH3PRC	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CH3P0D	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CH3PRD	DN25	1 in.	3.9 kvs	4.5 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3CJ3P0X	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	No pre-assembled actuator	None
VBN3CJ3P0A	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Non-Spring Return Floating	None
VBN3CJ3PRA	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Non-Spring Return Floating	NEMA 3R
VBN3CJ3P0B	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Non-Spring Return Modulating	None
VBN3CJ3PRB	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Non-Spring Return Modulating	NEMA 3R
VBN3CJ3P0C	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	None
VBN3CJ3PRC	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3CJ3P0D	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	None
VBN3CJ3PRD	DN25	1 in.	7.4 kvs	8.6 Cv	345 kPa	50 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3DK3P0X	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3DK3P0A	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3DK3PRA	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3DK3P0B	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3DK3PRB	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3DK3P0C	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3DK3PRC	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3DK3P0D	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3DK3PRD	DN32	1 1/4 in.	10.9 kvs	12.7 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3DL3P0X	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3DL3P0A	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3DL3PRA	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3DL3P0B	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3DL3PRB	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3DL3P0C	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3DL3PRC	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3DL3P0D	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3DL3PRD	DN32	1 1/4 in.	16.7 kvs	19.4 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3DM3P0X	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3DM3P0A	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3DM3PRA	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3DM3P0B	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3DM3PRB	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3DM3P0C	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3DM3PRC	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3DM3P0D	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3DM3PRD	DN32	1 1/4 in.	23 kvs	27 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3DN3P0X	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3DN3P0A	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3DN3PRA	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3DN3P0B	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3DN3PRB	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3DN3P0C	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3DN3PRC	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3DN3P0D	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3DN3PRD	DN32	1 1/4 in.	29 kvs	34 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3DH3P0X	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3DH3P0A	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3DH3PRA	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3DH3P0B	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3DH3PRB	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3DH3P0C	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3DH3PRC	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3DH3P0D	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3DH3PRD	DN32	1 1/4 in.	3.5 kvs	4.1 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3DJ3P0X	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3DJ3P0A	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3DJ3PRA	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3DJ3P0B	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3DJ3PRB	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3DJ3P0C	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3DJ3PRC	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3DJ3P0D	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3DJ3PRD	DN32	1 1/4 in.	7.5 kvs	8.7 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3EK3P0X	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3EK3P0A	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3EK3PRA	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3EK3P0B	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3EK3PRB	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3EK3P0C	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3EK3PRC	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3EK3P0D	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3EK3PRD	DN40	1 1/2 in.	11.5 kvs	13.4 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3EL3P0X	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3EL3P0A	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3EL3PRA	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3EL3P0B	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3EL3PRB	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3EL3P0C	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3EL3PRC	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3EL3P0D	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3EL3PRD	DN40	1 1/2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3EM3P0X	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3EM3P0A	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3EM3PRA	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3EM3P0B	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3EM3PRB	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3EM3P0C	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3EM3PRC	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3EM3P0D	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3EM3PRD	DN40	1 1/2 in.	28 kvs	32 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3EH3P0X	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3EH3P0A	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3EH3PRA	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3EH3P0B	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3EH3PRB	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3EH3P0C	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3EH3PRC	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3EH3P0D	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3EH3PRD	DN40	1 1/2 in.	3.4 kvs	4.0 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3EP3P0X	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	No pre-assembled actuator	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3EP3P0A	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3EP3PRA	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3EP3P0B	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3EP3PRB	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3EP3P0C	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3EP3PRC	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3EP3P0D	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3EP3PRD	DN40	1 1/2 in.	52 kvs	61 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3EJ3P0X	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3EJ3P0A	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3EJ3PRA	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3EJ3P0B	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3EJ3PRB	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3EJ3P0C	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3EJ3PRC	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3EJ3P0D	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3EJ3PRD	DN40	1 1/2 in.	7.1 kvs	8.3 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3FT3P0X	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3FT3P0A	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3FT3PRA	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3FT3P0B	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3FT3PRB	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3FT3P0C	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3FT3PRC	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3FT3P0D	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3FT3PRD	DN50	2 in.	94 kvs	109 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3FL3P0X	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3FL3P0A	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3FL3PRA	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3FL3P0B	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3FL3PRB	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3FL3P0C	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3FL3PRC	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3FL3P0D	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3FL3PRD	DN50	2 in.	21 kvs	24 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3FN3P0X	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3FN3P0A	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3FN3PRA	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3FN3P0B	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3FN3PRB	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3FN3P0C	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3FN3PRC	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3FN3P0D	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3FN3PRD	DN50	2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3FP3P0X	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3FP3P0A	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3FP3PRA	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3FP3P0B	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3FP3PRB	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3FP3P0C	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3FP3PRC	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3FP3P0D	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None

# Control Ball Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Actuation	Weather Enclosure
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)		
VBN3FP3PRD	DN50	2 in.	49 kvs	57 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3FR3P0X	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3FR3P0A	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3FR3PRA	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3FR3P0B	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3FR3PRB	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3FR3P0C	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3FR3PRC	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3FR3P0D	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3FR3PRD	DN50	2 in.	71 kvs	83 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3GS3P0X	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3GS3P0A	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3GS3PRA	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3GS3P0B	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3GS3PRB	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3GS3P0C	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3GS3PRC	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3GS3P0D	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3GS3PRD	DN65	2 1/2 in.	86 kvs	100 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3GN3P0X	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3GN3P0A	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3GN3PRA	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3GN3P0B	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3GN3PRB	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3GN3P0C	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3GN3PRC	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3GN3P0D	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3GN3PRD	DN65	2 1/2 in.	33 kvs	38 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R
VBN3GR3P0X	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	No pre-assembled actuator	None
VBN3GR3P0A	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Non-Spring Return Floating	None
VBN3GR3PRA	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Non-Spring Return Floating	NEMA 3R
VBN3GR3P0B	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Non-Spring Return Modulating	None
VBN3GR3PRB	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Non-Spring Return Modulating	NEMA 3R
VBN3GR3P0C	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	None
VBN3GR3PRC	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Spring Return 2-Position, 24Vac	NEMA 3R
VBN3GR3P0D	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	None
VBN3GR3PRD	DN65	2 1/2 in.	64 kvs	74 Cv	276 kPa	40 psi	Spring Return Floating/Modulating	NEMA 3R

# Butterfly Control Valves

## VFF1, VFF2, VFF3, VFF6 Butterfly Control Valves

Butterfly Valves	Fitting	Body Pattern	Size	Disk size (close-off)	Pressure Rating	Valve trim	Actuator secondary Specification	Actuator primary Specification	Description	Actuator Type		
VF	Butterfly Valve, resilient seat											
	F	Flanged fitting										
		1	2-way (spring return normally open)									
		2	2-way (non-spring return or electric spring return direct coupled, factory set to normally closed, and field-convertible to normally open)									
		3	3-way A-B-AB (mixing/diverting)									
		6	3-way A-AB-B (diverting/mixing)									
		F	2 inch (DN50)									
		G	2-1/2 inch (DN65)									
		H	3 inch (DN80)									
		J	4 inch (DN100)									
		K	5 inch (DN125)									
		L	6 inch (DN150)									
		M	8 inch (DN200)									
		N	10 inch (DN250)									
		P	12 inch (DN300)									
		R	14 inch (DN350)									
		S	16 inch (DN400)									
		T	18 inch (DN450)									
		U	20 inch (DN500)									
		V	Undercut disk (lower actuator torque; 50 psid close-off)									
		W	Full diameter disk (high close-off)									
			1	ANSI 150 psig body pressure rating								
			2	ANSI 250 psig body pressure rating								
			Y	Nylon-coated disk, EPDM seat								
			2	NEMA 2 actuator housing (Honeywell DCA)							Electric	
			6	NEMA 6 actuator housing with manual operator and heater								
			X	NEMA 4X actuator housing with manual operator and heater								
			8	Spring Range 8-13 psi for 20 psi pneumatic actuator								Pneumatic
			C	24 Vac solenoid for 80 psi pneumatic actuator								
			D	Electro-pneumatic positioner for 80 psi actuator								
			E	120 Vac solenoid for 80 psi pneumatic actuator								Manual
			P	Pneumatic positioner for modulating applications								
			X	Standard, two-position control only								
			L	Lever operator for dead end service								Manual
			G	Geared operator for dead end service								
			A	Floating actuator							Electric	
			B	Modulating actuator								
			C	Two-position 24 Vac spring return actuator								
			D	Modulating spring return actuator							Pneumatic	
			E	Two-position 120 Vac spring return actuator								
			P	Pneumatic actuator, spring return 20 psi								
			R	Pneumatic actuator, push-pull 80 psi (140 psi maximum)							Manual	
			S	Pneumatic actuator, spring return 80 psi (140 psi maximum)								
			X	Valve body only, for dead end service								
VF	F	2	J	V	1	Y	2	D	2-way, 4 inch flanged resilient-seat butterfly valve, undercut disk (50 psid close-off) modulating/floating control, spring return normally closed.			

Commercial Components

# Butterfly Control Valves

## VFF1 Two-way Normally-Open Butterfly Control Valves



Resilient seat in two-way valves, provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

**Body Pattern:** 2 way (S/R NO)

**Valve Action:** Normally Open

**Connection Type:** Lugged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol.

Not for use with steam or fuels.

**Actuator Control Type:** Pneumatic

**Type of Enclosure:** Pneumatic

**Flow Characteristic:** Modified Equal Percent

**Mounting:** ANSI Flanged

**Static Pressure Rating (max):** 1724 kPa (250 psi)

**Actuator Ambient Temperature Ratings:** -29 C to 66 C  
(-20 F to 150 F)

**Temperature Range:** -40 C to 121 C (-40 F to 250 F)

**Materials**

**(Body):** Polyester-coated cast iron ASTM A126 Class B

**(Stem):** 416 Stainless Steel

**(Seat):** Peroxide-cured EPDM resilient seat

**(Plug/Ball/Disc):** Nylon 11-coated ductile iron

Valve Size		Number of Flange Bolts	Flange Bolt Thread
DN	inch		
DN50	2 in.	4	5/8 in. -11 pitch
DN65	2-1/2 in.	4	5/8 in. -11 pitch
DN80	3 in.	4	5/8 in. -11 pitch
DN100	4 in.	8	5/8 in. -11 pitch
DN125	5 in.	8	3/4 in. -10 pitch
DN150	6 in.	8	3/4 in. -10 pitch
DN200	8 in.	8	3/4 in. -10 pitch
DN250	10 in.	12	7/8 in. -9 pitch
DN300	12 in.	12	7/8 in. -9 pitch
DN350	14 in.	12	1-1/8 in. -7 pitch
DN400	16 in.	16	1-1/8 in. -7 pitch
DN450	18 in.	16	1-1/8 in. -7 pitch
DN500	20 in.	20	1-1/8 in. -7 pitch

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF1FW1YCS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1FW1YDS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1FW1YES	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1FW1YPS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1FW1YXS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1FW1Y8P	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF1FW1YPP	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF1GW1YCS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1GW1YDS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1GW1YES	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1GW1YPS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1GW1YXS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1GW1Y8P	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF1GW1YPP	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—



# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF1HW1YCS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1HW1YDS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1HW1YES	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1HW1YPS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1HW1YXS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1HW1Y8P	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF1HW1YPP	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF1JV1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1JV1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1JV1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1JV1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1JV1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1JW1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1JW1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1JW1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1JW1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1JW1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1JV1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF1JV1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF1JW1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF1JW1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF1KV1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1KV1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1KV1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1KV1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1KV1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1KW1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1KW1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1KW1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>Vs</sub> )	(Cv)	(k <sub>Vs</sub> )	(Cv)		(kPa)	(psi)		
VFF1KW1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1KW1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1KV1Y8P	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF1KV1YPP	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF1KW1Y8P	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF1KW1YPP	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF1LV1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1LV1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1LV1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1LV1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1LV1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1LW1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1LW1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1LW1Y8P	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF1MW1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1MW1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1MW1YPP	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF1NV1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1NV1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1NV1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1NV1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1NV1YXS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1NW1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1NW1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1NW1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1NW1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1NW1YXS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1NV1Y8P	DN250	10 in.	1479 kvs	1710 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF1NV1YPP	DN250	10 in.	1479 kvs	1710 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>v</sub> s)	(Cv)	(k <sub>v</sub> s)	(Cv)		(kPa)	(psi)		
VFF1PV1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1PV1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1PV1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1PV1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1PV1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1PW1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1PW1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1PW1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1PW1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF1PW1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF1RV1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1RV1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1RV1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1RV1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1RV1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1RW1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1RW1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1RW1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1RW1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF1RW1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1SV1YCS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1SV1YDS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1SV1YES	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1SV1YPS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1SV1YXS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1SW1YCS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1SW1YDS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1SW1YES	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF1SW1YPS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF1SW1YXS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1TV1YCS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1TV1YDS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1TV1YES	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1TV1YPS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1TV1YXS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1TW1YCS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1TW1YDS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1TW1YES	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1TW1YPS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF1TW1YXS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1UV1YCS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1UV1YDS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1UV1YES	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1UV1YPS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF1UV1YXS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF1UW1YCS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1UW1YDS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1UW1YES	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF1UW1YPS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF1UW1YXS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator

# Butterfly Control Valves

## VFF2 Two-way Butterfly Control Valves



**Mounting:** ANSI Flanged

**Static Pressure Rating (max):** 1724 kPa (250 psi)

**Actuator Ambient Temperature Ratings:** -20 C to 60 C (-5 F to 140 F)

**Temperature Range:** -40 C to 121 C (-40 F to 250 F)

**Materials**

**(Body):** Polyester-coated cast iron ASTM A126 Class B

**(Stem):** 416 Stainless Steel

**(Seat):** Peroxide-cured EPDM resilient seat

**(Plug/Ball/Disc):** Nylon 11-coated ductile iron

**Approvals:**

**CE:** Compliant

**Underwriters Laboratories, Inc. C/US UL873, Plenum Rated**

Resilient seat two-way valves provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

**Body Pattern:** 2 way (NC, NC/NO; NSR)

**Valve Action:** Normally Closed, convertible to Normally Open with Spring Return DCA

**Connection Type:** Lugged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Actuator Control Type:** Electric floating

**Type of Enclosure:** NEMA 2 housing

**Flow Characteristic:** Modified Equal Percent

Valve Size		Number of Flange Bolts	Flange Bolt Thread
DN	inch		
DN50	2 in.	4	5/8 in. -11 pitch
DN65	2-1/2 in.	4	5/8 in. -11 pitch
DN80	3 in.	4	5/8 in. -11 pitch
DN100	4 in.	8	5/8 in. -11 pitch
DN125	5 in.	8	3/4 in. -10 pitch
DN150	6 in.	8	3/4 in. -10 pitch
DN200	8 in.	8	3/4 in. -10 pitch
DN250	10 in.	12	7/8 in. -9 pitch
DN300	12 in.	12	7/8 in. -9 pitch
DN350	14 in.	12	1-1/8 in. -7 pitch
DN400	16 in.	16	1-1/8 in. -7 pitch
DN450	18 in.	16	1-1/8 in. -7 pitch
DN500	20 in.	20	1-1/8 in. -7 pitch

**Accessories:**

**VFF50-0400** Position status monitor for VFF butterfly valves with high pressure pneumatic actuators\*\*

### Valves with Electric Actuators

**Actuator Control Type:** Electric

**Type of Enclosure:** NEMA 2 housing

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)	
VFF2FW1Y2A	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	
VFF2FW1Y2B	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	
VFF2FW1Y2C	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	
VFF2FW1Y2D	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	
VFF2FW1Y2E	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	
VFF2GW1Y2A	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	
VFF2GW1Y2B	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	
VFF2GW1Y2C	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	
VFF2GW1Y2D	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)	
VFF2GW1Y2E	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	
VFF2HW1Y2A	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	
VFF2HW1Y2B	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	
VFF2HW1Y2C	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	
VFF2HW1Y2D	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	
VFF2HW1Y2E	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	
VFF2JV1Y2A	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	
VFF2JV1Y2B	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	
VFF2JV1Y2C	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	345 kPa	50 psi	
VFF2JV1Y2D	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	345 kPa	50 psi	
VFF2JV1Y2E	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	345 kPa	50 psi	
VFF2JW1Y2A	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	
VFF2JW1Y2B	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	
VFF2KV1Y2A	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	Chilled water service only
VFF2KV1Y2B	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	Chilled water service only
VFF2KV1Y2C	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	345 kPa	50 psi	Chilled water service only
VFF2KV1Y2D	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	345 kPa	50 psi	Chilled water service only
VFF2KV1Y2E	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	345 kPa	50 psi	Chilled water service only
VFF2KW1Y2A	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	
VFF2KW1Y2B	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	
VFF2LW1Y2A	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	
VFF2LW1Y2B	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	
VFF2MV1Y2A	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	
VFF2MV1Y2B	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	

# Butterfly Control Valves

## Valves with Electric Actuators

Actuator Control Type: Electric

Type of Enclosure: NEMA 4 housing

Includes: Anti-condensation heater, manual gear wheel

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)				(kPa)	(psi)
VFF2FW1YXA	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2FW1YXB	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2GW1YXA	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2GW1YXB	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2HW1YXA	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2HW1YXB	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2JV1YXA	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2JV1YXB	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2JW1YXA	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2JW1YXB	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2KV1YXA	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2KV1YXB	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2KW1YXA	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2KW1YXB	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2LV1YXA	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2LV1YXB	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2LW1YXA	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2LW1YXB	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2MV1YXA	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2MV1YXB	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2MW1YXA	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2MW1YXB	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2PV1YXA	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2PV1YXB	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)				(kPa)	(psi)
VFF2PW1YXA	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2PW1YXB	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF2RV1YXA	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2RV1YXB	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2RW1YXA	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1034 kPa	150 psi
VFF2RW1YXB	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1034 kPa	150 psi
VFF2SV1YXA	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2SV1YXB	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2SW1Y4A	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF2SW1Y4B	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF2TV1YXA	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2TV1YXB	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF2TW1Y4A	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF2TW1Y4B	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF2UV1Y4A	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF2UV1Y4B	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF2UW1Y4A	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF2UW1Y4B	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi

## Valves with Pneumatic Actuators

Actuator Control Type: Pneumatic

Type of Enclosure: Pneumatic

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2FW1YCR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2FW1YCS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2FW1YDR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).



# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2FW1YDS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2FW1YER	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2FW1YES	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2FW1YPR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2FW1YPS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2FW1YXR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2FW1YXS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2FW1Y8P	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2FW1YPP	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2GW1YCR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2GW1YCS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2GW1YDR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2GW1YDS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2GW1YER	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2GW1YES	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2GW1YPR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2GW1YPS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2GW1YXR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2GW1YXS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2GW1Y8P	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2GW1YPP	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2HW1YCR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2HW1YCS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2HW1YDR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2HW1YDS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2HW1YER	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2HW1YES	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2HW1YPR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2HW1YPS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2HW1YXR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2HW1YXS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2HW1Y8P	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2HW1YPP	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2JV1YCR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2JV1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2JV1YDR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2JV1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2JV1YER	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2JV1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2JV1YPR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2JV1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2JV1YXR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2JV1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2JW1YCR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2JW1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2JW1YDR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2JW1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2JW1YER	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2JW1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2JW1YPR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2JW1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2JW1YXR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2JW1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2JV1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF2JV1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF2JW1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2JW1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2KV1YCR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2KV1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2KV1YDR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2KV1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2KV1YER	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2KV1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2KV1YPR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2KV1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2KV1YXR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2KV1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2KW1YCR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2KW1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2KW1YDR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2KW1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2KW1YER	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2KW1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2KW1YPR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2KW1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2KW1YXR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2KW1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2KV1Y8P	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF2KV1YPP	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF2KW1Y8P	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2KW1YPP	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2LV1YCR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2LV1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2LV1YDR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2LV1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2LV1YER	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2LV1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2LV1YPR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2LV1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2LV1YXR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2LV1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2LV1YCR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2LV1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2LV1YDR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2LV1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2LV1YER	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2LV1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2LV1YPR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2LV1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2LV1YXR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2LV1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2LV1Y8P	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2LV1YPP	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2MV1YCR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2MV1YCS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2MV1YDR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2MV1YDS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2MV1YER	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2MV1YES	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2MV1YPR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2MV1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2MV1YXR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2MV1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2MW1YCR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2MW1YCS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2MW1YDR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2MW1YDS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2MW1YER	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2MW1YES	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2MW1YPR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2MW1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2MW1YXR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2MW1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2MV1Y8P	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF2MV1YPP	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF2MW1Y8P	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF2MW1YPP	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF2NV1YCR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2NV1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2NV1YDR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2NV1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2NV1YER	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2NV1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2NV1YPR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2NV1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2NV1Y8P	DN250	10 in.	1479 kvs	1710 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF2NV1YPP	DN250	10 in.	1479 kvs	1710 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF2PV1YCR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2PV1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2PV1YDR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2PV1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2PV1YER	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2PV1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2PV1YPR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2PV1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2PV1YXR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2PV1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2PW1YCR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2PW1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2PW1YDR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2PW1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2PW1YER	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2PW1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2PW1YPR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2PW1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF2PW1YXR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF2PW1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF2RV1YCR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2RV1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2RV1YDR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2RV1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2RV1YER	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2RV1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2RV1YPR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2RV1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2RV1YXR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2RV1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2RW1YCR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2RW1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2RW1YDR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2RW1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2RW1YER	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2RW1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2RW1YPR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2RW1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF2RW1YXR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2RW1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2SV1YCR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2SV1YCS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2SV1YDR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2SV1YDS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2SV1YER	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2SV1YES	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2SV1YPR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2SV1YPS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2SV1YXR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2SV1YXS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2SW1YCR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2SW1YCS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2SW1YDR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2SW1YDS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2SW1YER	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2SW1YES	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2SW1YPR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2SW1YPS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF2SW1YXR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2SW1YXS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2TV1YCR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2TV1YCS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2TV1YDR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2TV1YDS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2TV1YER	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2TV1YES	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2TV1YPR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2TV1YPS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2TV1YXR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2TV1YXS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2TW1YCR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2TW1YCS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2TW1YDR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2TW1YDS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2TW1YER	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2TW1YES	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2TW1YPR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2TW1YPS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF2TW1YXR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2TW1YXS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2UV1YCR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2UV1YCS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2UV1YDR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2UV1YDS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2UV1YER	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2UV1YES	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2UV1YPR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF2UV1YPS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF2UV1YXR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF2UV1YXS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF2UW1YCR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2UW1YCS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2UW1YDR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2UW1YDS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2UW1YER	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).



# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF2UW1YES	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF2UW1YPR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2UW1YPS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF2UW1YXR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF2UW1YXS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

## Valves with Manual Control

**Actuator Control Type:** Manual

**Comments:** NOTE: These products use over-cut disks to achieve 250 psid close-off, and cannot be automated due to their high torque

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Maximum Differential Pressure Ratings (Close-off)		Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)	(psi)	(kPa)	
VFF2FW2YGX	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2FW2YLY	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	175 psi	1206 kPa	Lever operator
VFF2UW2YGX	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	150 psi	1034 kPa	Geared wheel operator
VFF2GW2YGX	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2GW2YLY	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	175 psi	1206 kPa	Lever operator
VFF2HW2YGX	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2HW2YLY	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	175 psi	1206 kPa	Lever operator
VFF2JW2YGX	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2JW2YLY	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	175 psi	1206 kPa	Lever operator
VFF2KW2YGX	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2KW2YLY	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	175 psi	1206 kPa	Lever operator
VFF2LW2YGX	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2LW2YLY	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	175 psi	1206 kPa	Lever operator
VFF2MW2YGX	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2MW2YLY	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	175 psi	1206 kPa	Lever operator
VFF2PW2YGX	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	175 psi	1206 kPa	Geared wheel operator
VFF2RW2YGX	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	150 psi	1034 kPa	Geared wheel operator
VFF2SW2YGX	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	150 psi	1034 kPa	Geared wheel operator
VFF2TW2YGX	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	150 psi	1034 kPa	Geared wheel operator

# Butterfly Control Valves

## VFF3 Three-way (A-B-AB) Butterfly Control Valves



Resilient seat three-way valves provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

**Body Pattern:** 3 way (A-B-AB porting)

**Valve Action:** Normally Closed

**Connection Type:** Lugged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Actuator Control Type:** Electric floating

**Type of Enclosure:** NEMA 2 housing

**Flow Characteristic:** Modified Equal Percent

**Mounting:** ANSI Flanged

**Static Pressure Rating (max):** 1724 kPa (250 psi)

**Maximum Differential Pressure Ratings (Close-off):**

1206 kPa (175 psi)

**Actuator Ambient Temperature Ratings:** -20 C to 60 C (-5 F to 140 F)

**Temperature Range:** -40 C to 121 C (-40 F to 250 F)

**Materials**

**(Body):** Polyester-coated cast iron ASTM A126 Class B

**(Stem):** 416 Stainless Steel

**(Seat):** Peroxide-cured EPDM resilient seat

**(Plug/Ball/Disc):** Nylon 11-coated ductile iron

**Approvals:**

**CE:** Compliant

**Underwriters Laboratories, Inc. C/US UL873, Plenum Rated**

Valve Size		Number of Flange Bolts	Flange Bolt Thread
DN	inch		
DN50	2 in.	4	5/8 in. -11 pitch
DN65	2-1/2 in.	4	5/8 in. -11 pitch
DN80	3 in.	4	5/8 in. -11 pitch
DN100	4 in.	8	5/8 in. -11 pitch
DN125	5 in.	8	3/4 in. -10 pitch
DN150	6 in.	8	3/4 in. -10 pitch
DN200	8 in.	8	3/4 in. -10 pitch
DN250	10 in.	12	7/8 in. -9 pitch
DN300	12 in.	12	7/8 in. -9 pitch
DN350	14 in.	12	1-1/8 in. -7 pitch
DN400	16 in.	16	1-1/8 in. -7 pitch
DN450	18 in.	16	1-1/8 in. -7 pitch
DN500	20 in.	20	1-1/8 in. -7 pitch

**Accessories:**

**VFF50-0400** Position status monitor for VFF butterfly valves with high pressure pneumatic actuators\*\*

### Valves with Electric Actuators

Type of Enclosure: NEMA 2 housing

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)	
VFF3FW1Y2A	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF3FW1Y2B	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF3FW1Y2C	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	—
VFF3FW1Y2D	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	—
VFF3FW1Y2E	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	—
VFF3GW1Y2A	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF3GW1Y2B	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF3GW1Y2C	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	—
VFF3GW1Y2D	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	—
VFF3GW1Y2E	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	—

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)	
VFF3HW1Y2A	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF3HW1Y2B	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF3HW1Y2C	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	—
VFF3HW1Y2D	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	—
VFF3HW1Y2E	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	—
VFF3JV1Y2A	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	—
VFF3JV1Y2B	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	—
VFF3JV1Y2C	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	345 kPa	50 psi	—
VFF3JV1Y2D	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	345 kPa	50 psi	—
VFF3JV1Y2E	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	345 kPa	50 psi	—
VFF3JW1Y2A	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF3JW1Y2B	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF3KV1Y2A	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	—
VFF3KV1Y2B	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	—
VFF3KV1Y2C	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	345 kPa	50 psi	Chilled water service only
VFF3KV1Y2D	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	345 kPa	50 psi	Chilled water service only
VFF3KV1Y2E	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	345 kPa	50 psi	Chilled water service only
VFF3KW1Y2A	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF3KW1Y2B	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF3LV1Y2A	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	—
VFF3LV1Y2B	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	—

## Valves with Electric Actuators

Type of Enclosure: NEMA 4

Includes: Anti-condensation heater, manual gear wheel

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)				(kPa)	(psi)
VFF3FW1YXA	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3FW1YXB	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3GW1YXA	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)				(kPa)	(psi)
VFF3GW1YXB	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3HW1YXA	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3HW1YXB	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3JV1YXA	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3JV1YXB	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3JW1YXA	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3JW1YXB	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3KV1YXA	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3KV1YXB	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3KW1YXA	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3KW1YXB	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3LV1YXA	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3LV1YXB	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3LW1YXA	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3LW1YXB	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3MV1YXA	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3MV1YXB	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3MW1YXA	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3MW1YXB	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3NV1YXA	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3NV1YXB	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3NW1YXA	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)				(kPa)	(psi)
VFF3NW1YXB	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3PV1YXA	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3PV1YXB	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3PW1YXA	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3PW1YXB	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF3RV1YXA	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3RV1YXB	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3RW1Y4A	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3RW1Y4B	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3SV1YXA	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3SV1YXB	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric modulating	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF3SW1Y4A	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3SW1Y4B	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3TV1Y4A	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF3TV1Y4B	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF3TW1Y4A	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3TW1Y4B	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3UV1Y4A	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF3UV1Y4B	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF3UW1Y4A	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric floating	Non-Spring Return 120 Vac Floating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF3UW1Y4B	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Electric modulating	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi

# Butterfly Control Valves

## Valves with Pneumatic Actuators

Actuator Control Type: Pneumatic

Type of Enclosure: Pneumatic

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3FW1YCR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3FW1YCS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3FW1YDR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3FW1YDS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3FW1YER	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3FW1YPR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3FW1YPS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3FW1YXR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3FW1YXS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3FW1Y8P	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF3FW1YPP	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF3GW1YCR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3GW1YCS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3GW1YDR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3GW1YDS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3GW1YER	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3GW1YES	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3GW1YPR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3GW1YPS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3GW1YXR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3GW1YXS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3GW1Y8P	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF3GW1YPP	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF3HW1YCR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3HW1YCS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3HW1YDR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3HW1YDS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3HW1YER	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3HW1YES	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3HW1YPR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3HW1YPS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3HW1YXR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3HW1YXS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3HW1Y8P	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF3HW1YPP	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF3JV1YCR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3JV1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3JV1YDR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3JV1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3JV1YER	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3JV1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3JV1YPR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3JV1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3JV1YXR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3JV1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3JW1YCR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3JW1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3JW1YDR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3JW1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3JW1YER	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3JW1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>Vs</sub> )	(Cv)	(k <sub>Vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3JW1YPR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3JW1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3JW1YXR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3JW1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3JV1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF3JV1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF3JW1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF3JW1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF3KV1YCR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3KV1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3KV1YDR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3KV1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3KV1YER	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3KV1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3KV1YPR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3KV1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3KV1YXR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3KV1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3KW1YCR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3KW1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3KW1YDR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3KW1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3KW1YER	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3KW1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3KW1YPR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3KW1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3KW1YXR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).



# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3KW1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3KW1Y8P	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF3KW1YPP	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF3LV1YCR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3LV1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3LV1YDR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3LV1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3LV1YER	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3LV1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3LV1YPR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3LV1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3LV1YXR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3LV1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3LW1YCR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3LW1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3LW1YDR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3LW1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3LW1YER	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3LW1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3LW1YPR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3LW1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3LW1YXR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3LW1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3LV1Y8P	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF3LV1YPP	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF3LW1Y8P	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF3LW1YPP	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>Vs</sub> )	(Cv)	(k <sub>Vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3MV1YCR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3MV1YCS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3MV1YDR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3MV1YDS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3MV1YER	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3MV1YES	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3MV1YPR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3MV1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3MV1YXR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3MV1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3MW1YCR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3MW1YCS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3MW1YDR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3MW1YDS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3MW1YER	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3MW1YES	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3MW1YPR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3MW1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3MW1YXR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3MW1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3MV1Y8P	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF3MV1YPP	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF3NV1YCR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3NV1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3NV1YDR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3NV1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3NV1YER	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3NV1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3NV1YPR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3NV1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3NV1YXR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3NV1YXS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3NW1YCR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3NW1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3NW1YDR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3NW1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3NW1YER	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3NW1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3NW1YPR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3NW1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3NW1YXR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3NW1YXS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3PV1YCR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3PV1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3PV1YDR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3PV1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3PV1YER	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3PV1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3PV1YPR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3PV1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3PV1YXR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3PV1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

Commercial Components

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3PW1YCR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3PW1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3PW1YDR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3PW1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3PW1YER	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3PW1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3PW1YPR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3PW1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF3PW1YXR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF3PW1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF3RV1YCR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3RV1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3RV1YDR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3RV1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3RV1YER	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3RV1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3RV1YPR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3RV1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3RV1YXR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3RV1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3RW1YCR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3RW1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF3RW1YDR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3RW1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF3RW1YER	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3RW1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3RW1YPR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3RW1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF3RW1YXR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3RW1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF3SV1YCR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3SV1YCS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3SV1YDR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3SV1YDS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3SV1YER	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3SV1YES	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3SV1YPR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3SV1YPS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3SV1YXR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3SV1YXS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3SW1YCR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3SW1YDR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3SW1YER	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3SW1YPR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3SW1YXR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3TV1YCR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3TV1YCS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3TV1YDR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3TV1YDS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3TV1YER	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3TV1YES	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3TV1YPR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>Vs</sub> )	(Cv)	(k <sub>Vs</sub> )	(Cv)		(kPa)	(psi)		
VFF3TV1YPS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3TV1YXR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3TV1YXS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3TW1YCR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3TW1YDR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3TW1YER	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3TW1YPR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3TW1YXR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3UV1YCR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3UV1YCS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3UV1YDR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3UV1YDS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3UV1YER	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3UV1YES	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3UV1YPR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF3UV1YPS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF3UV1YXR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF3UV1YXS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF3UW1YCR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3UW1YDR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3UW1YER	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3UW1YPR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF3UW1YXR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

## VFF6 Three-way (A-AB-B) Butterfly Control Valves



Resilient seat three-way valves provide control for HVAC system applications including chilled water, hot water, cooling tower water, and thermal storage systems.

- Body Pattern:** 3 way (A-AB-B porting)
- Valve Action:** Normally Closed
- Connection Type:** Lugged
- Controlled Fluid:** Chilled or hot water with up to 50% Glycol.  
Not for use with steam or fuels.
- Actuator Control Type:** Electric floating
- Type of Enclosure:** NEMA 2 housing
- Flow Characteristic:** Modified Equal Percent
- Mounting:** ANSI Flanged
- Static Pressure Rating (max):** 1724 kPa (250 psi)
- Actuator Ambient Temperature Ratings:**  
-20 C to 60 C (-5 F to 140 F)
- Temperature Range:** -40 C to 121 C (-40 F to 250 F)

### Valves with Electric Actuators

**Type of Enclosure:** NEMA 2 housing

- Materials**
- (Body):** Polyester-coated cast iron ASTM A126 Class B
- (Stem):** 416 Stainless Steel
- (Seat):** Peroxide-cured EPDM resilient seat
- (Plug/Ball/Disc):** Nylon 11-coated ductile iron

**Approvals:**  
**CE:** Compliant  
**Underwriters Laboratories, Inc. C/US UL873, Plenum Rated**

Valve Size		Number of Flange Bolts	Flange Bolt Thread
DN	inch		
DN50	2 in.	4	5/8 in. -11 pitch
DN65	2-1/2 in.	4	5/8 in. -11 pitch
DN80	3 in.	4	5/8 in. -11 pitch
DN100	4 in.	8	5/8 in. -11 pitch
DN125	5 in.	8	3/4 in. -10 pitch
DN150	6 in.	8	3/4 in. -10 pitch
DN200	8 in.	8	3/4 in. -10 pitch
DN250	10 in.	12	7/8 in. -9 pitch
DN300	12 in.	12	7/8 in. -9 pitch
DN350	14 in.	12	1-1/8 in. -7 pitch
DN400	16 in.	16	1-1/8 in. -7 pitch
DN450	18 in.	16	1-1/8 in. -7 pitch
DN500	20 in.	20	1-1/8 in. -7 pitch

**Accessories:**  
**VFF50-0400** Position status monitor for VFF butterfly valves with high pressure pneumatic actuators\*\*

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)	
VFF6FW1Y2A	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF6FW1Y2B	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF6FW1Y2C	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	—
VFF6FW1Y2D	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	—
VFF6FW1Y2E	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	—
VFF6GW1Y2A	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF6GW1Y2B	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF6GW1Y2C	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	—
VFF6GW1Y2D	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	—
VFF6GW1Y2E	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	—
VFF6HW1Y2A	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF6HW1Y2B	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—

Commercial Components

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Control Type	Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)	
VFF6HW1Y2C	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	1206 kPa	175 psi	—
VFF6HW1Y2D	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	1206 kPa	175 psi	—
VFF6HW1Y2E	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	1206 kPa	175 psi	—
VFF6JV1Y2A	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	—
VFF6JV1Y2B	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	—
VFF6JV1Y2C	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	345 kPa	50 psi	—
VFF6JV1Y2D	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	345 kPa	50 psi	—
VFF6JV1Y2E	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	345 kPa	50 psi	—
VFF6JW1Y2A	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF6JW1Y2B	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF6KV1Y2A	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	—
VFF6KV1Y2B	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	—
VFF6KV1Y2C	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric 2-position	Spring Return 2-Position, 24 Vac	345 kPa	50 psi	Chilled water service only
VFF6KV1Y2D	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating; Electric floating	Spring Return Floating/Modulating control	345 kPa	50 psi	Chilled water service only
VFF6KV1Y2E	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric 2-position	Spring Return 2-Position, 120 Vac	345 kPa	50 psi	Chilled water service only
VFF6KW1Y2A	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric floating	Non-Spring Return Floating control	1206 kPa	175 psi	—
VFF6KW1Y2B	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Electric modulating	Non-Spring Return Modulating control	1206 kPa	175 psi	—
VFF6LV1Y2A	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric floating	Non-Spring Return Floating control	345 kPa	50 psi	—
VFF6LV1Y2B	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Electric modulating	Non-Spring Return Modulating control	345 kPa	50 psi	—

## Valves with Electric Actuators

Type of Enclosure: NEMA 4

Actuator Control Type: Electric floating

Actuator Selection: Non-Spring Return 120 Vac Floating control

Includes: Anti-condensation heater, manual gear wheel

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)
VFF6FW1YXA	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6GW1YXA	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6HW1YXA	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6JV1YXA	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6JW1YXA	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6KV1YXA	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6KW1YXA	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6LV1YXA	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6LW1YXA	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6MV1YXA	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi



# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)
VFF6MW1YXA	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6NV1YXA	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6NW1YXA	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6PV1YXA	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6PW1YXA	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6RV1YXA	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6RW1Y4A	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF6SV1YXA	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6SW1Y4A	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF6TV1Y4A	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF6TW1Y4A	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF6UV1Y4A	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	NEMA 4 (Water tight) housing	345 kPa	50 psi

Type of Enclosure: NEMA 4

Actuator Selection: Non-Spring Return 120 Vac Floating control

Actuator Control Type: Electric modulating

Includes: Anti-condensation heater, manual gear wheel

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)
VFF6FW1YXB	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6GW1YXB	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6HW1YXB	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6JV1YXB	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6JW1YXB	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6KV1YXB	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6KW1YXB	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6LV1YXB	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6LW1YXB	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6MV1YXB	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6MW1YXB	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6NV1YXB	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6NW1YXB	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6PV1YXB	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6PW1YXB	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	1206 kPa	175 psi
VFF6RV1YXB	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6RW1Y4B	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF6SV1YXB	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Non-Spring Return Modulating control	NEMA 4X (Water tight, corrosion-proof) housing	345 kPa	50 psi
VFF6SW1Y4B	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Type of Enclosure	Maximum Differential Pressure Ratings (Close-off)	
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)			(kPa)	(psi)
VFF6TV1Y4B	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF6TW1Y4B	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi
VFF6UV1Y4B	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	345 kPa	50 psi
VFF6UW1Y4B	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Non-Spring Return 20 mA Modulating control	NEMA 4 (Water tight) housing	1034 kPa	150 psi

## Valves with Pneumatic Actuators

Actuator Control Type: Pneumatic

Type of Enclosure: Pneumatic

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6FW1YCR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6FW1YCS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6FW1YDR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6FW1YDS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6FW1YER	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6FW1YPR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6FW1YPS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6FW1YXR	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6FW1YXS	DN50	2 in.	53 kvs	61 Cv	125 kvs	144 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6FW1Y8P	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF6FW1YPP	DN50	2 in.	53 kvs	61 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF6GW1YCR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6GW1YCS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6GW1YDR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6GW1YDS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6GW1YER	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6GW1YES	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6GW1YPR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6GW1YPS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6GW1YXR	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6GW1YXS	DN65	2-1/2 in.	93 kvs	107 Cv	244 kvs	282 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6GW1Y8P	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF6GW1YPP	DN65	2-1/2 in.	93 kvs	107 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF6HW1YCR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6HW1YCS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6HW1YDR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6HW1YDS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6HW1YER	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6HW1YES	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6HW1YPR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6HW1YPS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6HW1YXR	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6HW1YXS	DN80	3 in.	133 kvs	154 Cv	399 kvs	461 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6HW1Y8P	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF6HW1YPP	DN80	3 in.	133 kvs	154 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF6JV1YCR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6JV1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6JV1YDR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6JV1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6JV1YER	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6JV1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6JV1YPR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6JV1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6JV1YXR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6JV1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6JW1YCR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6JW1YCS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6JW1YDR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6JW1YDS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6JW1YER	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6JW1YES	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6JW1YPR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6JW1YPS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6JW1YXR	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6JW1YXS	DN100	4 in.	237 kvs	274 Cv	727 kvs	841 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6JV1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF6JV1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF6JW1Y8P	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF6JW1YPP	DN100	4 in.	237 kvs	274 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF6KV1YCR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6KV1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6KV1YDR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6KV1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6KV1YER	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6KV1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6KV1YPR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6KV1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6KV1YXR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6KV1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6KW1YCR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6KW1YCS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6KW1YDR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6KW1YDS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6KW1YER	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6KW1YES	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6KW1YPR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6KW1YPS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6KW1YXR	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6KW1YXS	DN125	5 in.	370 kvs	428 Cv	1190 kvs	1376 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6KW1Y8P	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF6KW1YPP	DN125	5 in.	370 kvs	428 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF6LV1YCR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6LV1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6LV1YDR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6LV1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6LV1YER	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6LV1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6LV1YPR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6LV1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6LV1YXR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6LV1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6LW1YCR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6LW1YCS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6LW1YDR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6LW1YDS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6LW1YER	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6LW1YES	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6LW1YPR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6LW1YPS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6LW1YXR	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6LW1YXS	DN150	6 in.	490 kvs	567 Cv	1600 kvs	1850 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6LV1Y8P	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF6LV1YPP	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF6LW1Y8P	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		20 psi spring return	1206 kPa	175 psi	Linear actuator	—
VFF6LW1YPP	DN150	6 in.	490 kvs	567 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	1206 kPa	175 psi	Linear actuator	—
VFF6MV1YCR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6MV1YCS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6MV1YDR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6MV1YDS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6MV1YER	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6MV1YES	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6MV1YPR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6MV1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6MV1YXR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6MV1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6MW1YCR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6MW1YCS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6MW1YDR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6MW1YDS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6MW1YER	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6MW1YES	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6MW1YPR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6MW1YPS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6MW1YXR	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6MW1YXS	DN200	8 in.	935 kvs	1081 Cv	2868 kvs	3316 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6MV1Y8P	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		20 psi spring return	345 kPa	50 psi	Linear actuator	—
VFF6MV1YPP	DN200	8 in.	935 kvs	1081 Cv	Stroke limited to 70 degrees		Modulating w/positioner, spring return	345 kPa	50 psi	Linear actuator	—
VFF6NV1YCR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6NV1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6NV1YDR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6NV1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6NV1YER	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6NV1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6NV1YPR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6NV1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6NV1YXR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6NV1YXS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6NW1YCR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6NW1YCS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6NW1YDR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6NW1YDS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6NW1YER	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6NW1YES	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6NW1YPR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6NW1YPS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6NW1YXR	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6NW1YXS	DN250	10 in.	1479 kvs	1710 Cv	4697 kvs	5430 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6PV1YCR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6PV1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6PV1YDR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6PV1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6PV1YER	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6PV1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6PV1YPR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6PV1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6PV1YXR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6PV1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6PW1YCR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6PW1YCS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 24 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6PW1YDR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6PW1YDS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	4-20 mA Servo, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6PW1YER	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6PW1YES	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 120 Vac solenoid 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6PW1YPR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6PW1YPS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	Modulating w/positioner, spring return	1206 kPa	175 psi	—	Position indicator
VFF6PW1YXR	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position 80 psi bidirectional	1206 kPa	175 psi	—	Position indicator
VFF6PW1YXS	DN300	12 in.	2217 kvs	2563 Cv	6987 kvs	8077 Cv	2-position, 80 psi spring return	1206 kPa	175 psi	—	Position indicator
VFF6RV1YCR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6RV1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6RV1YDR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6RV1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6RV1YER	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6RV1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6RV1YPR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6RV1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6RV1YXR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6RV1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6RW1YCR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6RW1YCS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 24 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF6RW1YDR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6RW1YDS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	4-20 mA Servo, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF6RW1YER	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6RW1YES	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 120 Vac solenoid 80 psi spring return	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).



# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6RW1YPR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6RW1YPS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	Modulating w/positioner, spring return	1034 kPa	150 psi	—	Position indicator
VFF6RW1YXR	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6RW1YXS	DN350	14 in.	2927 kvs	3384 Cv	9115 kvs	10538 Cv	2-position, 80 psi spring return	1034 kPa	150 psi	—	Position indicator
VFF6SV1YCR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6SV1YCS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6SV1YDR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6SV1YDS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6SV1YER	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6SV1YES	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6SV1YPR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6SV1YPS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6SV1YXR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6SV1YXS	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6SW1YCR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6SW1YDR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6SW1YER	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6SW1YPR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6SW1YXR	DN400	16 in.	3878 kvs	4483 Cv	12081 kvs	13966 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6TV1YCR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6TV1YCS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6TV1YDR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6TV1YDS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6TV1YER	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6TV1YES	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6TV1YPR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6TV1YPS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Butterfly Control Valves

Product Number	Valve Size		Capacity at 60 degrees stroke		Capacity at 90 degrees stroke		Actuator Selection	Maximum Differential Pressure Ratings (Close-off)		Comments	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)	(k <sub>vs</sub> )	(Cv)		(kPa)	(psi)		
VFF6TV1YXR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6TV1YXS	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6TW1YCR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6TW1YDR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6TW1YER	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6TW1YPR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6TW1YXR	DN450	18 in.	4962 kvs	5736 Cv	14890 kvs	17214 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6UV1YCR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6UV1YCS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6UV1YDR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6UV1YDS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6UV1YER	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6UV1YES	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6UV1YPR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, bidirectional	345 kPa	50 psi	—	Position indicator
VFF6UV1YPS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, spring return	345 kPa	50 psi	—	Position indicator
VFF6UV1YXR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position 80 psi bidirectional	345 kPa	50 psi	—	Position indicator
VFF6UV1YXS	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 80 psi spring return	345 kPa	50 psi	—	Position indicator
VFF6UW1YCR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 24 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6UW1YDR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	4-20 mA Servo 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6UW1YER	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position, 120 Vac solenoid 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6UW1YPR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	Modulating w/positioner, bidirectional	1034 kPa	150 psi	—	Position indicator
VFF6UW1YXR	DN500	20 in.	6180 kvs	7144 Cv	19323 kvs	22339 Cv	2-position 80 psi bidirectional	1034 kPa	150 psi	—	Position indicator

\*\*VFF50-0400 position status monitor for VFF butterfly valves with high pressure pneumatic actuators is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

## VFF Accessories

Product Number	Description	Used With
VFF50-0400	Position status monitor for VFF butterfly valves with high pressure pneumatic actuators	VFF50-0400 position status monitor is available to be ordered separately or will be assembled to the valve if ordered at the same time. It is compatible with any high pressure pneumatic actuators without pneumatic or electro-pneumatic positioner (e.g. VFF...XR/XS, VFF...CR/CS, or VFF...ER/ES).

# Flanged Globe Valves

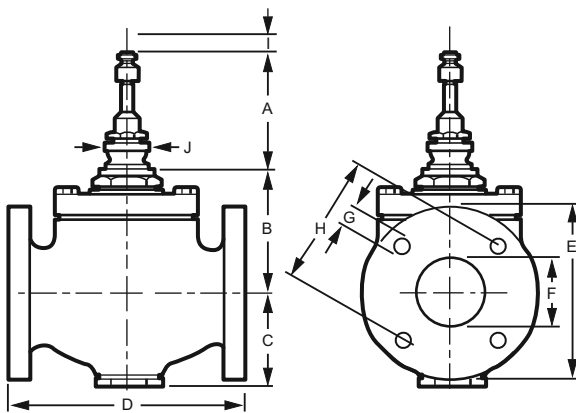
## V5011A,B Two-Way Flanged Globe Valves



Used for proportional control of hot or chilled water and glycol solutions (to 50 percent concentration) and for two-position control of low pressure steam in closed loop HVAC systems.

- Sizes range from 2-1/2 to 6 inches.
- Stainless steel stem with serviceable Teflon packing.
- Valves utilize direct mounting valve actuators, Q5020/Q5022 linkages with Direct Coupled Actuators, or Pneumatic Valve Actuators to operate the valve.
- Equal Percentage flow characteristic.
- Not suitable for combustible gases.

Dimensions in millimeters (inches)



MODEL	VALVE SIZE	A <sup>a</sup>	B	C	D	E	F	G	H	I (TRAVEL)	J (DIA.)
V5011A	64 (2-1/2)	89 (3-1/2)	122 (4-13/16)	102 (4)	241 (9-1/2)	178 (7)	64 (2-1/2)	19 (3/4)	140 (5-1/2)	19 (3/4)	35 (1-3/8)
	76 (3)	89 (3-1/2)	89 (3-1/2)	117 (4-5/8)	279 (11)	191 (7-1/2)	76 (3)	19 (3/4)	152 (6)	19 (3/4)	35 (1-3/8)
	102 (4)	133 (5-1/4)	133 (5-1/4)	132 (5-3/16)	330 (13)	229 (9)	102 (4)	19 (3/4)	191 (7-1/2)	38 (1-1/2)	48 (1-7/8)
V5011B	102 (4)	171 (6-3/4)	171 (6-3/4)	205 (8-1/16)	330 (13)	229 (9)	102 (4)	19 (3/4)	191 (7-1/2)	38 (1-1/2)	48 (1-7/8)

MC27256

**Valve Type:** Globe Valve

**Body Pattern:** Two-way

**Connection Type:** Flanged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol.

Not for use with fuels

Low pressure steam

**Flow Characteristic:** Equal Percentage

**Maximum Safe Operating Pressure:**

1034 kPa at 115 C water (150 psi at 240 F water)

100 kPa (15 psi) steam

**Maximum Differential for Quiet Water Service:** 138 kPa (20 psid)

**Ambient Temperature Range:** 4 C to 121 C (40 F to 250 F)

**Actuation:** Must be purchased separately

**ANSI/ASME Rating:** 125

**Materials**

**(Body):** Cast Iron

**(Stem):** 316 Stainless Steel

**(Seat):** Bronze

**(Packing):** Teflon Cone

Product Number	Valve Size		Flow Capacity		Valve Action	Stem Travel		Bonnet Size (inch)	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)		(mm)	(inch)		
V5011A1734	DN65	2 1/2 in.	54 kvs	63 Cv	Stem down to close	20 mm	3/4 in.	1-3/8 in.	Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425; ML6984/ML7984
V5011A1767	DN80	3 in.	85 kvs	100 Cv	Stem down to close	20 mm	3/4 in.	1-3/8 in.	ML6984/ML7984; ML7420/ML7421A/ML7425; ML6420,21A,25; Q5001/Modutrol IV Motor; MP953
V5011A1858	DN100	4 in.	137 kvs	160 Cv	Stem down to close	39 mm	1 1/2 in.	1-7/8 in.	Q5001/Modutrol IV Motor; MP953; ML7421B; ML6421B
V5011A1882	DN125	5 in.	214 kvs	250 Cv	Stem down to close	39 mm	1 1/2 in.	1-7/8 in.	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
V5011A1916	DN150	6 in.	308 kvs	360 Cv	Stem down to close	39 mm	1 1/2 in.	1-7/8 in.	ML6421B; Q5001/Modutrol IV Motor; MP953; ML7421B
V5011B1013	DN100	4 in.	137 kvs	160 Cv	Stem up to close	39 mm	1 1/2 in.	1-7/8 in.	ML7421B; Q5001/Modutrol IV Motor; MP953; ML6421B
V5011B1047	DN125	5 in.	214 kvs	250 Cv	Stem up to close	39 mm	1 1/2 in.	1-7/8 in.	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

Commercial Components

# Flanged Globe Valves

## VGF2 Two-way Flanged Globe Valves



VGF21

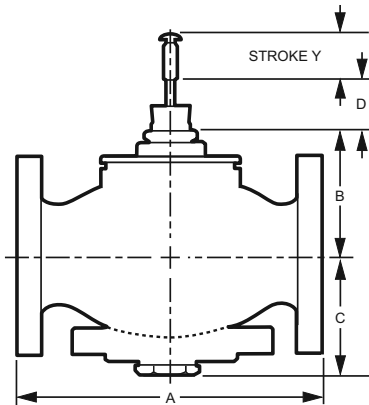


VGF22

VGF Flanged Globe Valves are used for 2-position or modulating control of steam, hot water, or chilled water-glycol solutions up to 50 percent concentration in closed loop heating, ventilation and air conditioning (HVAC) systems. They can be operated by ML6984/7984, ML6420/6425, ML6421/7421 Electric Linear Actuators, MP953 Pneumatic Actuators, Modutrol™ Motors with Q5001 valve linkage, or MN/MS Series Direct Coupled Actuators with Q5020 or Q5022 valve linkages.

- ANSI Class 125 and Class 250 cast iron bodies with flanged end connections
- Equal percentage and linear flow characteristics
- Face-to-face flange dimensions per ANSI/ISA S75.03 standard
- Sizes from 2-1/2 to 6 in.
- Stainless steel trim standard for long life span
- ANSI Class III or IV seat leakage
- Steam inlet pressure up to 125 psig and 353 F maximum temperature
- Self-adjusting packing
- Accurate positioning with equal percentage and linear flow characteristics to ensure precise temperature control
- Universal bonnet for direct-coupled electric and pneumatic actuators for easy mounting, or linkage coupled Modutrol™ Motors and MN/MS Series direct coupled actuators.
- Not suitable for combustible gasses.

### Dimensions in millimeters (inches) for VGF2 valves



▲ DOTTED LINE REPRESENTS ANSI 125 VALVE BONNET.

MODEL NUMBER	DIMENSIONS, MM (IN.)				
	A	B	C	E	Y
2-WAY VALVES, ANSI CLASS 125. STEM DOWN TO CLOSE. EQUAL PERCENTAGE OR LINEAR FLOW CHARACTERISTIC					
VGF21_S25	276 (10-7/8)	112 (4-3/8)	178 (7)	89 (3-1/2)	20 (13/16)
VGF21_S30	298 (11-3/4)	161 (6-3/8)	191 (7-1/2)		
VGF21_S40	352 (13-7/8)	150 (5-7/8)	229 (9)	133 (5-1/4)	38 (1-1/2)
VGF21_S50	400 (15-3/4)	157 (6-3/16)	254 (10)		
VGF21_S60	451 (17-3/4)	157 (6-3/16)	279 (11)		
2-WAY VALVES, ANSI CLASS 250. STEM DOWN TO CLOSE. EQUAL PERCENTAGE FLOW CHARACTERISTIC					
VGF22ES25	292 (11-1/2)	112 (4-3/8)	191 (7-1/2)	89 (3-1/2)	20 (13/16)
VGF22ES30	318 (12-1/2)	161 (6-3/8)	210 (8-1/4)		
VGF22ES40	368 (14-1/2)	150 (5-7/8)	254 (10)	133 (5-1/4)	38 (1-1/2)
VGF22ES50	422 (16-5/8)	157 (6-3/16)	279 (11)		
VGF22ES60	473 (18-5/8)	157 (6-3/16)	318 (12-1/2)		
2-WAY VALVES, PRESSURE-BALANCED, ANSI CLASS 125. STEM DOWN TO CLOSE. EQUAL PERCENTAGE OR LINEAR FLOW CHARACTERISTIC					
VGF21_P25	276 (10-7/8)	107 (4-3/16)	178 (7)	89 (3-1/2)	20 (13/16)
VGF21_P30	298 (11-3/4)	150 (5-7/8)	191 (7-1/2)		
VGF21_P40	352 (13-7/8)	150 (5-7/8)	229 (9)	133 (5-1/4)	38 (1-1/2)
VGF21_P50	400 (15-3/4)	156 (6-1/8)	254 (10)		
VGF21_P60	451 (17-3/4)	156 (6-1/8)	279 (11)		

MC27603

**Valve Type:** Globe Valve

**Body Pattern:** Two-way

**Connection Type:** Flanged

**Valve Action:** Stem down to close; Direct acting

**Leakage Rating:** 0.05% of Cv

**Controlled Fluid:** Steam; Chilled or hot water with up to 50% Glycol.  
Not for use with fuels.

**Fluid Temperature Range:** -7 C to +120 C, steam 180 C  
(20 F to 250 F, steam 353 F)

**Actuation:** Must be purchased separately

#### Materials

**(Body):** Cast Iron ASTM A126 Class B

**(Stem):** Stainless Steel

**(Seat):** Stainless Steel

**(Cartridge):** Stainless Steel

**(Plug/Ball/Disc):** Stainless Steel

**(Packing):** Spring-loaded PTFE cone rings

	Stem Travel		Bonnet Size (inch)
	(mm)	(inch)	
2-1/2 or 3 inch valves	20 mm	3/4 in.	1-3/8 in.
4, 5, 6 inch valves	38 mm	1 1/2 in.	1-7/8 in.

# Flanged Globe Valves

## Flow Characteristic: Equal Percentage

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		Maximum Close-off Pressure		ANSI/ASME Rating	Leakage Rating	Comments	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(kPa)	(psi)				
VGF21EP25	DN65	2 1/2 in.	60 kvs	70 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 135# (600N); Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X
VGF21ES25	DN65	2 1/2 in.	60 kvs	70 Cv	1206 kPa	175 psig	475 kPa	69 psi	125	0.05% of Cv	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF22ES25	DN65	2 1/2 in.	60 kvs	70 Cv	2758 kPa	400 psig	475 kPa	69 psi	250	0.05% of Cv	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF21EP30	DN80	3 in.	99 kvs	115 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 135# (600N); Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X
VGF21ES30	DN80	3 in.	99 kvs	115 Cv	1206 kPa	175 psig	234 kPa	34 psi	125	0.05% of Cv	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF22ES30	DN80	3 in.	103 kvs	120 Cv	2758 kPa	400 psig	234 kPa	34 psi	250	0.05% of Cv	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF21EP40	DN100	4 in.	129 kvs	150 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 400# (1800N); Direct acting	ML6421B/ML7421B, MP953(13")
VGF21ES40	DN100	4 in.	129 kvs	150 Cv	1206 kPa	175 psig	234 kPa	34 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF22ES40	DN100	4 in.	129 kvs	150 Cv	2758 kPa	400 psig	234 kPa	34 psi	250	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF21EP50	DN125	5 in.	244 kvs	285 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 400# (1800N); Direct acting	ML6421B/ML7421B, MP953(13")
VGF21ES50	DN125	5 in.	244 kvs	285 Cv	1206 kPa	175 psig	90 kPa	13 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF22ES50	DN125	5 in.	274 kvs	320 Cv	2758 kPa	400 psig	90 kPa	13 psi	250	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF21LS50	DN125	5 in.	274 kvs	320 Cv	1206 kPa	175 psig	90 kPa	13 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF21EP60	DN150	6 in.	313 kvs	365 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 400# (1800N); Direct acting	ML6421B/ML7421B, MP953(13")
VGF21ES60	DN150	6 in.	313 kvs	365 Cv	1206 kPa	175 psig	90 kPa	13 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF22ES60	DN150	6 in.	317 kvs	370 Cv	2758 kPa	400 psig	90 kPa	13 psi	250	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

## Flow Characteristic: Linear

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		Maximum Close-off Pressure		ANSI/ASME Rating	Leakage Rating	Comments	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(kPa)	(psi)				
VGF21LP25	DN65	2 1/2 in.	60 kvs	70 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 135# (600N); Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X
VGF21LS25	DN65	2 1/2 in.	60 kvs	70 Cv	1206 kPa	175 psig	475 kPa	69 psi	125	0.05% of Cv	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF21LP30	DN80	3 in.	103 kvs	120 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 135# (600N); Direct acting	MP953 (7-1/8 to 13"); ML6984/ML7984; ML642X/ML742X
VGF21LS30	DN80	3 in.	107 kvs	125 Cv	1206 kPa	175 psig	234 kPa	34 psi	125	0.05% of Cv	Direct acting	ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF21LP40	DN100	4 in.	129 kvs	150 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 400# (1800N) Direct acting	ML6421B/ML7421B, MP953(13")

# Flanged Globe Valves

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		Maximum Close-off Pressure		ANSI/ASME Rating	Leakage Rating	Comments	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)	(kPa)	(psi)				
<b>VGF21LS40</b>	DN100	4 in.	133 kvs	155 Cv	1206 kPa	175 psig	234 kPa	34 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
<b>VGF21LP50</b>	DN125	5 in.	274 kvs	320 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 400# (1800N); Direct acting	ML6421B/ML7421B, MP953(13")
<b>VGF21LS50</b>	DN125	5 in.	274 kvs	320 Cv	1206 kPa	175 psig	90 kPa	13 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
<b>VGF21LP60</b>	DN150	6 in.	317 kvs	370 Cv	1206 kPa	175 psig	1206 kPa	175 psi	125	0.01% of Cv	Pressure-balanced. Minimum actuator force is 400# (1800N); Direct acting	ML6421B/ML7421B, MP953(13")
<b>VGF21LS60</b>	DN150	6 in.	317 kvs	370 Cv	1206 kPa	175 psig	90 kPa	13 psi	125	0.05% of Cv	Direct acting	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

# Flanged Globe Valves

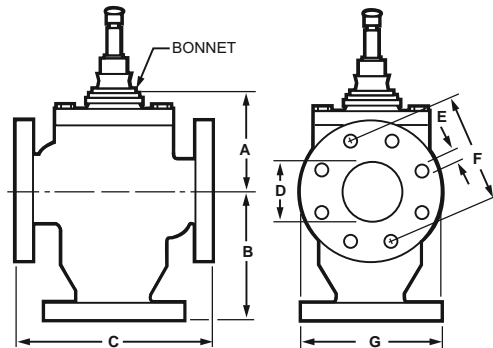
## V5013B,C Three-Way Flanged Globe Valves



The V5013B are three-way mixing valves. The V5013C are three-way diverting valves. These valves provide proportional or two-position control of hot or chilled water in closed loop heating or cooling systems. These valves are offered in sizes 2 1/2 in. through 6 in.

- Valves utilize direct mounting valve actuators, Q5020/Q5022 linkages with Direct Coupled Actuators, or Pneumatic Valve Actuators to operate the valve.
- Constant total flow through full plug travel.
- Stainless steel stem prevents corrosion.
- Class IV (0.01% of Cv) Leakage Rating.
- Not suitable for combustible gases.

Dimensions in millimeters (inches)



V5013B,C DIMENSIONS

	VALVE SIZE				
	DN65 (2-1/2)	DN80 (3)	DN100 (4)	DN125 (5)	DN150 (6)
A	114 (4-1/2)	133 (5-1/4)	149 (5-7/8)	159 (6-1/4)	184 (7-1/4)
B	164 (6-7/17)	168 (6-5/8)	221 (8-11/16)	244 (9-5/8)	271 (10-11/16)
C	241 (9-1/2)	279 (11)	330 (13)	381 (15)	419 (16-1/2)
D	64 (2-1/2)	76 (3)	102 (4)	127 (5)	152 (6)
E	19 (3/4)	19 (3/4)	19 (3/4)	22 (7/8)	22 (7/8)
F	140 (5-1/2)	152 (6)	191 (7-1/2)	216 (8-1/2)	241 (9-1/2)
G	178 (7)	191 (7-1/2)	229 (9)	254 (10)	279 (11)

MC16833

**Valve Type:** Globe Valve

**Body Pattern:** Three-way

**Connection Type:** Flanged

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Flow Characteristic:** Linear (constant total)

**Maximum Safe Operating Pressure:** 1034 kPa at 115 C water (150 psi at 240 F water)

**Maximum Differential for Quiet Water Service:** 138 kPa (20 psid)

**Ambient Temperature Range:** 4 C to 121 C (40 F to 250 F)

**ANSI/ASME Rating:** 125

**Actuation:** Must be purchased separately

**Materials**

**(Body):** Cast Iron

**(Stem):** Stainless Steel

**(Seat):** Bronze

**(Packing):** Teflon Cone

	Stem Travel		Bonnet Size (inch)
	(mm)	(inch)	
<b>2-1/2 &amp; 3 inch valves</b>	20 mm	3/4 in.	1-3/8 in.
<b>4, 5, 6 inch valves</b>	39 mm	1 1/2 in.	1-7/8 in.

Product Number	Valve Size		Flow Capacity		Valve Action	Comments	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)			
V5013B1003	DN65	2 1/2 in.	54 kvs	63 Cv	Stem up increases B to AB flow	Mixing	ML6984/ML7984; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013B1011	DN80	3 in.	85 kvs	100 Cv	Stem up increases B to AB flow	Mixing	ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013B1029	DN100	4 in.	137 kvs	160 Cv	Stem up increases B to AB flow	Mixing	ML7421B; ML6421B; Q5001/Modutrol IV Motor
V5013B1037	DN125	5 in.	214 kvs	250 Cv	Stem up increases B to AB flow	Mixing	ML6421B; ML7421B; Q5001/Modutrol IV Motor
V5013B1045	DN150	6 in.	308 kvs	360 Cv	Stem up increases B to AB flow	Mixing	ML7421B; ML6421B; Q5001/Modutrol IV Motor
V5013C1001	DN65	2 1/2 in.	54 kvs	63 Cv	Stem up increases AB to A flow	Diverting	ML6984/ML7984; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013C1019	DN80	3 in.	85 kvs	100 Cv	Stem up increases AB to A flow	Diverting	ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013C1027	DN100	4 in.	137 kvs	160 Cv	Stem up increases AB to A flow	Diverting	ML6421B; ML7421B; Q5001/Modutrol IV Motor
V5013C1035	DN125	5 in.	214 kvs	250 Cv	Stem up increases AB to A flow	Diverting	ML7421B; ML6421B; Q5001/Modutrol IV Motor
V5013C1043	DN150	6 in.	308 kvs	360 Cv	Stem up increases AB to A flow	Diverting	ML6421B; ML7421B; Q5001/Modutrol IV Motor

# Flanged Globe Valves

## VGF3 Three-way Flanged Globe Valves



VGF31

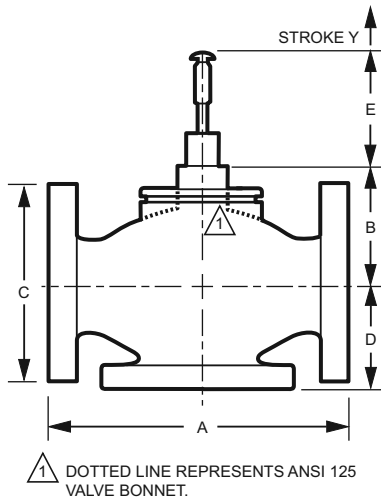


VGF32

VGF Flanged Globe Valves are used for 2-position or modulating control of hot water or chilled water-glycol solutions up to 50% concentration in closed loop heating, ventilation and air conditioning (HVAC) systems. They can be operated by ML6984/7984, ML6420/6425, ML6421/7421 Electric Linear Actuators, MP953 Pneumatic Actuators, Modutrol™ Motors with Q5001 valve linkage, or MN/MS Series Direct Coupled Actuators with Q5020 or Q5022 valve linkages. Three-way bodies are available in mixing or diverting style with equal percentage and linear flow characteristics, respectively. For boiler/chiller bypass applications requiring tight close-off, use VGF31/32LD diverting valves. For outdoor temperature compensation of building supply water, or modulating control of heat exchangers, use VGF31/32EM mixing valves.

- ANSI Class 125 and Class 250 cast iron bodies with flanged end connections.
- Face-to-face flange dimensions per ANSI/ISA S75.03 standard.
- Sizes from 2-1/2 to 6 inches.
- Stainless steel trim standard for long life span.
- Self-adjusting packing.
- Accurate positioning with equal percentage and linear flow characteristics to ensure precise temperature control.
- Universal bonnet for direct-coupled electric and pneumatic actuators for easy mounting, or linkage coupled Modutrol™ Motors and MN/MS Series direct coupled actuators.
- Constant total flow throughout full plug travel (3-way diverting models).
- Not suitable for combustible gasses.

Dimensions in millimeters (inches)



MODEL NUMBER	DIMENSIONS, MM (IN.)					
	A	B	C	D	E	Y
3-WAY MIXING VALVES, ANSI CLASS 125. STEM UP TO CLOSE A-AB						
VGF31EM25	276 (10-7/8)	76 (3)	178 (7)	95 (3-3/4)	107 (4-3/16)	20 (13/16)
VGF31EM30	298 (11-3/4)	107 (4-3/16)	191 (7-1/2)	111 (4-3/8)		
VGF31EM40	352 (13-7/8)	140 (5-8/16)	229 (9)	130 (5-1/8)	170 (6-11/16)	38 (1-1/2)
VGF31EM50	400 (15-3/4)	137 (5-3/8)	254 (10)	146 (5-3/4)		
VGF31EM60	451 (17-3/4)	145 (5-11/16)	279 (11)	168 (6-5/8)		
3-WAY MIXING VALVES, ANSI CLASS 250. STEM UP TO CLOSE A-AB						
VGF32EM25	292 (11-1/2)	112 (4-3/8)	191 (7-1/2)	95 (3-3/4)	107 (4-3/16)	20 (13/16)
VGF32EM30	318 (12-1/2)	161 (6-3/8)	210 (8-1/4)	111 (4-3/8)		
VGF32EM40	368 (14-1/2)	150 (5-7/8)	254 (10)	130 (5-1/8)	170 (6-11/16)	38 (1-1/2)
VGF32EM50	422 (16-5/8)	157 (6-3/16)	279 (11)	146 (5-3/4)		
VGF32EM60	473 (18-5/8)	157 (6-3/16)	318 (12-1/2)	168 (6-5/8)		
3-WAY DIVERTING VALVES, ANSI CLASS 125. STEM DOWN TO CLOSE AB-A						
VGF31LD25	276 (10-7/8)	76 (3)	178 (7)	95 (3-3/4)	107 (4-3/16)	20 (13/16)
VGF31LD30	298 (11-3/4)	107 (4-3/16)	191 (7-1/2)	111 (4-3/8)		
VGF31LD40	352 (13-7/8)	140 (5-8/16)	229 (9)	130 (5-1/8)	170 (6-11/16)	38 (1-1/2)
VGF31LD50	400 (15-3/4)	137 (5-3/8)	254 (10)	146 (5-3/4)		
VGF31LD60	451 (17-3/4)	145 (5-11/16)	279 (11)	168 (6-5/8)		
3-WAY DIVERTING VALVES, ANSI CLASS 250. STEM DOWN TO CLOSE AB-A						
VGF32LD25	292 (11-1/2)	112 (4-3/8)	191 (7-1/2)	3-3/4 (95)	107 (4-3/16)	20 (13/16)
VGF32LD30	318 (12-1/2)	161 (6-3/8)	210 (8-1/4)	4-3/8 (111)		
VGF32LD40	368 (14-1/2)	150 (5-7/8)	254 (10)	130 (5-1/8)	170 (6-11/16)	38 (1-1/2)
VGF32LD50	422 (16-5/8)	157 (6-3/16)	279 (11)	146 (5-3/4)		
VGF32LD60	473 (18-5/8)	157 (6-3/16)	318 (12-1/2)	168 (6-5/8)		

MC27604



# Flanged Globe Valves

**Valve Type:** Globe Valve  
**Body Pattern:** Three-way  
**Connection Type:** Flanged  
**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.  
**Fluid Temperature Range:** -7 C to +120 C (20 F to 250 F)  
**Actuation:** Must be purchased separately

**Materials**  
**(Body):** Cast Iron ASTM A126 Class B  
**(Stem):** Stainless Steel  
**(Seat):** Stainless Steel  
**(Cartridge):** Stainless Steel  
**(Plug/Ball/Disc):** Stainless Steel  
**(Packing):** Spring-loaded PTFE cone rings

	Stem Travel		Bonnet Size (inch)
	(mm)	(inch)	
2-1/2 or 3 inch valves	20 mm	3/4 in.	1-3/8 in.
4, 5, 6 inch valves	38 mm	1 1/2 in.	1-7/8 in.

## Flow Characteristic: Equal Percentage (A-AB)

**Valve Action:** Mixing, step up to close A-AB

**Leakage Rating:** Port A seat leakage: 0.5%; Port B seat leakage 1.0% For Supply mixing control; use diverting valve for boiler/chiller bypass

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		ANSI/ASME Rating	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)	(kPa)	(psi)		
VGF31EM25	DN65	2 1/2 in.	60 kvs	70 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32EM25	DN65	2 1/2 in.	60 kvs	70 Cv	2758 kPa	400 psig	250	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31EM30	DN80	3 in.	99 kvs	115 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32EM30	DN80	3 in.	99 kvs	115 Cv	2758 kPa	400 psig	250	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31EM40	DN100	4 in.	146 kvs	170 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32EM40	DN100	4 in.	146 kvs	170 Cv	2758 kPa	400 psig	250	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31EM50	DN125	5 in.	274 kvs	320 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32EM50	DN125	5 in.	274 kvs	320 Cv	2758 kPa	400 psig	250	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31EM60	DN150	6 in.	317 kvs	370 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32EM60	DN150	6 in.	317 kvs	370 Cv	2758 kPa	400 psig	250	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

## Flow Characteristic: Linear (constant total)

**Valve Action:** Diverting, stem down to close AB-A

**Leakage Rating:** Port A seat leakage: 0.05%; Port B seat leakage 0.1%

Product Number	Valve Size		Flow Capacity		Maximum Safe Operating Pressure		ANSI/ASME Rating	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)	(kPa)	(psi)		
VGF31LD25	DN65	2 1/2 in.	60 kvs	70 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31LD30	DN80	3 in.	103 kvs	120 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF31LD40	DN100	4 in.	137 kvs	160 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31LD50	DN125	5 in.	244 kvs	285 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF31LD60	DN150	6 in.	326 kvs	380 Cv	1206 kPa at 66 C (130 F)	175 psig at 130 F (66 C)	125	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32LD25	DN65	2 1/2 in.	60 kvs	70 Cv	2758 kPa	400 psig	250	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32LD30	DN80	3 in.	103 kvs	120 Cv	2758 kPa	400 psig	250	ML6984/ML7984; ML6420/21A/25; ML7420/21A/25; Q5020/DCA; Q5001/Modutrol IV Motor; MP953
VGF32LD40	DN100	4 in.	137 kvs	160 Cv	2758 kPa	400 psig	250	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32LD50	DN125	5 in.	244 kvs	285 Cv	2758 kPa	400 psig	250	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953
VGF32LD60	DN150	6 in.	326 kvs	380 Cv	2758 kPa	400 psig	250	ML6421B; ML7421B; Q5001/Modutrol IV Motor; MP953

# Threaded Globe Valves

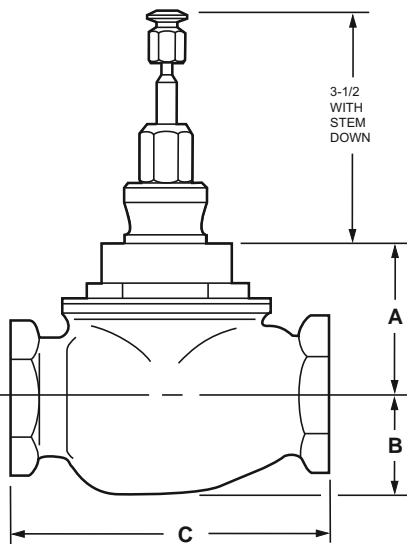
## V5011F,G Two-Way Threaded Globe Valves



Used for two-position or modulating control of steam and water and glycol solutions (to 50 percent concentration) in heating or cooling systems.

- Sizes range from 2-1/2 to 3 inches.
- Direct acting
- High pressure steam models with stainless steel trim.
- Spring-loaded, self-adjusting packing.
- Stainless steel stem prevents corrosion.
- Valve designs provide equal percentage characteristics of flow for close control of water, and linear characteristic of flow for close control of steam or chilled water.
- Valves utilize direct mounting, electric or pneumatic linear valve actuators; Q5001 linkage with Modutrol Motor; or Q5020/Q5022A linkages with Direct Coupled Actuators to operate the valve.

Dimensions in millimeters (inches)



V5011F,G

BODY STYLE	PIPE SIZE (IN.)	DIMENSIONS					
		A		B		C	
		MM	IN.	MM	IN.	MM	IN.
V5011F,G THREADED DIRECT BODY	1/2	51	2	45	1-3/4	86	3-3/8
	3/4	45	1-3/4	45	1-3/4	86	3-3/8
	1	48	1-7/8	45	1-3/4	108	4-1/4
	1-1/4	51	2	42	1-5/8	124	4-7/8
	1-1/2	73	2-7/8	42	1-5/8	143	5-5/8
	2	80	3-1/8	51	2	143	5-5/8
	2-1/2	70	2-3/4	61	2-3/8	191	7-1/2
	3	80	3-1/8	67	2-5/8	226	8-7/8

MC2804A

**Valve Type:** Globe Valve

**Body Pattern:** Two-way, Straight-through

**Valve Action:** Stem down to close

**Connection Type:** NPT Female

**Leakage Rating:** 0.5% of Cv

**Maximum Differential for Quiet Water Service:** 138 kPa (20 psid)

**Fluid Temperature Range:** 4 C to 169 C (40 F to 337 F)

**Stem Travel:** 20 mm (3/4 in.)

**Bonnet Size:** 1-3/8 in.

**Actuation:** Must be purchased separately

**ANSI/ASME Rating:** 150

**Materials**

**(Body):** Red Brass

**(Stem):** Stainless Steel

**Approvals:**

**CRN Number:** 0C0861.9087YTN

	Materials		
	(Packing)	(Plug/Ball/Disc)	(Seat)
<b>V5011F</b>	Teflon and Nitrile	Brass plug with Teflon® disc	Brass
<b>V5011G</b>	Teflon Cone	Stainless Steel plug with carbon-loaded Teflon® disc	Stainless Steel

Product Number	Valve Size		Flow Capacity		Controlled Fluid	Maximum Safe Operating Pressure		Flow Characteristic	Used With
	DN	inch	(k <sub>v</sub> s)	(Cv)		(kPa)	(psi)		
	<b>V5011F1105</b>	DN65	2 1/2 in.	54 kvs		63 Cv	Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.		
<b>V5011F1113</b>	DN80	3 in.	85 kvs	100 Cv	Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.	1496 psi at 121 C water; 1724 kPa at 38 C water	217 psi at 250 F water; 250 psi at 100 F water	Equal Percentage	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
<b>V5011G1111</b>	DN65	2 1/2 in.	54 kvs	63 Cv	Chilled or hot water with up to 50% Glycol. Steam	240 psi at 66 C; 690 kPa at 69 C steam	240 psi water at 150 F; 100 psi at 337 F steam	Linear	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
<b>V5011G1129</b>	DN80	3 in.	85 kvs	100 Cv	Chilled or hot water with up to 50% Glycol. Steam	240 psi at 66 C; 690 kPa at 69 C steam	240 psi water at 150 F; 100 psi at 337 F steam	Linear	

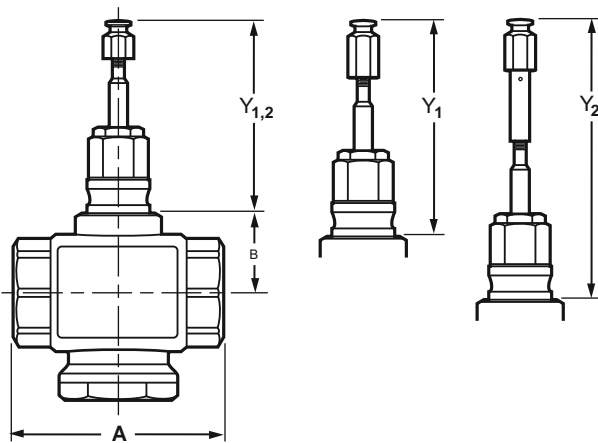
## V5011N Two-way Globe Valves



Used for two-position or modulating control of steam and water and glycol solutions (to 50 percent concentration) in heating or cooling systems.

- Sizes range from 1/2 to 2 inches.
- Direct and reverse acting
- High pressure steam models with stainless steel trim
- Spring-loaded, self-adjusting packing.
- Stainless steel stem prevents corrosion.
- Valve designs provide equal percentage characteristics of flow for close control of water, and linear characteristic of flow for close control of steam or chilled water.
- Valves utilize direct mounting, electric or pneumatic linear valve actuators; Q5001 linkage with Modutrol Motor; or Q5020/Q5022A linkages with direct coupled rotary actuators to operate the valve.
- Not suitable for combustible gases.

Dimensions in millimeters (inches)



**Valve Type:** Globe Valve

**Body Pattern:** Two-way

**Connection Type:** NPT Female

**Leakage Rating:** Seat: - 0.05% of Cv

**Maximum Differential for Quiet Water Service:** 138 kPa (20 psid)

**Ambient Temperature Range:** 2 C to 120 C water

(36 F to 248 F water) 337 F (169 C) steam

**Stem Travel:** 20 mm (3/4 in.)

**Bonnet Size:** 1-3/8 in

**Actuation:** Must be purchased separately

**ANSI/ASME Rating:** 150

**Materials**

**(Body):** Red Brass

**(Stem):** Stainless Steel

**((Packing):** Teflon

**Approvals:**

**CRN Number:** 0C0861.9087YTN/0C0861.99

VALVE SIZE (IN.)	A MM (IN.)	B MM (IN.)
1/2	83 (3-1/4)	40 (1-9/16)
3/4	103 (4-1/16)	47 (1-13/16)
1		
1-1/4	106 (4-3/16)	47 (1-13/16)
1-1/2	120 (4-3/4)	
2	134 (5-1/4)	

VALVE	Y <sub>1</sub> MM (IN.)	Y <sub>2</sub> <sup>a</sup> MM (IN.)
V5011N1XXX OR V5011N2XXX	89 (3-1/2)	133 (5-1/4)
V5011N3XXX	107 (4-3/16)	15 (15-15/16)

<sup>a</sup> Y<sub>2</sub> WITH STEM EXTENSION FOR MP953C,E (8 IN. ONLY)

MC17378A

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Flow Characteristic:** Equal Percentage

**Maximum Safe Operating Pressure:** 1500 kPa at 120 C (217 psi at 248 F)

Product Number	Valve Size		Flow Capacity		Valve Action	Materials			Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)		Cartridge	Plug/Ball/Disc	Seat	
V5011N1008	DN15	1/2 in.	0.63 kvs	0.73 Cv	Stem down to close	Brass	Brass	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1016	DN15	1/2 in.	1.0 kvs	1.2 Cv	Stem down to close	Brass	Brass	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N1024	DN15	1/2 in.	1.6 kvs	1.85 Cv	Stem down to close	Brass	Brass	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1032	DN15	1/2 in.	2.5 kvs	2.9 Cv	Stem down to close	Brass	Brass	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25

# Threaded Globe Valves

Product Number	Valve Size		Flow Capacity		Valve Action	Materials			Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)		Cartridge	Plug/Ball/Disc	Seat	
V5011N1040	DN15	1/2 in.	4.0 kvs	4.7 Cv	Stem down to close	Brass	Brass	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1057	DN20	3/4 in.	6.3 kvs	7.3 Cv	Stem down to close	Brass	Brass	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N1065	DN25	1 in.	10 kvs	11.7 Cv	Stem down to close	Brass	Brass	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1073	DN32	1 1/4 in.	16 kvs	18.7 Cv	Stem down to close	Brass	Brass	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N1081	DN40	1 1/2 in.	25 kvs	29 Cv	Stem down to close	Brass	Brass	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N1099	DN50	2 in.	40 kvs	46.8 Cv	Stem down to close	Brass	Brass	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N3004	DN15	1/2 in.	2.5 kvs	2.9 Cv	Stem up to close	Brass	Brass	Stainless Steel	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5011N3012	DN15	1/2 in.	4.0 kvs	4.7 Cv	Stem up to close	Brass	Brass	Stainless Steel	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7426
V5011N3020	DN20	3/4 in.	6.3 kvs	7.3 Cv	Stem up to close	Brass	Brass	Integral Brass	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7427
V5011N3038	DN25	1 in.	10 kvs	11.7 Cv	Stem up to close	Brass	Brass	Integral Brass	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7428
V5011N3046	DN32	1 1/4 in.	16 kvs	18.7 Cv	Stem up to close	Brass	Brass	Integral Brass	MP953; ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7429

**Controlled Fluid: Steam or Chilled or hot water with up to 50% Glycol. Not for use with fuels.**

Flow Characteristic: Linear

Maximum Safe Operating Pressure: 690 kPa/169C steam (100 psi/337 F steam)

Product Number	Valve Size		Flow Capacity		Valve Action	Materials			Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)		Cartridge	Plug/Ball/Disc	Seat	
V5011N2006	DN15	1/2 in.	0.63 kvs	0.73 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A, 25; ML7420/ML7421A/ML7425
V5011N2014	DN15	1/2 in.	1.0 kvs	1.2 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2022	DN15	1/2 in.	1.6 kvs	1.85 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A, 25; ML7420/ML7421A/ML7425
V5011N2030	DN15	1/2 in.	2.5 kvs	2.9 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2048	DN15	1/2 in.	4.0 kvs	4.7 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A, 25; ML7420/ML7421A/ML7425
V5011N2055	DN20	3/4 in.	6.3 kvs	7.3 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2063	DN25	1 in.	10 kvs	11.7 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A, 25; ML7420/ML7421A/ML7425
V5011N2071	DN32	1 1/4 in.	16 kvs	18.7 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25
V5011N2089	DN40	1 1/2 in.	25 kvs	29 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; MP953; ML6420,21A, 25; ML7420/ML7421A/ML7425
V5011N2097	DN50	2 in.	40 kvs	46.8 Cv	Stem down to close	Stainless Steel	Stainless Steel	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; MP953; ML7420/ML7421A/ML7425; ML6420,21A,25

# Threaded Globe Valves

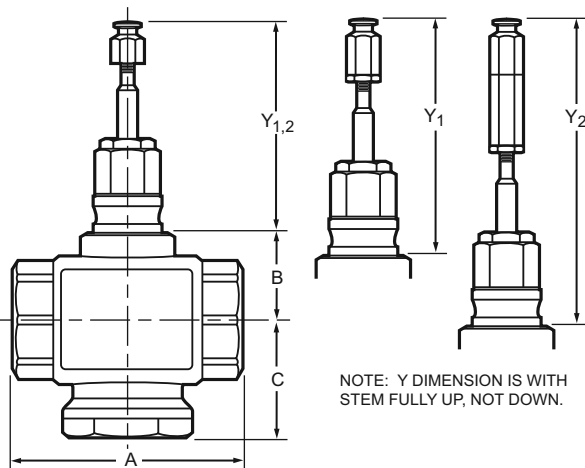
## V5013N Three-Way Threaded Globe Valves



The V5013N is a three-way threaded globe valve that controls hot water, cold water, and glycol solutions (up to 50 percent concentration) in heating or cooling HVAC applications. The valves are used for mixing service to direct flow from one or two inlets to a common outlet in two-position or modulating control systems.

- Red brass body with NPT-threaded connections.
- Stainless steel stem and brass plug.
- Low seat leakage rating, < 0.05%.
- Spring-loaded, self adjusting packing.
- 50:1 rangeability per VDI/VDE 2173.
- Constant total flow throughout full stem travel.
- Accurate positioning to ensure state-of-the-art temperature control.
- Sizes range from 1/2 inch to 2 inches.
- Valves utilize direct mounting, electric or pneumatic valve actuators; Q5001 linkage with Modutrol Motor; or Q5020/Q5022 linkages with Direct Coupled Actuators to operate the valve.
- Repack and rebuild kits available for field servicing.
- Not suitable for combustible gases.

### Dimensions in millimeters (inches)



VALVE SIZE	A	B	C	STEM UP	
				Y <sub>1</sub>	Y <sub>2</sub> <sup>a</sup>
DN15 (1/2)	95 (3-1/4)	40 (1-9/16)	65 (2-9/16)	106 (4-3/16)	151 (5-15/16)
DN20 (3/4)	95 (3-1/4)	40 (1-9/16)	65 (2-9/16)		
DN25 (1)	103 (4-1/16)	40 (1-9/16)	67 (2-5/8)		
DN32 (1-1/4)	106 (4-3/16)	40 (1-9/16)	73 (2-7/8)		
DN40 (1-1/2)	121 (4-3/4)	46 (1-13/16)	76 (3)		
DN50 (2)	134 (5-1/4)	46 (1-13/16)	84 (3-5/16)		

<sup>a</sup> Y<sub>2</sub> WITH STEM EXTENSION FOR MP953C,E (8 IN. ONLY)

MC12901A

**Valve Type:** Globe Valve

**Body Pattern:** Three-way mixing, A-B-AB porting

**Flow Characteristic:** Linear (B-AB); Equal Percentage (A-AB)

**Valve Action:** Mixing

**Connection Type:** NPT Female

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Leakage Rating:** 0.05% of Cv

**Maximum Safe Operating Pressure:** 1500 kPa at 120 C (217 psi at 248 F)

**Maximum Differential for Quiet Water Service:** 138 kPa (20 psid)

**Ambient Temperature Range:** 2 C to 120 C water (36 F to 248 F water)

**Stem Travel:** 20 mm (3/4 in.)

**Bonnet Size:** 1-3/8 in.

**Actuation:** Must be purchased separately

**ANSI/ASME Rating:** 150

### Materials

**(Body):** Red Brass

**(Stem):** Stainless Steel

**(Plug/Ball/Disc):** Brass

**(Packing):** Teflon/EPDM

### Approvals:

**CRN Number:** 0C0861.9087YTN/0C0861.123

Product Number	Valve Size		Flow Capacity		Materials	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)	(Seat)	
V5013N1030	DN15	1/2 in.	2.5 kvs	2.9 Cv	Stainless Steel	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013N1048	DN15	1/2 in.	4.0 kvs	4.7 Cv	Stainless Steel	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013N1055	DN20	3/4 in.	6.3 kvs	7.3 Cv	Integral Brass	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013N1063	DN25	1 in.	10 kvs	11.7 Cv	Integral Brass	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013N1071	DN32	1 1/4 in.	16 kvs	18.7 Cv	Brass	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25
V5013N1089	DN40	1 1/2 in.	25 kvs	29 Cv	Brass	Q5020/DCA; ML6984/ML7984; Q5001/Modutrol IV Motor; ML6420,21A,25; ML7420/ML7421A/ML7425
V5013N1097	DN50	2 in.	40 kvs	46.8 Cv	Brass	ML6984/ML7984; Q5020/DCA; Q5001/Modutrol IV Motor; ML7420/ML7421A/ML7425; ML6420,21A,25

# Globe Valves Accessories and Replacement Parts

## Globe Valve Accessories

Product Number	Description	Used With
209116	Stem Button for 4 inch to 6 inch V5011 and V3350 valves	V3350; V5011
209117	Stem Button for 2 1/2 inch to 3 inch V5011 and V3350 valves	V5011; V3350
304466	Set Screw	—
311057	Lubricant, Tube	—
311095A	Stem and Disc holder, V5011A, C, F, Cv	V5011A
311184	Guide-Cv 4.0	—
311745	Disc Holder	—
311860	Plug, V5011A, F, 2 1/2 in., Cv 63	V5011A
313104	Disc, V5011, 1 in. NPT	V5011
313719	Switch Assembly	—
314539	Plug, V5011C, G, 3 in. NPT, Cv 100	V5011C
32003941-001	Seat Removal Tool	—
32003941-002	Seat Removal Tool	—

## Globe Valve Replacement Parts

Product Number	Description	Used With
311432	White Packing 3/8 inch I.D.	V5011G1111; V5011G1129
311746	Disc holder for 3 in. valves	V5011G1129; V5011F1113
14002734-001	Grease Tube	—
14002734-002	Lubricant, packing, AMOCO H-100	—
311057	Lubricant, Tube	—

## VGF Packing Kits

Product Number	Description	Used With
R43176754002	Packing kit for 2 1/2 in. and 3 in. ANSI 125 VGF valves	VGF21, VGF31 up to 3"
R43176755004	Packing kit for 2 1/2 in. and 3 in. ANSI 250 and pressure-balanced VGF valves	VGF21EP/LP; VGF22; VGF32; up to 3"
R43176755005	Packing kit for 4 in. to 6 in. VGF valves	VGF2; VGF3; 4 to 6"

# Globe Valves Accessories and Replacement Parts

## V5011; V5013 Valve Accessories and Replacement Parts

### V5011 Replacement Seats

Valve	Pipe Size		Part Number (Old 150 psi)	All
	in.	C <sub>v</sub>		
V5011A,C,F,G	3/4	2.5	310536	—
		6.3	—	310890
	1	4.0	310537	—
		6.3	310538	—
		10	—	311077
	1-1/4	16	—	311078
	2	—	311291	—
	2-1/2	63	—	311731
	3	100	—	311734

### V5011 Replacement Plugs

Valve	Pipe Size		Part Number
	in.	C <sub>v</sub>	
V5011A,F	2-1/2	63	311860
	3	100	311861
V5011C,G	3	100	314539

### V5011 Replacement Discs for Threaded Valves

Valve	Pipe Size		Part Number	
	in.	C <sub>v</sub>	V5011A,F (35 to 250 F)	V5011C,G (200 to 337 F)
V5011A,C,F,G Threaded	1/2	0.4 to 4.0	14004625-001	—
	3/4, 1	6.3, 10	—	14004625-012
	1-1/4	16	14004625-003	14004625-013
	1-1/2	25	14004625-004	14004625-014
	2	40	14004625-005	14004625-015
	2-1/2	63	14004625-006	14004625-016
	3	100	14004625-007	14004625-017

### V5011 Replacement Parts

Valve	Pipe Size		Part Number	Description
	in.			
V5011H,J	1/2 to 1-1/4		310135	Spring for V5011H
			310137	Spacer (2) for V5011H
			310143	Packing V (3) for V5011H
			310498	Spring for V5011J
			310506	Follower V5011J
			310623	Packing Cone (3) V5011J
			313338	Stem
			310509	Packing Nut; Old V5011 150 PSI series and V5011C,G
V5011A,C,F,G	1-1/2 to 3		14004552-001	Packing Nut, V5011A&C Interim & V5011F,G
	1/2 to 3		14004623-001	Stem Button
	1-1/2 to 3		311619A	Stem Assembly, 3/4 in. Travel

### V5013 Replacement Parts

Valve	Pipe Size		Part Number	Description
	in.			
V5013A (Flanged)	2-1/2, 3		312495	Stem Button, Anti-Spin
	4 to 6		312497	Packing Nut
				312498
	2-1/2, 3		311432	Packing (4)

## V5011; V5013 Repack and Rebuild Kits

V5011, V5013 Repack kits include packing, spacer, follower and spring for V5011 and V5013 Valves. They are used to repack leaking V5011 Valves with metal discs and all V5013 Three-Way Valves. They also can be used to repack V5011 Valves with rubber or Teflon discs if the disc and stem assembly are known to be in good repair. Otherwise, use the appropriate rebuild kit for complete repair of V5011 Valves with rubber or Teflon discs and threaded ends. Repack kits are listed in the table below.

### CAUTION

For proper installation, use instructions packed with kits. V5011, V5013 Rebuild Kits include all the parts in the repack kits, plus a stem assembly and disc. Rebuild kits are available only for threaded V5011 Valves. They cannot be used with valves that have a metal-to-metal seat. Metal-to-metal seats are found on V5011C and V5011G valves with OS numbers of V5011C2282 or higher and V5011G1137 and higher.

NOTE: Rebuild kit C<sub>v</sub> must match valve C<sub>v</sub>. If the C<sub>v</sub> is different, the kit will not work, even if the pipe size shown is the same. Some obsolete V5011A,C Valves were available with a smaller C<sub>v</sub> than listed below. When ordering a rebuild kit for these valves, use C<sub>v</sub>, not pipe size.

# Globe Valves Accessories and Replacement Parts

Valve							Repack Kit Part Number		Rebuild Kit Number		Comments			
Connection	Size (in.)	C <sub>v</sub>	Stroke (in.)	Stem Diameter (in.)	Water and/or 2-position steam	Modulating steam	for Water service	for Steam service	for Water service	for Steam service				
Threaded	1/2	0.4	3/4	1/4	—	V5011C,G	14003294-004 <sup>a</sup>	14003294-002	14002694-006	14002694-008	b, c			
		0.63			V5011A,F									
		1												
		1.6												
		2.5												
	4													
3/4	6.3	3/4	1/4				14002695-006	14002695-008						
1	10													
1-1/4	16	3/4	1/4					14003109-006	14003109-008					
Threaded	1-1/2	25	3/4	3/8	V5011A,F	V5011C,G	14003295-004	14003295-002	14003110-006	14003110-008	b, c			
	2	40							14003111-006	14003111-008 <sup>a</sup>	b, c, d			
	2-1/2	63												
	3	100												
Threaded	1/2	2.5	3/4	1/4	V5011H	V5011J	14003294-004 <sup>a</sup>	14003294-002	not available	not available	b, e			
		4												
	3/4	6.3												
	1	10												
1-1/4	16													
Threaded	1/2	2.5	3/4	1/4	V5013A,F	—	14003294-004 <sup>a</sup>	—	not available	—				
		4												
	3/4	6.3												
	1	10												
1-1/4	16													
Threaded	1-1/2	25	3/4	3/8	V5013A,F	—	14003295-004	—	not available	—				
	2	40												
Flange	2-1/2	63	3/4	3/8	V5011A1734	—	14003295-004	14003295-002	not available	not available	b			
	3	100	3/4	3/8	V5011A1767									
Flange	4	160	1-1/2	1/2	V5011A,B	—	14003296-002	14003296-002	not available	not available	b, f			
	5	250												
	6	360												
Flange	2-1/2	63	3/4	3/8	V5013B,C	—	14003295-004	—	not available	—	b, f			
	3	100												
Flange	4	160	1-1/2	1/2	V5013B,C	—	14003296-002							
	5	250												
	6	360												

<sup>a</sup> TRADELINE Kit.

<sup>b</sup> The 1400xxx-002, -004 Repack and -006, -008 Rebuild Kits contain the same parts as the -001, -003 Repack and -005, and -007 Rebuild Kits available from Honeywell Direct.

<sup>c</sup> V5011G1137 through V5011G1228 Valves have metal-to-metal seats; rebuild kits are not available for metal-to-metal seat valves.

<sup>d</sup> To rebuild a 2-1/2 or 3 in. threaded valve, order the rebuild kit for the 2 in. valve and the replacement disc for the 2-1/2 or 3 in. valve. See Valve Accessories and Replacement Parts section.

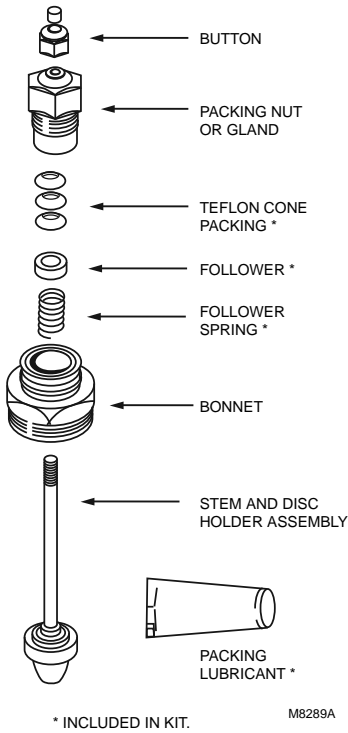
<sup>e</sup> Rebuild kits are not available for reverse acting valves.

<sup>f</sup> Repack kits with Teflon packing rings (14003296-002) are used with 4 through 6 in. valves (both water and steam service). Kits with rubber packing are not available for 4 through 6 in. valves.

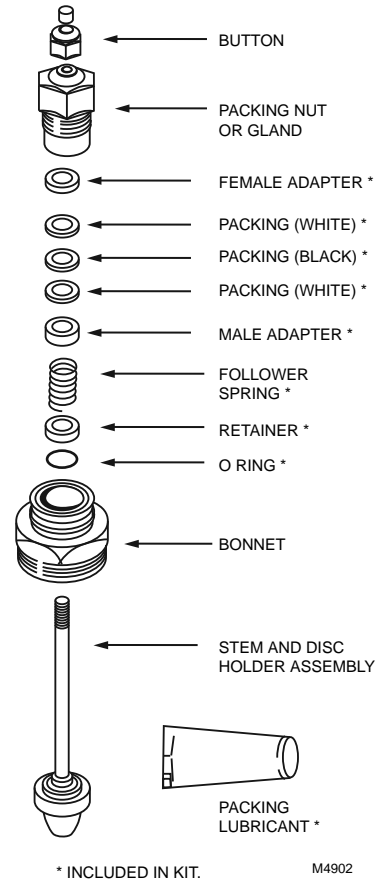


# Globe Valves Accessories and Replacement Parts

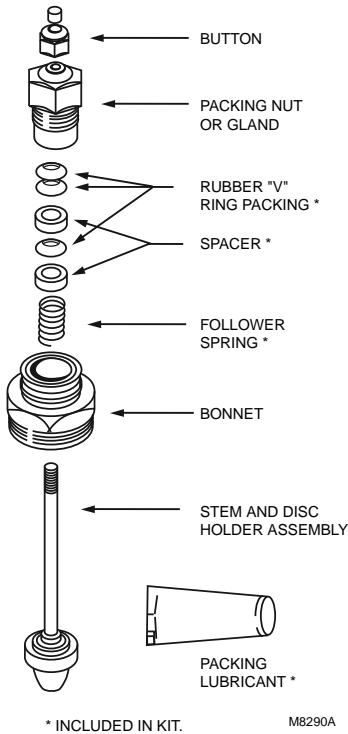
14003294-002 1/2 to 1-1/4 in. valve size, for steam service.



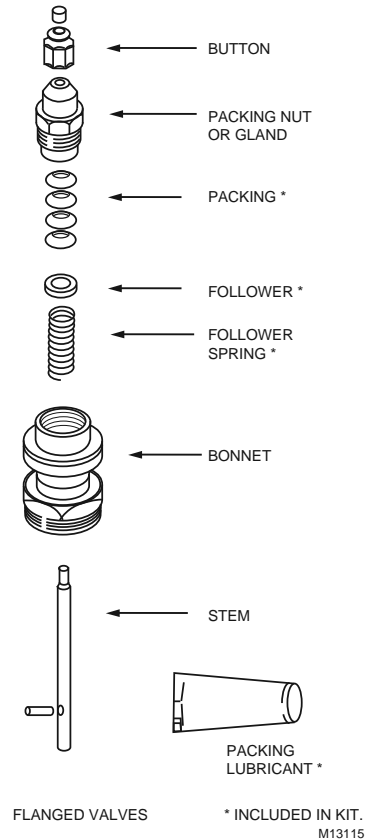
14003295-004 1-1/2 to 3 in. valve size, for water service.



14003294-004 1/2 to 1-1/4 in. valve size, for water service.



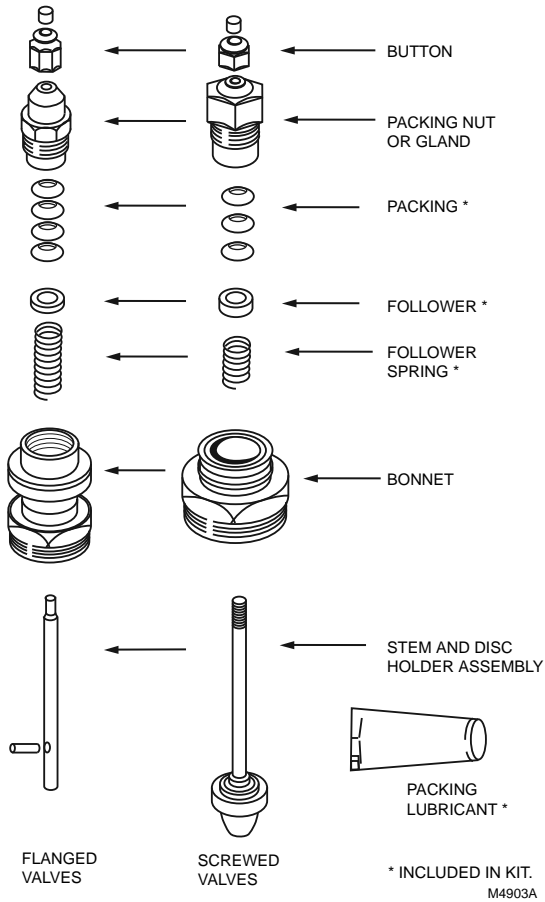
14003296-002 4 to 6 in. pipe size, for steam service.



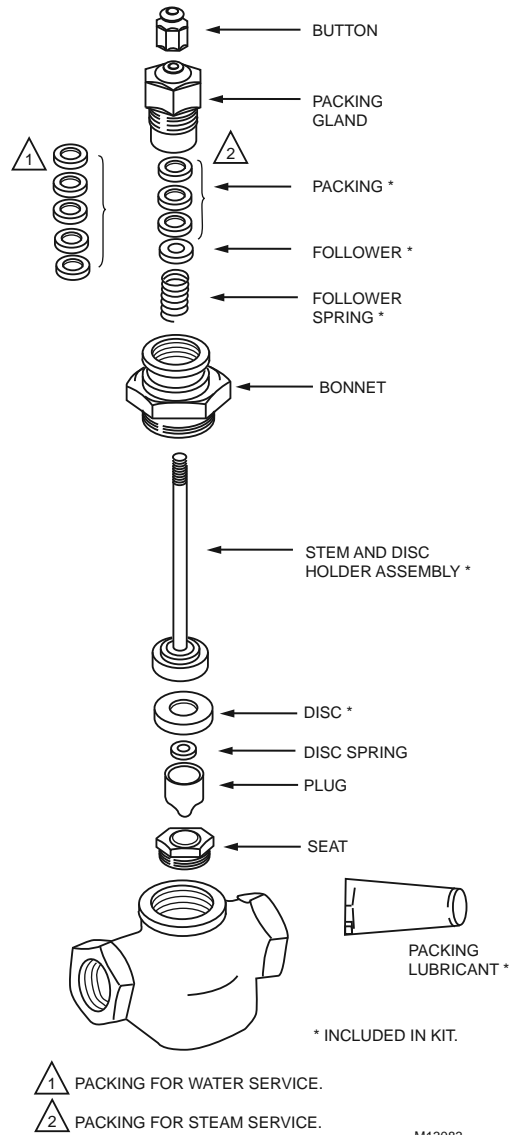
Commercial Components

# Globe Valves Accessories and Replacement Parts

14003295-002 1-1/2 to 3 in. valve size, for steam service.



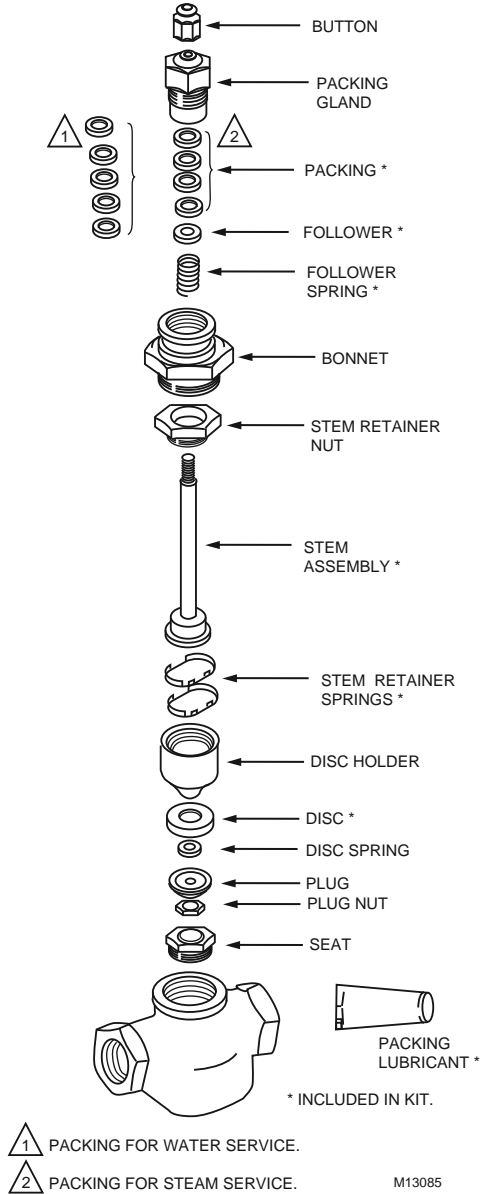
Rebuild Kits for: 14002694-006, 14002695-006, 14003109-006, 1/2 to 1-1/4 in. valve size for water service; 14002694-008, 14002695-008, 14003109-008, 1/2 to 1-1/4 in. valve size for steam service.



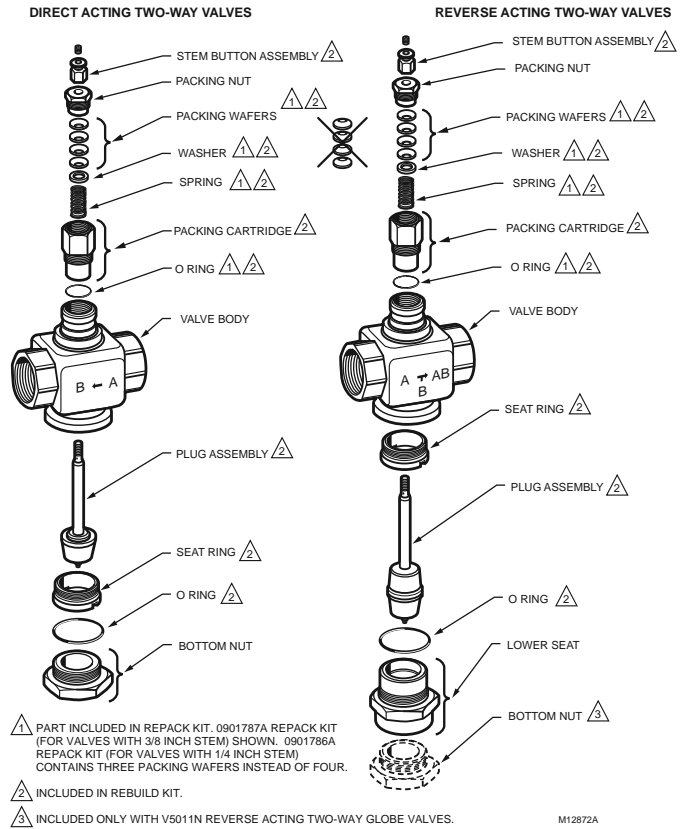
M13083

# Globe Valves Accessories and Replacement Parts

Rebuild Kits for: 14003110-006, 140031111-006, 1-1/2 to 3 in. valve size for water service; 14003110-008, 140031111-008, 1-1/2 to 3 in. valve size for steam service.



## V5011N Valve Rebuild and Repack Kits



Valve OS No.	Stem Diameter (in.)	Repack Kit	Rebuild Kit	Stem Button
V5011N1008	1/4	0901786A	0901746A	0901116A <sup>a</sup>
V5011N1016			0901747A	
V5011N1024			0901748A	
V5011N1032			0901749A	
V5011N1040			0901750A	
V5011N1057			0901751A	
V5011N1065			0901752A	
V5011N1073			0901753A	
V5011N1081	3/8	0901787A	0901754A	
V5011N1099			0901755A	
V5011N2022	1/4	0901786A	0903424A	
V5011N2030			0903425A	
V5011N2048			0903426A	
V5011N2055			0903427A	
V5011N2063			0903428A	
V5011N2071			0903429A	
V5011N2089	3/8	0901787A	0903430A	
V5011N2097			0903431A	
V5011N3004	1/4	0901786A	0901759A	
V5011N3012			0901760A	
V5011N3020			0901761A	
V5011N3038			0901762A	
V5011N3046			0901763A	

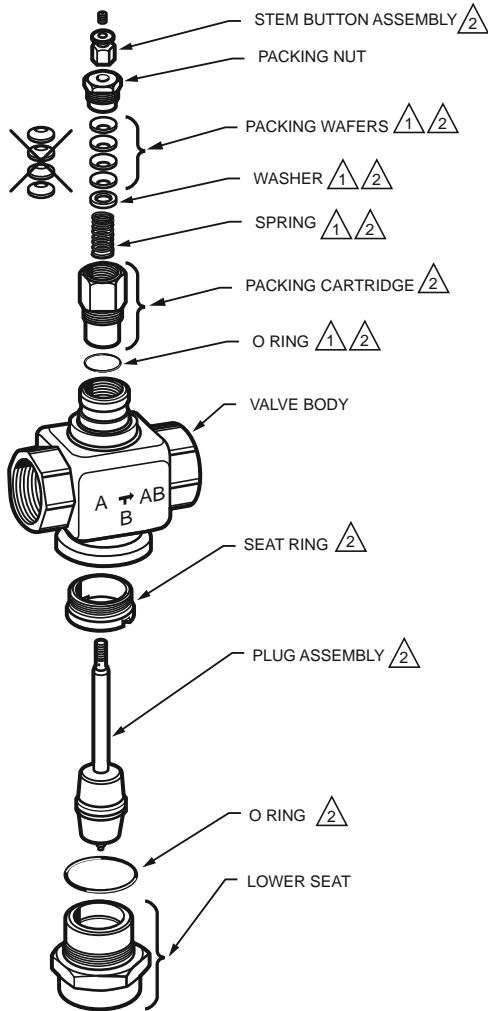
<sup>a</sup>Each 0901116A contains 10 stem buttons.

Commercial Components

# Globe Valves Accessories and Replacement Parts

Note: Seat removal tools are required to rebuild valves:  
 32003941-001 for 1/2 in. through 1-1/4 in. sizes.  
 32003941-002 for 1-1/2 in. through 2 in. sizes.

## V5013N Three-way Globe Valves



△1 PART INCLUDED IN REPACK KIT. 0901787A REPACK KIT (FOR VALVES WITH 3/8 INCH STEM) SHOWN. 0901786A REPACK KIT (FOR VALVES WITH 1/4 INCH STEM) CONTAINS THREE PACKING WAFERS INSTEAD OF FOUR.

△2 INCLUDED IN REBUILD KIT.

M12871A

## V5013N Replacement Parts

Valve OS No.	Stem Diameter (in.)	Repack Kit (Part No.)	Rebuild Kit (Part No.)	Stem Button (Part No.)
V5013N1030	1/4	0901786A	0901759A	0901116A <sup>a</sup>
V5013N1048			0901760A	
V5013N1055			0901761A	
V5013N1063			0901762A	
V5013N1071			0901763A	
V5013N1089	3/8	0901787A	0901764A	
V5013N1097			0901765A	

<sup>a</sup>Each 0901116A contains 10 stem buttons.

NOTE: 32003941-001 Seat Removal Tool required to rebuild 1/2 in. valves. Other sizes do not require this tool.

# Double-Seated Globe Valves

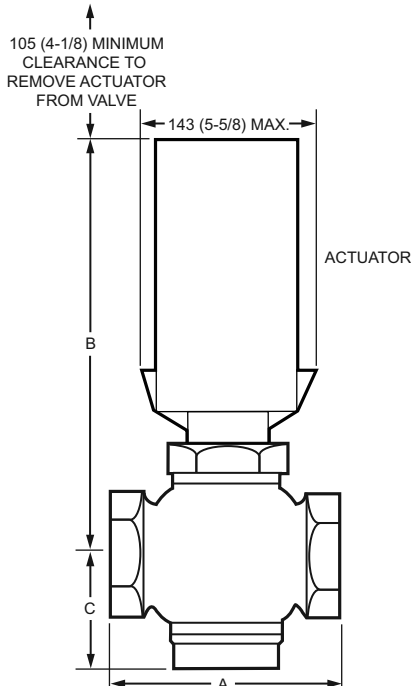
## V5047A Double-Seated Globe Valves



Control high pressure steam, liquids, air or noncombustible gases where positive final shutoff is not required.

- Q5001D Valve Linkage and Modutrol motor required for operation.
- Suitable for two-position, floating, or proportioning control, depending on the motor and controller used.
- Provide high capacity with minimum pressure drop.
- Pipe sizes include 1, 1-1/4, 1-1/2, and 2 inches.
- Straight-through construction and threaded end connections.
- Cast iron body with stainless steel trim.
- Plug provides equal percentage characteristic of flow.
- V-port for either throttling or on-off service.
- Replaceable seat rings screw into body.
- Spring-loaded Teflon cone packing for minimum friction.

### Dimensions in millimeters (inches)



**Valve Type:** Globe Valve

**Body Pattern:** Two-way

**Connection Type:** Female NPT

**Valve Action:** Stem down to close

**Controlled Fluid:** Steam; Chilled or hot water with up to 50% Glycol.  
Not for use with fuels.

**Flow Characteristics:** Equal Percentage

**Leakage Rating:** 0.005 of Cv

**Maximum Safe Operating Pressure:** 1034 kPa, 690 kPa steam  
(150 psi, 100 psi steam)

**Ambient Temperature Range:** 0 C to 170 C (32 F to 337 F)

**ANSI/ASME Rating:** 125

**Actuation:** Must be purchased separately

**Comments:** Double seated

#### Materials

**(Body):** Cast Iron

**(Stem):** Stainless Steel

**(Seat):** Stainless Steel

**(Packing):** Spring loaded non-adjustable Teflon V-ring

Product Number	Valve Size		Flow Capacity		Materials (Cartridge)	Stem Travel		Bonnet Size		Used With
	DN	inch	(Kvs)	(Cv)		(mm)	inch	(mm)	(inch)	
V5047A1021	DN40	1 1/2 in.	25.7 kvs	30 Cv	Stainless Steel	14 mm	9/16 in.	35 mm	1-3/8 in.	Q5001/Modutrol IV Motor
V5047A1039	DN50	2 in.	43 kvs	50 Cv	—	20 mm	3/4 in.	35 mm	1-3/8 in.	Q5001/Modutrol IV Motor

# Cage Valves

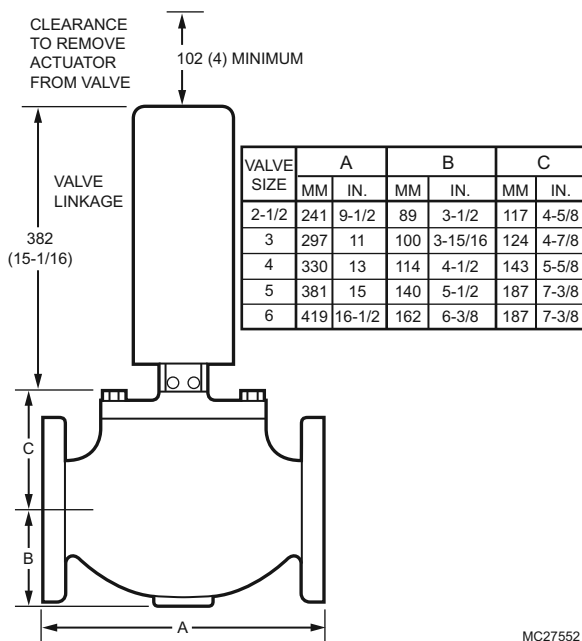
## V5051A Single-Seated Cage Valves



**Single-Seated Cage Valves control steam, air, liquids, or non-combustible gases in two-position, proportional, or floating control systems where line isolation is not required.**

- Pressure balanced cage type construction.
- Low operating force allows fail safe operation with spring return actuator.
- Combines 1 3/8" bonnet with 1 1/2" stroke.
- Sizes range from 2-1/2 to 6 in. (DN65 to DN150).
- Spring-loaded Teflon V-ring packing.
- Requires Q5020C valve linkage with one rotary, direct coupled actuator, or Q5001D with Modutrol Motor.

### Dimensions in millimeters (inches)



**Valve Type:** Cage Valves

**Body Pattern:** Two-way, Straight-through

**Connection Type:** Flanged

**Valve Action:** Stem down to close

**Controlled Fluid:** Steam; Chilled or hot water with up to 50% Glycol.  
Not for use with fuels.

**Flow Characteristic:** Modified Linear

**Maximum Safe Operating Pressure:**

1034 kPa water at 38 C, 379 kPa steam  
(150 psi water at 100F, 55 psi steam)

**Maximum Differential Pressure Ratings (Close-off):**

1034 kPa (150 psi)

**Ambient Temperature Range:** 2 C to 150 C (35 F to 300 F)

**Stem Travel:** 38 mm (1 1/2 in.)

**Bonnet Size:** 35 mm (1-3/8 in.)

**ANSI/ASME Rating:** 125

**Actuation:** Must be purchased separately

**Materials**

**(Body):** Cast Iron

**(Stem):** Stainless Steel

**(Seat):** Resilient

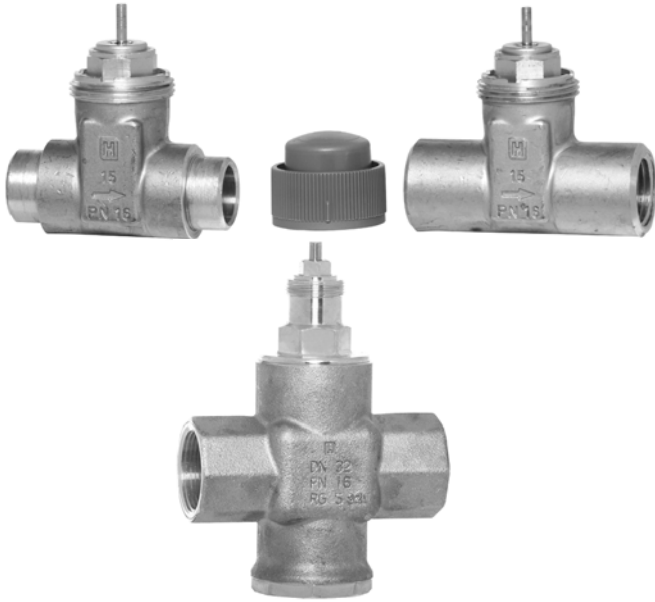
**(Plug/Ball/Disc):** Stainless Steel

**(Packing):** Teflon

Product Number	Valve Size		Flow Capacity		Leakage Rating	Comments	Used With
	DN	inch	(Kvs)	(Cv)			
V5051A3004	DN65	2 1/2 in.	64.5 kvs	75 Cv	0.01% of Cv	Q5001D1000 requires 1-1/2 in. 220867A Cam.	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3012	DN80	3 in.	88 kvs	116 Cv	0.01% of Cv	Q5001D1000 requires 1-1/2 in. 220867A Cam.	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3020	DN100	4 in.	125 kvs	178 Cv	0.01% of Cv	Q5001D1000 requires 1-1/2 in. 220867A Cam.	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3038	DN125	5 in.	224 kvs	318 Cv	0.03% of Cv	Q5001D1000 requires 1-1/2 in. 220867A Cam.	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA
V5051A3046	DN150	6 in.	224 kvs	390 Cv	0.03% of Cv	Q5001D1000 requires 1-1/2 in. 220867A Cam.	MP953 8 in., Q5001D/Modutrol IV Motor, or Q5020C/DCA

# Cartridge Globe Valves

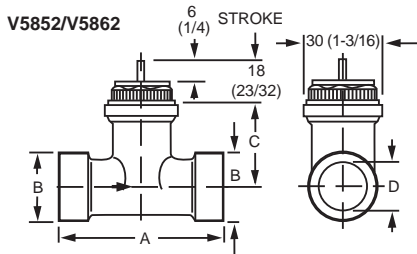
## V5852; V5862 Two-way Cartridge Globe Valves



Two-way Cartridge Globe Valves control hot and/or chilled water for VAV terminal units, fan coil units, small reheaters and recoolers in electric/electronic temperature control systems. Used with the M6410 3-position floating Non-Spring Return Valve Actuator and the M7410 selectable 0 to 10 Vdc or 2 to 10 Vdc Non-Spring Return Actuator. The 1/2 in. and 3/4 in. valves are compatible with the M6435 floating Spring Return Actuator, the M7435 selectable 0 to 10 Vdc or 2 to 10 Vdc Spring Return Actuator, and the MP958 Pneumatic Actuator. Larger valves (1 in. through 1-1/2 in.) are pressure balanced, which results in higher close-off pressures.

- Long stroke allows wider range of control.
- Soft valve seat provides low leakage rate.
- Inserts for 1/2 in. and 3/4 in. valves are changeable without draining valve when used with an insert replacement tool.
- Brass body and Stainless Steel stem.
- Threaded plastic cover/manual handle allows manual operation.
- Easily installed in areas where space is limited.

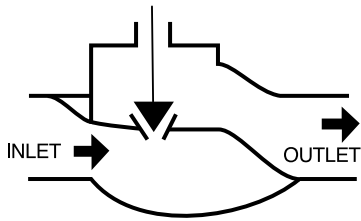
Dimensions in millimeters (inches)



VALVE SIZE	A	B	C	D (NPT)	D (SWEAT)
DN15 (1/2)	77 (3)	19 (3/4)	34 (1-5/16)	13 (1/2)	16 (5/8)
DN20 (3/4)	88 (3-1/2)	25 (1)	32 (1-1/4)	19 (3/4)	22 (7/8)

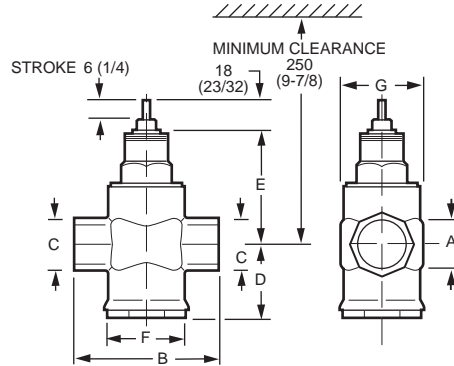
NOTE: SOLDER ENDS CONFORM TO ANSI B16-18. MC18917

FLOW DIAGRAM FOR 1/2 and 3/4 INCH VALVES



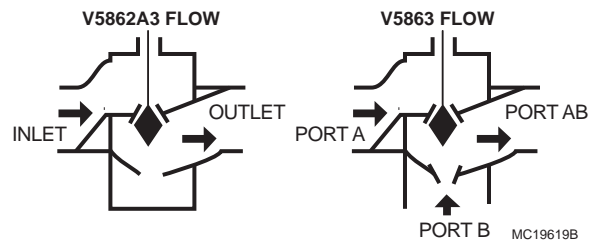
M18918

Dimensions in millimeters (inches)



VALVE SIZE A (NPT)	B	C	D	E	F	G
DN25 (1)	105 (4-1/8)	41 (1-5/8)	53 (2-1/16)	92 (3-5/8)	50 (2)	58 (2-5/16)
DN32 (1-1/4)	125 (4-15/16)	50 (2)	62 (2-7/16)	92 (3-5/8)	55 (2-3/16)	58 (2-5/16)
DN40 (1-1/2)	130 (5-1/8)	55 (2-3/16)	65 (2-9/16)	98 (3-7/8)	60 (2-3/8)	69 (2-11/16)

FLOW DIAGRAM FOR 1, 1-1/4 AND 1-1/2 INCH VALVES



MC19619B

# Cartridge Globe Valves

**Valve Type:** Cartridge Globe Valve

**Body Pattern:** Two-way

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Maximum Safe Operating Pressure:** 1620 kPa (235 psi)

**Ambient Temperature Range:** 2 C to 110 C (36 F to 230 F)

**Stem Travel:** 6.4 mm (1/4 in.)

**Actuation:** Must be purchased separately

**Includes:** combination dust cap/manual operator

**Materials**

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Cartridge):** Brass

**(Plug/Ball/Disc):** Brass

**Replacement Parts:**

**0902807** Replacement Insert for 1/2 in. V5852/V5862, 1.9Cv  
Interchangeable with 0902808

**0902808** Replacement Insert for 1/2 in. V5852/V5862, 1.2 Cv  
Interchangeable with 0902807

**0902809** Replacement Insert for 1/2 in. V5852/V5862, 0.74 Cv  
Interchangeable with 0902810 or 090212

**0902810** Replacement Insert for 1/2 in. V5852/V5862, 0.47 Cv  
Interchangeable with 0902809 or 090212

**0902812** Replacement Insert for 1/2 in. V5852/V5862, 0.19 Cv  
Interchangeable with 0902809 or 090210

**0902814** Replacement Insert for 3/4 in. V5852/V5862, 2.9 Cv  
Interchangeable with 0902815

**0902815** Replacement Insert for 3/4 in. V5852/V5862, 4.9 Cv  
Interchangeable with 0902814

**0903827** Replacement Packing for 1 in. V5862/63

**0903828** Replacement Packing for 1-1/4 in. V5862/63

**0903829** Replacement Packing for 1-1/2 in. V5862/63

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Flow Characteristic	Leakage Rating	Connection Type	Valve Action	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)					
V5852A2007	DN15	1/2 in.	0.16 kvs	0.19 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2015	DN15	1/2 in.	0.25 kvs	0.29 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5852A2023	DN15	1/2 in.	0.41 kvs	0.47 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2031	DN15	1/2 in.	0.6 kvs	0.7 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5852A2049	DN15	1/2 in.	1.0 kvs	1.2 Cv	1200 kPa	174 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2056	DN15	1/2 in.	1.6 kvs	1.9 Cv	1200 kPa	174 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5852A2064	DN20	3/4 in.	2.5 kvs	2.9 Cv	400 kPa	58 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5852A2072	DN20	3/4 in.	4.2 kvs	4.9 Cv	400 kPa	58 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2005	DN15	1/2 in.	0.16 kvs	0.19 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2013	DN15	1/2 in.	0.25 kvs	0.29 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5862A2021	DN15	1/2 in.	0.41 kvs	0.47 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2039	DN15	1/2 in.	0.64 kvs	0.74 Cv	1600 kPa	232 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958

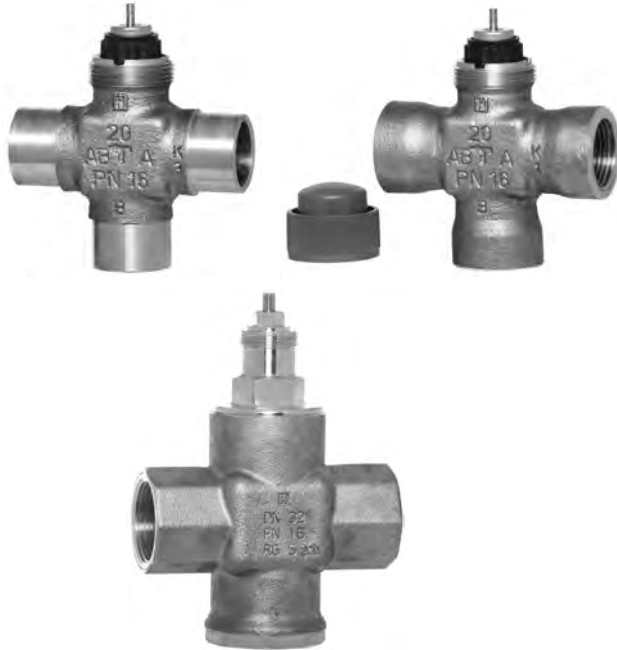


# Cartridge Globe Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Flow Characteristic	Leakage Rating	Connection Type	Valve Action	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)					
V5862A2047	DN15	1/2 in.	1.0 kvs	1.2 Cv	1200 kPa	174 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2054	DN15	1/2 in.	1.6 kvs	1.9 Cv	1200 kPa	174 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M6435A1004; M6435A1004; M7435F1001; MP958
V5862A2062	DN20	3/4 in.	2.5 kvs	2.9 Cv	400 kPa	58 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5862A2070	DN20	3/4 in.	4.2 kvs	4.9 Cv	400 kPa	58 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem down to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5862A3003	DN25	1 in.	4.8 kvs	5.5 Cv	1600 kPa	232 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3011	DN25	1 in.	6.7 kvs	7.8 Cv	1600 kPa	232 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3029	DN25	1 in.	9.5 kvs	11.0 Cv	1600 kPa	232 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3037	DN32	1 1/4 in.	15.6 kvs	18 Cv	1200 kPa	174 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5862A3045	DN40	1 1/2 in.	21.6 kvs	25 Cv	1000 kPa	145 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close	M6410A3017; M7410F3006; M6435A3000; M7435F3007

# Cartridge Globe Valves

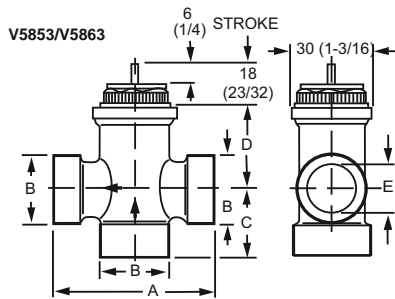
## V5853; V5863 Three-way Cartridge Globe Valves



Three-way Cartridge Globe Valves control hot and/or chilled water for VAV terminal units, fan coil units, small reheaters and recoolers in electric/ electronic temperature control systems. Used with the M6410 3-position floating Non-Spring Return Valve Actuator and the M7410 selectable 0 to 10 Vdc or 2 to 10 Vdc Non-Spring Return Actuator. The 1/2 in. and 3/4 in. valves are also compatible with the M6435 floating Spring Return Actuator, the M7435 selectable 0 to 10 Vdc or 2 to 10 Vdc Spring Return Actuator, and the MP958 Pneumatic Actuator.

- Long stroke allows wider range of control.
- Soft valve seat provides low leakage rate.
- Inserts for 1/2 in. and 3/4 in. valves are changeable without draining valve when used with an insert replacement tool.
- Brass body and stainless steel stem.
- Threaded plastic cover/manual handle allows manual operation.
- Easily installed in areas where space is limited.

### Dimensions in millimeters (inches)

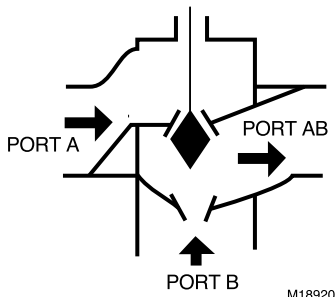


VALVE SIZE	A	B	C	D	E (NPT)	E (SWEAT)
1/2 (DN15)	77 (3)	19 (3/4)	34 (1-5/16)	34 (1-5/16)	13 (1/2)	16 (5/8)
3/4 (DN20)	88 (3-1/2)	25 (1)	38 (1-1/2)	32 (1-1/4)	19 (3/4)	22 (7/8)

NOTE: SOLDER ENDS CONFORM TO ANSI B16-18.

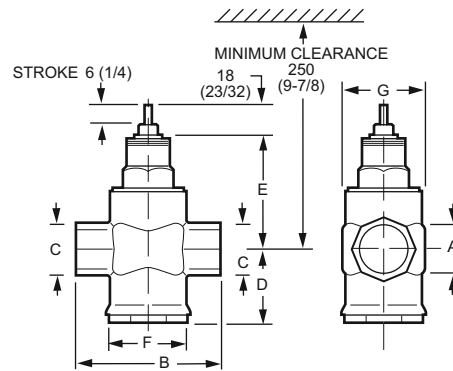
MC18919

### FLOW DIAGRAM FOR 1/2 AND 3/4 INCH VALVES



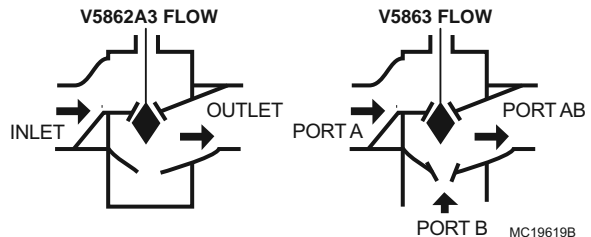
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### Dimensions in millimeters (inches)



VALVE SIZE A (NPT)	B	C	D	E	F	G
DN25 (1)	105 (4-1/8)	41 (1-5/8)	53 (2-1/16)	92 (3-5/8)	50 (2)	58 (2-5/16)
DN32 (1-1/4)	125 (4-15/16)	50 (2)	62 (2-7/16)	92 (3-5/8)	55 (2-3/16)	58 (2-5/16)
DN40 (1-1/2)	130 (5-1/8)	55 (2-3/16)	65 (2-9/16)	98 (3-7/8)	60 (2-3/8)	69 (2-11/16)

### FLOW DIAGRAM FOR 1, 1-1/4 AND 1-1/2 INCH VALVES



MC19619B

# Cartridge Globe Valves

**Valve Type:** Cartridge Globe Valve

**Body Pattern:** Three-way

**Controlled Fluid:** Chilled or hot water with up to 50% Glycol. Not for use with steam or fuels.

**Maximum Safe Operating Pressure:** 1620 kPa (235 psi)

**Ambient Temperature Range:** 2 C to 110 C (36 F to 230 F)

**Stem Travel:** 6.4 mm (1/4 in.)

**Actuation:** Must be purchased separately

**Includes:** combination dust cap/manual operator

**Materials**

**(Body):** Brass

**(Stem):** Stainless Steel

**(Seat):** Brass

**(Cartridge):** Brass

**(Plug/Ball/Disc):** Brass

**Replacement Parts:**

**0902821** Replacement Insert for 1/2 in. V5853/V5863, 0.29 Cv  
Interchangeable with 0902822 or 0902823 or 0902824

**0902822** Replacement Insert for 1/2 in. V5853/V5863, 0.47 Cv  
Interchangeable with 0902821 or 0902823 or 0902824

**0902823** Replacement Insert for 1/2 in. V5853/V5863, 0.74 Cv  
Interchangeable with 0902821 or 0902822 or 0902824

**0902824** Replacement Insert for 1/2 in. V5853/V5863, 1.2 Cv  
Interchangeable with 0902821 or 0902822 or 0902823

**0902825** Replacement Insert for 1/2 in. V5853/V5863, 1.9 Cv  
Interchangeable with 0902827

**0902827** Replacement Insert for 3/4 in. V5853/V5863, 4.9 Cv  
Interchangeable with 0902825

**0903827** Replacement Packing for 1 in. V5862/63

**0903828** Replacement Packing for 1-1/4 in. V5862/63

**0903829** Replacement Packing for 1-1/2 in. V5862/63

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Flow Characteristic	Leakage Rating	Connection Type	Valve Action	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)					
V5853A1008	DN20	3/4 in.	2.5 kvs	2.9 Cv	234 kPa	34 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001
V5853A1016	DN20	3/4 in.	4.2 kvs	4.9 Cv	234 kPa	34 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001
V5853A2006	DN15	1/2 in.	0.25 kvs	0.29 Cv	800 kPa	116 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5853A2014	DN15	1/2 in.	0.41 kvs	0.47 Cv	800 kPa	116 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5853A2022	DN15	1/2 in.	0.64 kvs	0.74 Cv	248 kPa	36 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5853A2030	DN15	1/2 in.	1.0 kvs	1.2 Cv	248 kPa	36 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5853A2048	DN15	1/2 in.	1.6 kvs	1.9 Cv	234 kPa	34 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5853A2055	DN20	3/4 in.	2.5 kvs	2.9 Cv	50 kPa	7.25 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5853A2063	DN20	3/4 in.	4.2 kvs	4.9 Cv	50 kPa	7.25 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Sweat (Female)	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A1006	DN20	3/4 in.	2.5 kvs	2.9 Cv	234 kPa	34 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001
V5863A1014	DN20	3/4 in.	4.2 kvs	4.9 Cv	234 kPa	34 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001
V5863A2004	DN15	1/2 in.	0.25 kvs	0.29 Cv	800 kPa	116 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A2012	DN15	1/2 in.	0.41 kvs	0.47 Cv	800 kPa	116 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958

# Cartridge Globe Valves

Product Number	Valve Size		Flow Capacity		Maximum Close-off Pressure		Flow Characteristic	Leakage Rating	Connection Type	Valve Action	Used With
	DN	inch	(Kvs)	(Cv)	(kPa)	(psi)					
V5863A2020	DN15	1/2 in.	0.64 kvs	0.74 Cv	248 kPa	36 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A2038	DN15	1/2 in.	1.0 kvs	1.2 Cv	248 kPa	36 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A2046	DN15	1/2 in.	1.6 kvs	1.9 Cv	234 kPa	34 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A2053	DN20	3/4 in.	2.5 kvs	2.9 Cv	50 kPa	7.25 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M7410F1000; M6435A1004; M7435F1001; MP958
V5863A2061	DN20	3/4 in.	4.2 kvs	4.9 Cv	50 kPa	7.25 psi	Equal Percentage	ANSI Class IV (0.01% of Cv maximum)	Female NPT	Stem up to close	M6410A1029; M6435A1004; M7410F1000; M7435F1001; MP958
V5863A3002	DN25	1 in.	4.8 kvs	5.5 Cv	1600 kPa	232 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close port A to AB	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3010	DN25	1 in.	6.7 kvs	7.8 Cv	1600 kPa	232 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close port A to AB	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3028	DN25	1 in.	9.5 kvs	11.0 Cv	1600 kPa	232 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close port A to AB	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3036	DN32	1 1/4 in.	15.6 kvs	18 Cv	1200 kPa	174 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close port A to AB	M6410A3017; M7410F3006; M6435A3000; M7435F3007
V5863A3044	DN40	1 1/2 in.	21.6 kvs	25 Cv	1000 kPa	145 psi	Linear	ANSI Class III (less than 0.02% of Cv)	Female NPT	Stem up to close port A to AB	M6410A3017; M7410F3006; M6435A3000; M7435F3007

## Cartridge Globe Valve Replacement Parts

Product Number	Description	Used With
0902807	Replacement Insert for 1/2 in. V5852/V5862, 1.9Cv Interchangeable with 0902808	V5852A2056; V5862A2054
0902808	Replacement Insert for 1/2 in. V5852/V5862, 1.2 Cv Interchangeable with 0902807	V5852A2049; V5862A2047
0902809	Replacement Insert for 1/2 in. V5852/V5862, 0.74 Cv Interchangeable with 0902810 or 090212	V5852A2031; V5862A2039
0902810	Replacement Insert for 1/2 in. V5852/V5862, 0.47 Cv Interchangeable with 0902809 or 090212	V5852A2023; V5862A2021
0902811	Replacement Insert for 1/2 in. V5852/V5862, 0.29 Cv	V5852A2015; V5862A2013
0902812	Replacement Insert for 1/2 in. V5852/V5862, 0.19 Cv Interchangeable with 0902809 or 090210	V5852A2007; V5862A2005
0902814	Replacement Insert for 3/4 in. V5852/V5862, 2.9 Cv Interchangeable with 0902815	V5852A2064; V5862A2062
0902815	Replacement Insert for 3/4 in. V5852/V5862, 4.9 Cv Interchangeable with 0902814	V5852A2072; V5862A2070
0902823	Replacement Insert for 1/2 in. V5853/V5863, 0.74 Cv Interchangeable with 0902821 or 0902822 or 0902824	V5853A2022; V5863A2020
0902824	Replacement Insert for 1/2 in. V5853/V5863, 1.2 Cv Interchangeable with 0902821 or 0902822 or 0902823	V5853A2030; V5863A2038
0902825	Replacement Insert for 1/2 in. V5853/V5863, 1.9 Cv Interchangeable with 0902827	V5853A2048; V5863A2046
0902827	Replacement Insert for 3/4 in. V5853/V5863, 4.9 Cv Interchangeable with 0902825	V5853A1016; V5853A2063; V5863A1014; V5863A2061; V5853A2063; V5963A2061

## VCZA; VCZB Two-way Cartridge Cage Valves



Sweat Connection



Sweat Connection



Sweat Connection



NPT Connection



NPT Connection



NPT Connection

Two-way Cartridge Cage Valves are intended for hydronic applications in a normal indoor environment to control the flow of hot water or chilled water glycol solution to 60% concentration. These valves are designed for zone control of heating/cooling systems, or to control individual fan coil, baseboard radiator or convector applications. Depending on the model selected they can be controlled by SPST or SPDT two position controller, tristate (floating), or modulating proportional controller. For best control, outdoor temperature compensation of supply water temperature is recommended. For trouble-free operation of the product, good installation practice must include initial system flushing, chemical water treatment, and the use of a 50 micron (or finer) system side stream filter(s). Remove all filters before flushing.

**Valve Type:** Cartridge Cage Valve

**Valve Action:** Stem up to close A port

**Body Pattern:** Two-way, Straight-through

**Controlled Medium:** Chilled or hot water with up to 60% Glycol

**Maximum Safe Operating Pressure:** 2068 kPa (20 Bar) (300 psi)

**Maximum Differential Pressure Ratings (Close-off):**

414 kPa (4 bar) (60 psi)

**Fluid Temperature Range:** 1 C to 95 C (34 F to 203 F)

**Ambient Temperature Range:** 0 C to 65 C (32 F to 150 F)

**Stem Travel:** 10 mm (0.4 in.)

- Quick open, linear, and equal percentage flow characteristics available
- Bi-directional installation
- 3000-series valves for floating and modulating non-fail safe applications
- 1000-series valves for two-position control
- High close-off rating independent of Cv
- Available with a variety of North American and international pipe fittings
- No tools required for actuator installation or removal
- Actuator removal does not require draining system
- Service is by replacement of cartridge, not valve body
- Cartridge replacement rebuilds valve to factory-new condition.

**Materials**

**(Body):** Bronze

**(Stem):** Stainless Steel

**(Seat):** EPDM O-ring seals on Noryl piston

**(Cartridge):** Ryton®, Noryl® engineering plastic

**((Packing):** EPDM rubber

**Approvals:**

**Canadian Standards Association:** CSA Certified

**Accessories:**

**40007029-002** Wrench for cartridge (included with sweat valves and all replacement cartridges)

### Valves with Linear Flow Characteristic

Product Number	Valve Size		Flow Capacity		Connection Type	Timing (sec, min.) when used with VC series Actuator	Actuation	Comments	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)					
VCZAE1100	DN15	1/2 in.	2.74 kvs	3.2 Cv	Inverted Flare	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAA1100	DN15	1/2 in.	3.03 kvs	3.5 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type

# Cartridge Cage Valves

Product Number	Valve Size		Flow Capacity		Connection Type	Timing (sec, min.) when used with VC series Actuator	Actuation	Comments	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)					
VCZAA3100	DN15	1/2 in.	3.03 kvs	3.5 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBB1100	DN15	1/2 in.	3.03 kvs	3.5 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBB3100	DN15	1/2 in.	3.03 kvs	3.5 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAM1100	DN20	3/4 in.	3.9 kvs	4.6 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAL1100	DN20	3/4 in.	4.0 kvs	4.7 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAL3100	DN20	3/4 in.	4.0 kvs	4.7 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAM3100	DN20	3/4 in.	4.0 kvs	4.7 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAR3100	DN20	1 in.	5.7 kvs	6.6 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAS3100	DN20	1 in.	5.7 kvs	6.6 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZAR1100	DN25	1 in.	5.7 kvs	6.6 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZAS1100	DN25	1 in.	5.7 kvs	6.6 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBD1100	DN32	1 1/4 in.	6.5 kvs	7.0 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBD3100	DN32	1 1/4 in.	6.5 kvs	7.0 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34
VCZBE1100	DN32	1 1/4 in.	6.5 kvs	7.0 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, On-Off Type
VCZBE3100	DN32	1 1/4 in.	6.5 kvs	7.0 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6930/31/34; VC7930/31/34

# Cartridge Cage Valves

## Valves with Modified Equal Percentage Flow Characteristic

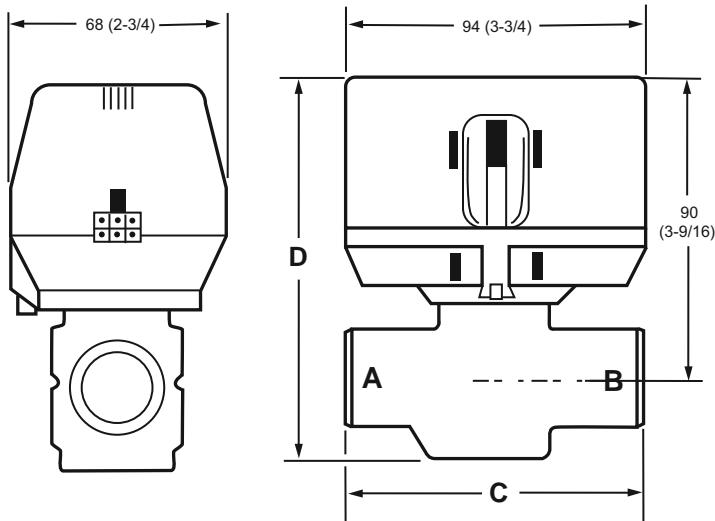
Timing (sec, min.) when used with VC series Actuator: 2 minutes

Actuation: Proportional non-fail safe, purchase separately

Comments: characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connection Type	Used With
	DN	inch	(k <sub>vs</sub> )	(Cv)		
VCZAA3500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Sweat	VC6930/31/34; VC7930/31/34
VCZBB3500	DN15	1/2 in.	0.6 kvs	0.7 Cv	NPT Female	VC6930/31/34; VC7930/31/34
VCZAA3600	DN15	1/2 in.	1.1 kvs	1.3 Cv	Sweat	VC6930/31/34; VC7930/31/34
VCZBB3600	DN15	1/2 in.	1.1 kvs	1.3 Cv	NPT Female	VC6930/31/34; VC7930/31/34
VCZAA3800	DN15	1/2 in.	1.64 kvs	1.9 Cv	Sweat	VC6930/31/34; VC7930/31/34
VCZBB3800	DN15	1/2 in.	1.64 kvs	1.9 Cv	NPT Female	VC6930/31/34; VC7930/31/34
VCZAA3400	DN15	1/2 in.	1.98 kvs	2.3 Cv	Sweat	VC6930/31/34; VC7930/31/34
VCZBB3400	DN15	1/2 in.	1.98 kvs	2.3 Cv	NPT Female	VC6934, VC7934
VCZAL3800	DN20	3/4 in.	2.6 kvs	3.1 Cv	NPT Female	VC6934, VC7934
VCZAM3800	DN20	3/4 in.	2.6 kvs	3.1 Cv	Sweat	VC6934, VC7934
VCZAL3400	DN20	3/4 in.	3.4 kvs	3.9 Cv	NPT Female	VC6934, VC7934
VCZAM3400	DN20	3/4 in.	3.4 kvs	3.9 Cv	Sweat	VC6934, VC7934
VCZAR3400	DN20	1 in.	3.6 kvs	4.2 Cv	NPT Female	VC6934, VC7934
VCZAS3400	DN20	1 in.	3.6 kvs	4.2 Cv	Sweat	VC6934, VC7934

### Dimensions in millimeters (inches)



Pipe Fitting Sizes <sup>4</sup> North American Standard	C		D		Pipe Fitting Sizes <sup>4</sup>	C		D			
	mm	in.	mm.	in		mm	in.	mm	in.		
3/8" FLARE <sup>1</sup>	98	3-7/8	111	4-3/8	1/2" BSPP (int.) <sup>2</sup>	98	3-7/8	111	4-3/8		
1/2" SWEAT	89	3-1/2			1/2" BSPT (int.)						
1/2" FLARE <sup>1</sup>	98	3-7/8			3/4" BSPP (int.)	94	3-11/16			113	4-7/16
1/2" INVERTED FLARE <sup>1</sup>					3/4" BSPT (int.)						
1/2" NPT (int.)				3/4" BSPP (ext.)							
3/4" NPT (int.)	94	3-11/16	113	4-7/16	22 mm Compression <sup>3</sup>	112	4-7/16				
3/4" SWEAT					1" BSPP (int.)	94	3-11/16				
1" NPT (int.)					1" BSPP (ext.)	95	3-11/17	114	4-7/17		
1" SWEAT					1" BSPT (int.)	94	3-11/16	113	4-7/16		
1-1/4" SWEAT	110	4-5/16	118	4-5/8	28 mm Compression <sup>3</sup>	116	4-9/16				
1-1/4" NPT (int.)											

<sup>1</sup> NO ADAPTERS

MC18942

<sup>2</sup> SUITABLE FOR USE AS 15 MM COMPRESSION FITTING

<sup>3</sup> DIMENSIONS SHOWN WITH NUTS AND OLIVES INSTALLED

<sup>4</sup> SOME MODELS NOT AVAILABLE IN ALL COUNTRIES

# Cartridge Cage Valves

## VCZM; VCZN Three-way Cartridge Cage Valves



Sweat Connection



Sweat Connection



NPT Connection



NPT Connection

Three-way Cartridge Cage Valves are intended for hydronic applications in a normal indoor environment to control the flow of hot water or chilled water glycol solution to 60% concentration. These valves are designed for zone control of heating/cooling systems, or to control individual fan coil, baseboard radiator or convector applications. Depending on the model selected they can be controlled by SPST or SPDT two position controller, tristate (floating), or modulating proportional controller. For best control, outdoor temperature compensation of supply water temperature is recommended. For trouble-free operation of the product, good installation practice must include initial system flushing, chemical water treatment, and the use of a 50 micron (or finer) system side stream filter(s). Remove all filters before flushing.

**Valve Type:** Cartridge Cage Valve

**Body Pattern:** Three-way A-AB-B

**Valve Action:** Stem up to close A port

**Controlled Fluid:** Hot Water; Chilled Water with up to 60% Glycol

**Maximum Safe Operating Pressure:** 2068 kPa (20 Bar) (300 psi)

**Maximum Close-off Pressure:** 414 kPa (4 bar) (60 psi)

**Fluid Temperature Range:** 1 C to 95 C (34 F to 203 F)

**Ambient Temperature Range:** 0 C to 65 C (32 F to 150 F)

**Stem Travel:** 10 mm (0.4 in.)

- Quick open and linear flow characteristics available
- Mixing or diverting application
- A-AB-B body pattern
- 7000-series valves for floating and modulating non-fail safe applications
- 6000-series valves for two-position control
- High close-off rating independent of Cv
- Available with a variety of North American and international pipe fittings
- No tools required for actuator installation or removal
- Actuator removal does not require draining system
- Service is by replacement of cartridge, not valve body
- Cartridge replacement rebuilds valve to factory-new condition

### Materials

**(Body):** Bronze

**(Stem):** Stainless Steel

**(Seat):** EPDM O-ring seals on Noryl piston

**(Cartridge):** Ryton™, Noryl™ engineering plastic

**(Packing):** EPDM rubber

### Approvals:

**Canadian Standards Association:** CSA Certified

### Accessories:

**40007029-002** Wrench for cartridge (included with sweat valves and all replacement cartridges)

### Valves with Linear Flow Characteristic

Product Number	Valve Size		Flow Capacity		Connection Type	Timing (sec, min.) when used with VC series Actuator	Actuation	Comments	Used With	Includes
	DN	inch	(kvs)	(Cv)						
VCZMD6100	DN15	1/2 in.	2.74 kvs	3.2 Cv	Inverted Flare	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	—
VCZMA7100	DN15	1/2 in.	3.2 kvs	3.7 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934	Cartridge changing tool
VCZNB6100	DN15	1/2 in.	3.2 kvs	3.7 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	—
VCZNB7100	DN15	1/2 in.	3.2 kvs	3.7 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934	—
VCZMA6100	DN15	1/2 in.	3.3 kvs	3.8 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	Cartridge changing tool



# Cartridge Cage Valves

Product Number	Valve Size		Flow Capacity		Connection Type	Timing (sec, min.) when used with VC series Actuator	Actuation	Comments	Used With	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)						
VCZML6100	DN20	3/4 in.	5.1 kvs	5.9 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	Cartridge changing tool
VCZMK6100	DN20	3/4 in.	5.7 kvs	6.6 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	—
VCZMK7100	DN20	3/4 in.	5.7 kvs	6.6 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934	—
VCZML7100	DN20	3/4 in.	5.7 kvs	6.6 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934	Cartridge changing tool
VCZMR7100	DN25	1 in.	7.1 kvs	8.3 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller; Characterized cartridge for use with floating and modulating actuators	VC6934, VC7934	—
VCZMS7100	DN25	1 in.	7.1 kvs	8.3 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller; Characterized cartridge for use with floating and modulating	VC6934, VC7934	Cartridge changing tool
VCZMR6100	DN25	1 in.	7.4 kvs	8.6 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	—
VCZMS6100	DN25	1 in.	7.7 kvs	9.0 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	Cartridge changing tool
VCZND6100	DN32	1 1/4 in.	7.7 kvs	9.0 Cv	NPT Female	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	—
VCZND7100	DN32	1 1/4 in.	7.7 kvs	9.0 Cv	NPT Female	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934	—
VCZNE6100	DN32	1 1/4 in.	7.7 kvs	9.0 Cv	Sweat	On/Off models with 6 seconds	Purchase separately	Characterized cartridge; Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	VC actuators, 2-position, On-Off Type	Cartridge changing tool
VCZNE7100	DN32	1 1/4 in.	7.7 kvs	9.0 Cv	Sweat	2 minutes	Proportional non-fail safe, purchase separately	characterized cartridge for use with non-fail safe floating and modulating actuators	VC6934, VC7934	Cartridge changing tool

## Flow Characteristic: Modified Equal Percent

Timing (sec, min.) when used with VC series Actuator: 2 minutes

Actuation: Proportional non-fail safe, purchase separately

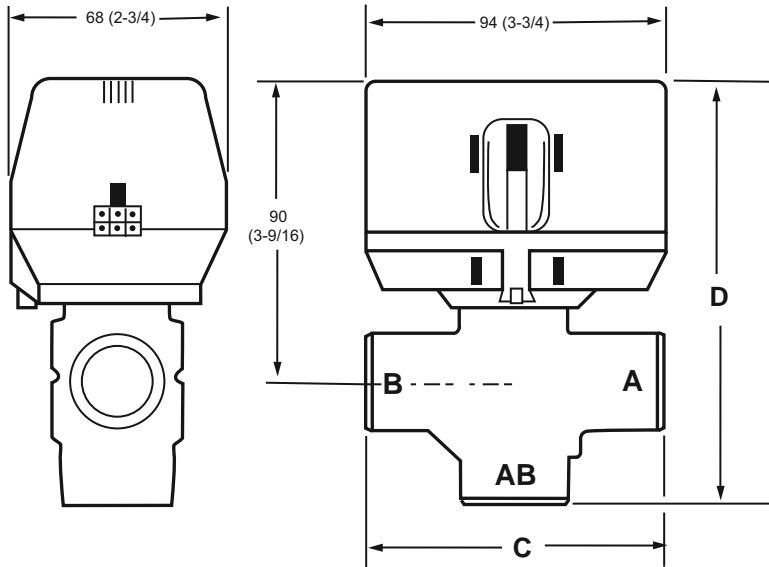
Comments: characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connection Type	Used With	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)			
VCZMA7500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Sweat	VC6930/31/34; VC7930/31/34	Cartridge changing tool
VCZNB7500	DN15	1/2 in.	0.6 kvs	0.7 Cv	NPT Female	VC6930/31/34; VC7930/31/34	—
VCZMA7600	DN15	1/2 in.	1.3 kvs	1.5 Cv	Sweat	VC6930/31/34; VC7930/31/34	Cartridge changing tool
VCZMA7800	DN15	1/2 in.	1.3 kvs	1.5 Cv	Sweat	VC6930/31/34; VC7930/31/34	Cartridge changing tool
VCZNB7600	DN15	1/2 in.	1.3 kvs	1.5 Cv	NPT Female	VC6930/31/34; VC7930/31/34	—
VCZMA7400	DN15	1/2 in.	2.3 kvs	2.7 Cv	Sweat	VC6930/31/34; VC7930/31/34	Cartridge changing tool
VCZNB7400	DN15	1/2 in.	2.3 kvs	2.7 Cv	NPT Female	VC6930/31/34; VC7930/31/34	—

# Cartridge Cage Valves

Product Number	Valve Size		Flow Capacity		Connection Type	Used With	Includes
	DN	inch	(k <sub>vs</sub> )	(Cv)			
VCZMK7800	DN20	3/4 in.	2.7 kvs	3.2 Cv	NPT Female	VC6930/31/34; VC7930/31/34	—
VCZML7800	DN20	3/4 in.	2.7 kvs	3.2 Cv	Sweat	VC6930/31/34; VC7930/31/34	Cartridge changing tool
VCZMK7400	DN20	3/4 in.	3.6 kvs	4.2 Cv	NPT Female	VC6930/31/34; VC7930/31/34	—
VCZML7400	DN20	3/4 in.	3.6 kvs	4.2 Cv	Sweat	VC6930/31/34; VC7930/31/34	Cartridge changing tool
VCZNB7800	DN25	1 in.	1.3 kvs	1.5 Cv	NPT Female	VC6930/31/34; VC7930/31/34	—

## Dimensions in millimeters (inches)



Pipe Fitting Sizes <sup>4</sup> North American Standard	C		D		Pipe Fitting Sizes <sup>4</sup>	C		D	
	mm	in.	mm	in.		mm	in.	mm	in.
3/8" FLARE <sup>1</sup>	98	3-7/8	136	5-11/32	1/2" BSPP (int.) <sup>2</sup>	98	3-7/8	136	5-11/32
1/2" SWEAT	89	3-1/2	130	5-1/8	1/2" BSPT (int.)				
1/2" FLARE <sup>1</sup>	98	3-7/8	136	5-11/32	3/4" BSPP (int.)	94	3-11/16	130	5-1/8
1/2" INVERTED FLARE <sup>1</sup>					3/4" BSPT (int.)				
1/2" NPT (int.)					3/4" BSPP (ext.)				
3/4" NPT (int.)	94	3-11/16	130	5-1/8	22 mm Compression <sup>3</sup>	112	4-7/16	140	5-1/2
3/4" SWEAT			132	5-3/16	1" BSPP (int.)	94	3-11/16	136	5-11/32
1" NPT (int.)			136	5-11/32	1" BSPP (ext.)	95	3-11/17	137	5-11/33
1" SWEAT					1" BSPT (int.)	94	3-11/16	136	5-11/32
1-1/4" SWEAT	110	4-5/16	142	5-5/8	28 mm Compression <sup>3</sup>	116	4-9/16	147	5-13/16
1-1/4" NPT (int.)									

<sup>1</sup> NO ADAPTERS

MC18943

<sup>2</sup> SUITABLE FOR USE AS 15 MM COMPRESSION FITTING

<sup>3</sup> DIMENSIONS SHOWN WITH NUTS AND OLIVES INSTALLED

<sup>4</sup> SOME MODELS NOT AVAILABLE IN ALL COUNTRIES

# Cartridge Cage Valve and Actuator Assemblies

## VC Series Valve and Fail-Safe Actuator Assemblies



The Fail Safe VC6936 Floating and VC7936 Modulating Control valves provides proportional control of hot or chilled water in

**Valve Type:** Cartridge Cage Valve  
**Valve Action:** Stem up to close A port  
**Controlled Fluid:** Chilled or hot water with up to 60% Glycol  
**Maximum Safe Operating Pressure:** 2068 kPa (20 Bar) (300 psi)  
**Maximum Differential Pressure Ratings (Close-off):** 414 kPa (4 bar) (60 psi)  
**Fluid Temperature Range:** 1 C to 95 C (34 F to 203 F)  
**Ambient Temperature Range:** 0 C to 65 C (32 F to 150 F)  
**Stem Travel:** 10 mm (0.4 in.)

commercial heating and cooling applications, such as unit ventilators. On a power failure, this patented actuator design drives the valve to the fail safe position, either fully open or closed according to the installer's wiring connections.

These actuators use a microprocessor-controlled, low voltage stepper motor with a super capacitor-based power supply capable of storing enough power to drive the valve to its when 24V power is removed from the actuator.

A VC hydronic valve consists of a valve body, a replaceable characterized cartridge assembly and a Honeywell VC6900 or VC7900-series actuator, providing proportional flow control. Threeway bodies may be used in either diverting or mixing applications. VC valves use cam-operated cartridge travel to resist water hammer. Limit switches prevent motor overrun. For best control, outdoor temperature compensation of supply water temperature is recommended.

**Materials**  
**(Body):** Bronze  
**(Stem):** Stainless Steel  
**(Seat):** EPDM O-ring seals on Noryl piston  
**(Cartridge):** Ryton®, Noryl® engineering plastic  
**(Packing):** EPDM rubber

**Approvals:**  
**Canadian Standards Association:** CSA Certified

### Two-way Valves, Straight Through

**Flow Characteristic:** Linear

**Comments:** characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connection Type	Actuation	Timing (sec, min.)	Includes
	DN	inch	(Kv)	(Cv)				
VC6936AA1100	DN15	1/2 in.	3.1 kvs	3.5 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936BB1100	DN15	1/2 in.	3.1 kvs	3.5 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AL1100	DN20	3/4 in.	4.1 kvs	4.7 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AM1100	DN20	3/4 in.	4.1 kvs	4.7 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936AR1100	DN20	1 in.	5.7 kvs	6.6 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AS1100	DN20	1 in.	5.7 kvs	6.6 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936BD1100	DN32	1 1/4 in.	6.0 kvs	7 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936BE1100	DN32	1 1/4 in.	6.0 kvs	7 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC7936AA1100	DN15	1/2 in.	3.1 kvs	3.5 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936BB1100	DN15	1/2 in.	3.1 kvs	3.5 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AL1100	DN20	3/4 in.	4.1 kvs	4.7 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AM1100	DN20	3/4 in.	4.1 kvs	4.7 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936AR1100	DN20	1 in.	5.7 kvs	6.6 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AS1100	DN20	1 in.	5.7 kvs	6.6 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936BD1100	DN32	1 1/4 in.	6.0 kvs	7 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936BE1100	DN32	1 1/4 in.	6.0 kvs	7 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool

### Two-way Valves, Straight Through

**Flow Characteristic:** Modified Equal Percent

**Comments:** characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connection Type	Actuation	Timing (sec, min.)	Includes
	DN	inch	(Kv)	(Cv)				
VC6936AA1500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936BB1500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AA1600	DN15	1/2 in.	1.1 kvs	1.3 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool

# Cartridge Cage Valve and Actuator Assemblies

Product Number	Valve Size		Flow Capacity		Connection Type	Actuation	Timing (sec, min.)	Includes
	DN	inch	(Kv)	(Cv)				
VC6936BB1600	DN15	1/2 in.	1.1 kvs	1.3 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AA1800	DN15	1/2 in.	1.6 kvs	1.9 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936BB1800	DN15	1/2 in.	1.6 kvs	1.9 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AA1400	DN15	1/2 in.	1.98 kvs	2.3 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936BB1400	DN15	1/2 in.	1.98 kvs	2.3 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AL1800	DN20	3/4 in.	2.6 kvs	3.1 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AM1800	DN20	3/4 in.	2.6 kvs	3.1 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936AL1400	DN20	3/4 in.	3.4 kvs	3.9 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AM1400	DN20	3/4 in.	3.4 kvs	3.9 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936AR1400	DN20	1 in.	3.6 kvs	4.2 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936AS1400	DN20	1 in.	3.6 kvs	4.2 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC7936AA1500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936BB1500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AA1600	DN15	1/2 in.	1.1 kvs	1.3 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936BB1600	DN15	1/2 in.	1.1 kvs	1.3 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AA1800	DN15	1/2 in.	1.6 kvs	1.9 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936BB1800	DN15	1/2 in.	1.6 kvs	1.9 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AA1400	DN15	1/2 in.	1.98 kvs	2.3 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936BB1400	DN15	1/2 in.	1.98 kvs	2.3 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AL1800	DN20	3/4 in.	2.6 kvs	3.1 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AM1800	DN20	3/4 in.	2.6 kvs	3.1 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936AL1400	DN20	3/4 in.	3.4 kvs	3.9 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AM1400	DN20	3/4 in.	3.4 kvs	3.9 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936AR1400	DN20	1 in.	3.6 kvs	4.2 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936AS1400	DN20	1 in.	3.6 kvs	4.2 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool

## Three-way Valves, A-AB-B

Flow Characteristic: Linear

Comments: characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connection Type	Actuation	Timing (sec, min.)	Additional Comments	Includes
	DN	inch	(Kv)	(Cv)					
VC6936MA6100	DN15	1/2 in.	3.2 kvs	3.7 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	—	Cartridge changing tool
VC6936NB6100	DN15	1/2 in.	3.2 kvs	3.7 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—	—
VC6936MK6100	DN20	3/4 in.	5.7 kvs	6.6 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—	—
VC6936ML6100	DN20	3/4 in.	5.7 kvs	6.6 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	—	Cartridge changing tool
VC6936MR6100	DN25	1 in.	7.2 kvs	8.3 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	—
VC6936MS6100	DN25	1 in.	7.2 kvs	8.3 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	Cartridge changing tool
VC6936ND6100	DN32	1 1/4 in.	7.8 kvs	9 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—	—

# Cartridge Cage Valve and Actuator Assemblies

Product Number	Valve Size		Flow Capacity		Connection Type	Actuation	Timing (sec, min.)	Additional Comments	Includes
	DN	inch	(Kv)	(Cv)					
VC6936NE6100	DN32	1 1/4 in.	7.8 kvs	9 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	—	Cartridge changing tool
VC7936MA6100	DN15	1/2 in.	3.2 kvs	3.7 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—	Cartridge changing tool
VC7936NB6100	DN15	1/2 in.	3.2 kvs	3.7 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—	—
VC7936MK6100	DN20	3/4 in.	5.7 kvs	6.6 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—	—
VC7936ML6100	DN20	3/4 in.	5.7 kvs	6.6 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—	Cartridge changing tool
VC7936MR6100	DN25	1 in.	7.2 kvs	8.3 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	—
VC7936MS6100	DN25	1 in.	7.2 kvs	8.3 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Can be controlled by either a low or a line voltage SPDT or SPST or floating controller	Cartridge changing tool
VC7936ND6100	DN32	1 1/4 in.	7.8 kvs	9 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—	—
VC7936NE6100	DN32	1 1/4 in.	7.8 kvs	9 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—	Cartridge changing tool

## Three-way Valves, A-AB-B

Flow Characteristic: Modified Equal Percent

Comments: characterized cartridge for use with non-fail safe floating and modulating actuators

Product Number	Valve Size		Flow Capacity		Connection Type	Actuation	Timing (sec, min.)	Includes
	DN	inch	(Kv)	(Cv)				
VC6936MA6500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936NB6500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936MA6600	DN15	1/2 in.	1.3 kvs	1.5 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936NB6600	DN15	1/2 in.	1.3 kvs	1.5 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936MA6400	DN15	1/2 in.	2.3 kvs	2.7 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936NB6400	DN15	1/2 in.	2.3 kvs	2.7 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936MK6800	DN20	3/4 in.	2.7 kvs	3.2 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936ML6800	DN20	3/4 in.	2.7 kvs	3.2 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC6936MK6400	DN20	3/4 in.	3.6 kvs	4.2 Cv	Female NPT	Floating (24V SP3T) fail-safe	2 minutes	—
VC6936ML6400	DN20	3/4 in.	3.6 kvs	4.2 Cv	Sweat	Floating (24V SP3T) fail-safe	2 minutes	Cartridge changing tool
VC7936MA6500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936NB6500	DN15	1/2 in.	0.6 kvs	0.7 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936MA6600	DN15	1/2 in.	1.3 kvs	1.5 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936MA6800	DN15	1/2 in.	1.3 kvs	1.5 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936NB6600	DN15	1/2 in.	1.3 kvs	1.5 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936MA6400	DN15	1/2 in.	2.3 kvs	2.7 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936NB6400	DN15	1/2 in.	2.3 kvs	2.7 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936MK6800	DN20	3/4 in.	2.7 kvs	3.2 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936ML6800	DN20	3/4 in.	2.7 kvs	3.2 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool
VC7936MK6400	DN20	3/4 in.	3.6 kvs	4.2 Cv	Female NPT	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	—
VC7936ML6400	DN20	3/4 in.	3.6 kvs	4.2 Cv	Sweat	Modulating/Floating/PWM fail-safe	Installer-selectable 60 or 120 seconds	Cartridge changing tool

# Cartridge Cage Valve Accessories

## Cartridge Cage Valve Accessories

Product Number	Description	Used With
272866	VC flushing kit for VC 2 or 3-way valves, package of 10	VCZA, VCZB, VCZM, VCZN
40007029-002	Wrench for cartridge (included with sweat valves and all replacement cartridges)	—

## VCZZ Valve Replacement Cartridges

Product Number	Description	
VCZZ1000	Replacement cartridge, silver spring, for VC series 2-way valves, with quick open flow for use w/ 2-position actuators. Includes cartridge wrench.	
VCZZ1100	Replacement cartridge, silver spring, for VC series 2-way valves, with Linear flow for use w/ 2-position or fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1400	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1400	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1500	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage Extra Low flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ1600	Replacement cartridge, silver spring, for VC series 2-way valves, with Equal Percentage Low flow for use with fail safe proportional actuators. Includes cartridge wrench.	
VCZZ3100	Replacement cartridge, red spring, for VC series with Linear flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3400	Replacement cartridge, red spring, for VC series with Equal Percentage flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3500	Replacement cartridge, red spring, for VC series with Equal Percentage Extra Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3600	Replacement cartridge, red spring, for VC series with Equal Percentage Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ3800	Replacement cartridge, red spring, for VC series with Equal Percentage Medium flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ6000	Replacement cartridge, silver spring, for VC series 3-way valves, with quick open flow, for use w/2-position actuators.. Includes cartridge wrench.	
VCZZ6000	Replacement cartridge, silver spring, for VC series 3-way valves, with quick open flow, for use w/2-position actuators.. Includes cartridge wrench.	
VCZZ6000	Replacement cartridge, silver spring, for VC series 3-way valves, with quick open flow, for use w/2-position actuators.. Includes cartridge wrench.	
VCZZ6100	Replacement cartridge, silver spring, for VC series 3-way valves, with Linear flow, for use w/2-position or fail safe proportional actuators.. Includes cartridge wrench.	
VCZZ6100	Replacement cartridge, silver spring, for VC series 3-way valves, with Linear flow, for use w/2-position or fail safe proportional actuators.. Includes cartridge wrench.	
VCZZ6400	Replacement cartridge, silver spring, for VC series 3-way valves, with Equal Percentage flow, for use w/fail safe proportional actuators.. Includes cartridge wrench.	
VCZZ6600	Replacement cartridge, silver spring, for VC series 3-way valves, with Equal Percentage Low flow, for use w/fail safe proportional actuators.. Includes cartridge wrench.	
VCZZ7100	Replacement cartridge, red spring, for VC series with Linear flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7400	Replacement cartridge, red spring, for VC series with Equal Percentage flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7500	Replacement cartridge, red spring, for VC series with Equal Percentage Extra Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7600	Replacement cartridge, red spring, for VC series with Equal Percentage Low flow for proportional control (non-fail safe). Includes cartridge wrench.	
VCZZ7800	Replacement cartridge, red spring, for VC series with Equal Percentage Medium flow for proportional control (non-fail safe). Includes cartridge wrench.	

## VU52; VU53 Two-way Fan Coil Valves



Two-way Fan Coil Valves, the VU53 high pressure zone valves are used to control the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors.

**IMPORTANT** These valves are not for use in systems containing dissolved oxygen.

- Compact construction for easy installation.
- Fits under the cover of most baseboard convectors with actuator fitted to valve body.
- VU52 and VU53 provide 2-way, straight-through control of water.
- Available in normally closed (VU53) or normally open (VU52) configurations.
- 300 psi (2,000 kPa, PN20) operating pressure rating.
- Patented ball seal provides long service life, soft close off.
- Triple O-ring seal provides three lines of defense against corrosion and water leakage around drive shaft.
- Quick opening flow curve.
- Available with NPT end connections for iron or steel piping.

**Valve Type:** Fan Coil Valve

**Body Pattern:** Two-way, Straight-through

**Flow Characteristic:** Quick Opening

**Controlled Medium:** Chilled or hot water with up to 60% Glycol

**Maximum Safe Operating Pressure:** 2068 kPa (300 psig)

**Ambient Temperature Range:** 1 to 52 C @ 94 C Fluid  
(34 F to 125 F at 200 F Fluid)

**Actuation:** Must be purchased separately

**Materials**

**(Body):** Brass

**(Stem):** Brass

**(Seat):** Brass

**(Plug/Ball/Disc):** Buna-N rubber

**(Packing):** EPDM rubber

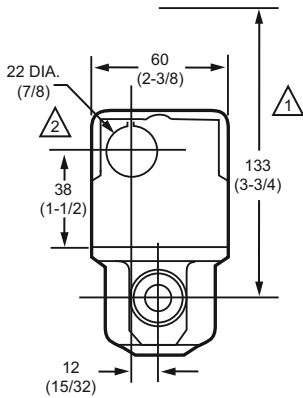
**Approvals:**

**Canadian Standards Association:** CSA C/US

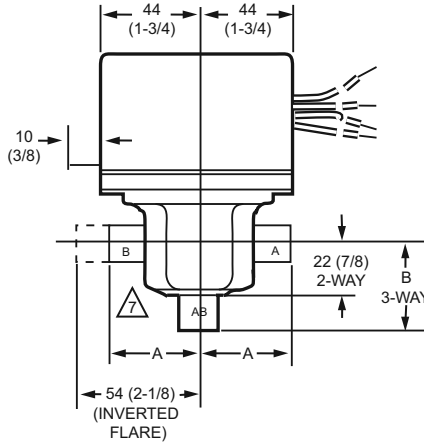
Product Number	Valve Size		Flow Capacity		Connection Type	Valve Action	Maximum Close-off Pressure		Used With
	DN	inch	(Kv)	(Cv)			(kPa)	(psi)	
VU52N1027	DN15	1/2 in.	0.9 kvs	1.0 Cv	Female NPT	Normally Open	345 kPa	50 psi	VU444 or VU844 Actuator
VU52S2002	DN15	1/2 in.	0.9 kvs	1.0 Cv	Sweat	Normally Open	345 kPa	50 psi	VU444 or VU844 Actuator
VU53S2018	DN15	1/2 in.	0.9 kvs	1.0 Cv	Sweat	Normally Closed	345 kPa	50 psi	VU444 or VU844 Actuator
VU52N1035	DN15	1/2 in.	2.1 kvs	2.4 Cv	Female NPT	Normally Open	207 kPa	30 psi	VU444 or VU844 Actuator
VU52S2010	DN15	1/2 in.	2.1 kvs	2.4 Cv	Sweat	Normally Open	207 kPa	30 psi	VU444 or VU844 Actuator
VU53N1058	DN15	1/2 in.	2.1 kvs	2.4 Cv	Female NPT	Normally Closed	207 kPa	30 psi	VU444 or VU844 Actuator
VU53S2026	DN15	1/2 in.	2.1 kvs	2.4 Cv	Sweat	Normally Closed	207 kPa	30 psi	VU444 or VU844 Actuator
VU52S2028	DN15	1/2 in.	3.0 kvs	3.5 Cv	Sweat	Normally Open	138 kPa	20 psi	VU444 or VU844 Actuator
VU53F1024	DN15	1/2 in.	3.0 kvs	3.5 Cv	Inverted Flare	Normally Closed	138 kPa	20 psi	VU444 or VU844 Actuator
VU53S2034	DN15	1/2 in.	3.0 kvs	3.5 Cv	Sweat	Normally Closed	138 kPa	20 psi	VU444 or VU844 Actuator
VU52S2036	DN20	3/4 in.	3.0 kvs	3.5 Cv	Sweat	Normally Open	138 kPa	20 psi	VU444 or VU844 Actuator
VU53N1033	DN20	3/4 in.	3.0 kvs	3.5 Cv	Female NPT	Normally Closed	138 kPa	20 psi	VU444 or VU844 Actuator
VU53S2042	DN20	3/4 in.	3.0 kvs	3.5 Cv	Sweat	Normally Closed	138 kPa	20 psi	VU444 or VU844 Actuator
VU52S2044	DN20	3/4 in.	4.3 kvs	5.0 Cv	Sweat	Normally Open	103 kPa	15 psi	VU444 or VU844 Actuator
VU53S2075	DN20	3/4 in.	4.3 kvs	5.0 Cv	Sweat	Normally Closed	103 kPa	15 psi	VU444 or VU844 Actuator
VU52N1001	DN20	3/4 in.	7.0 kvs	8.0 Cv	Female NPT	Normally Open	69 kPa	10 psi	VU444 or VU844 Actuator
VU52S2051	DN20	3/4 in.	7.0 kvs	8.0 Cv	Sweat	Normally Open	69 kPa	10 psi	VU444 or VU844 Actuator
VU53N1017	DN20	3/4 in.	7.0 kvs	8.0 Cv	Female NPT	Normally Closed	69 kPa	10 psi	VU444 or VU844 Actuator
VU53S2059	DN20	3/4 in.	7.0 kvs	8.0 Cv	Sweat	Normally Closed	69 kPa	10 psi	VU444 or VU844 Actuator
VU53S2000	DN25	1 in.	7.0 kvs	8.0 Cv	Sweat	Normally Closed	69 kPa	10 psi	VU444 or VU844 Actuator

# Fan Coil Valves

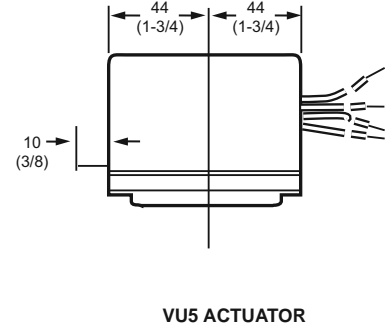
Dimensions in millimeters (inches)



VU53 VALVE WITH VU448 ACTUATOR



VU53 AND VU54 VALVE WITH ACTUATOR



VU55 ACTUATOR

- △1 HEIGHT NEEDED TO REMOVE ACTUATOR OR COVER
- △2 OPENING FOR 1/2 IN. CONDUIT ON OPPOSITE SITE OF MANUAL LEVER FOR ALL MODELS.

VALVE BODY SIZE	A	B
1/2 IN. SWEAT	33 (1-5/6)	33 (1-5/6)
3/4 IN. SWEAT	35 (1-3/8)	43 (1-11/16)
1 IN. SWEAT	43 (1-11/16)	43 (1-11/16)
1/2 IN. NPT	35 (1-3/8)	33 (1-5/6)
3/4 IN. NPT	43 (1-11/16)	37 (1-7/16)

MC18261

## VU54 Three-way Fan Coil Valves



**Valve Type:** Fan Coil Valve  
**Body Pattern:** Three-way A-AB-B  
**Connection Type:** Flare  
**Flow Characteristic:** Quick Opening  
**Controlled Medium:** Chilled or hot water with up to 60% Glycol  
**Maximum Safe Operating Pressure:** 2068 kPa (300 psig)  
**Ambient Temperature Range:** 1 to 52 C @ 94 C Fluid  
 (34 F to 125 F at 200 F Fluid)  
**Actuation:** Must be purchased separately

**Three-way Fan Coil Valve, the VU54 high pressure zone valves are used to control the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors.**

**IMPORTANT** These valves are not for use in systems containing dissolved oxygen.

- Compact construction for easy installation.
- Fits under the cover of most baseboard convectors with actuator fitted to valve body.
- VU54 provides three-way diverting control of water.
- 300 psi (2,000 kPa, PN20) operating pressure rating.
- Patented ball seal provides long service life, soft close off.
- Triple O-ring seal provides three lines of defense against corrosion and water leakage around drive shaft.
- Quick opening flow curve.
- Choice of NPT end connections for iron or steel piping.

**Materials**

**(Body):** Brass  
**(Stem):** Brass  
**(Seat):** Brass  
**(Plug/Ball/Disc):** Buna-N rubber  
**(Packing):** EPDM rubber

**Approvals:**

**Canadian Standards Association:** CSA C/US

Product Number	Valve Size		Flow Capacity		Connection Type	Valve Action	Maximum Close-off Pressure		Used With
	DN	inch	(Kv)	(Cv)			(kPa)	(psi)	
VU54N1007	DN15	1/2 in.	3.4 kvs	4.0 Cv	Female NPT	Mixing	138 kPa	20 psi	VU444 or VU844 Actuator
VU54S2008	DN15	1/2 in.	3.4 kvs	4.0 Cv	Sweat	Mixing	138 kPa	20 psi	VU444 or VU844 Actuator
VU54S2057	DN20	3/4 in.	4.3 kvs	5.0 Cv	Sweat	Mixing	103 kPa	15 psi	VU444 or VU844 Actuator
VU54N1015	DN20	3/4 in.	6.5 kvs	7.0 Cv	Female NPT	Mixing	69 kPa	10 psi	VU444 or VU844 Actuator
VU54S2016	DN20	3/4 in.	6.5 kvs	7.0 Cv	Sweat	Mixing	69 kPa	10 psi	VU444 or VU844 Actuator
VU54N1023	DN25	1 in.	6.5 kvs	7.0 Cv	Female NPT	Mixing	69 kPa	10 psi	VU444 or VU844 Actuator
VU54S2024	DN25	1 in.	6.5 kvs	7.0 Cv	Sweat	Mixing	69 kPa	10 psi	VU444 or VU844 Actuator



# Direct Coupled Valve Actuators

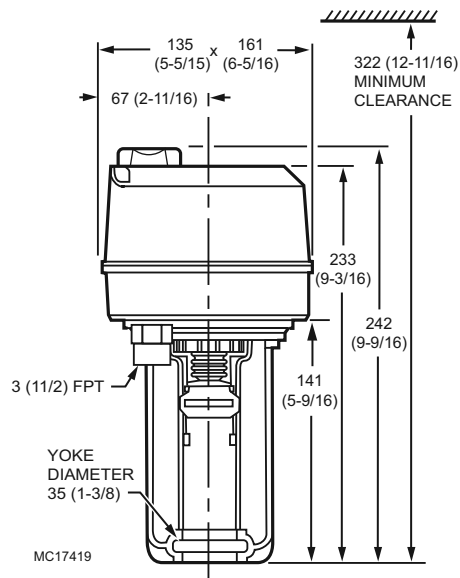
## ML6420; ML7420 Non-Spring Return Direct Coupled Globe Valve Actuators



Direct Coupled Globe Valve Actuators provide floating or modulating control of chilled water, hot water, or steam, and mount directly on VGF series, V5011, and V5013 globe valves from 1/2 to 3 inches.

- Easy and quick installation on valves with 1 3/8" bonnet and 3/4" stroke.
- No separate linkage required.
- Conduit connector standard.
- No adjustments required on linkage.
- Accurate valve positioning.
- Low power consumption.
- High close-off ratings.
- Force limiting end switches.
- Manual operator.
- Synchronous motor.
- Maintenance free.
- ML7420 has an internal selector plug that can be used to reverse the direction of action.

### Dimensions in millimeters (inches)



**Actuator Type:** Valve  
**Fail Safe Mode:** Stays in place  
**Cable Entry:** Conduit connector and one knockout on actuator case  
**Electrical Protection:** Class I Insulation (24 Vac)

**Ingress Protection Rating:** IP54

**Electrical Connections:** Screw terminals

**Manual operation:** Knob

**Mounting:** Directly on V5011/V5013 Globe Valves and VGF Flanged Globe Valves (3/4 in. or 20mm stroke)

**Stroke:** 20 mm (3/4 in.)

**Supply Voltage:** 24 Vac  $\pm$ 15%

**Frequency:** 50 Hz; 60 Hz

**Materials:** ABS-FR Plastic, aluminum yoke

**Operating Humidity Range (% RH):** 5 to 95% RH

**Fluid Temperature:** 150 C Maximum (300 F Maximum)

**Ambient Temperature Range:** -10 C to +50 C (14 F to 122 F)

**Storage Temperature Range:** -40 C to +70 C (-40 F to +158 F)

**Weight:** 1.3 kg (2.9 lb)

**Includes:** 1/2 in. flexible conduit adapter  
1/2 in. conduit hub

**Approvals:**

**Canadian Standards Association:** Certified

**CE:** Listed

**Underwriters Laboratories, Inc.** UL94-5V

**Accessories:**

**312495** Large stem button provides anti-spin for globe valves up to 3 in. (1/4-28UNF stem) with ML6420, ML7420, ML6421A, ML7421A, ML6425, and ML7425 actuators. Not required with ML6984/7984 actuators or Q5022A linkage; not compatible with Q5020 linkage.

**43191679-111** Potentiometer, 10k ohm, for ML6425, ML7425

**43191679-112** Potentiometer, 220 ohm for ML6425, ML7425

**43191680-105** Dual Auxiliary Switch for CREVAL actuators

**43196000-001** High Temperature Kit for actuators with 3/4 inch stroke

Product Number	(Rated) Stem Force		Control Signal	Feedback	Timing, Nominal Driving @ 60 Hz (sec)	Power Consumption (Driving)	Input Impedance
	(Nm)	(lb-in.)					
ML6420A3049	600 N	135 lbf	SPDT 2-position; Floating	—	60 sec	6 VA	—
ML6420A3056	600 N	135 lbf	SPDT 2-position; Floating	—	30 sec	6 VA	—
ML7420A3055	600 N	135 lbf	2 to 10 Vdc; 0 to 10 Vdc	2-10 Vdc	60 sec	7 VA	1K ohm
ML7420A3063	600 N	135 lbf	2 to 10 Vdc; 0 to 10 Vdc	2-10 Vdc	30 sec	7 VA	1K ohm

# Direct Coupled Valve Actuators

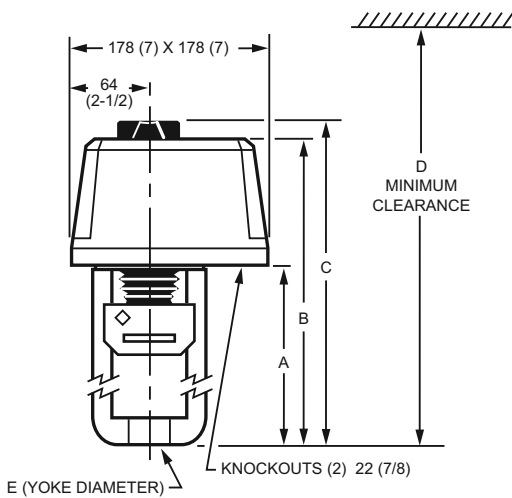
## ML6421; ML7421 Non-Spring Return Direct Coupled Globe Valve Actuators



Direct Coupled Globe Valve Actuators provide floating or modulating control of chilled water, hot water, or steam, and mount directly on VGF series, V5011, and V5013 valves. These Non-Spring Return High Force Actuators will operate 1-1/2 to 6 inch valves.

- Easy and quick installation on valves with 1 3/8" bonnet and 3/4" stroke, or with 1 7/8" bonnet and 1 1/2" stroke.
- High force for VGF Pressure-balanced valves.
- No separate linkage required.
- Conduit connector standard.
- No adjustments required on linkage.
- Accurate valve positioning.
- Low power consumption.
- High close-off ratings.
- Force limiting end switches.
- Manual operator.
- Synchronous motor.
- Maintenance free.

### Dimensions in millimeters (inches)



	ML6421A, ML7421A	ML6421B, ML7421B
A	142 (5-5/8)	204 (8)
B	239 (9-3/8)	301 (11-7/8)
C	264 (10-3/8)	326 (12-3/4)
D	360 (14-1/4)	430 (16-7/8)
E	35 (1-3/8)	48 (1-7/8)

MC16827

**Actuator Type:** Valve  
**Fail Safe Mode:** Stays in place

**Cable Entry:** Two knockout holes for 1/2 in. conduit standard on actuator case

**Electrical Protection:** Class I Insulation (24 Vac)

**Ingress Protection Rating:** IP54

**Electrical Connections:** Screw terminals

**Manual operation:** Knob

**Mounting:** Directly on V5011/V5013 Globe Valves and VGF Flanged Globe Valves

**Supply Voltage:** 24 Vac +10% , -30%

**Frequency:** 50 Hz; 60 Hz

**Materials:** ABS Plastic

**Operating Humidity Range (% RH):** 5 to 95% RH

**Fluid Temperature:** 150 C Maximum (300 F Maximum)

**Ambient Temperature Range:** -10 C to +50 C (14 F to 122 F)

**Storage Temperature Range:** -40 C to +70 C (-40 F to +158 F)

**Weight:** 2.3 kg (5.1 lb)

**Includes:** 1/2 in. flexible conduit adapter  
1/2 in. conduit hub

**Approvals:**

**Canadian Standards Association:** Certified

**CE:** Recognized

**Underwriters Laboratories, Inc.** UL94-5V

**Accessories:**

**312495** Large stem button provides anti-spin for globe valves up to 3 in. (1/4-28UNF stem) with ML6420, ML7420, ML6421A, ML7421A, ML6425, and ML7425 actuators. Not required with ML6984/7984 actuators or Q5022A linkage; not compatible with Q5020 linkage.

**43191679-101** Auxiliary Potentiometer for ML6421A

**43191679-102** 220 ohm Auxiliary Potentiometer for ML6421B

**43191680-102** Dual Auxiliary Switch for CREVAL actuators

**43196000-001** High Temperature Kit for actuators with 3/4 inch stroke

**43196000-038** High Temperature Kit for actuators with 1-1/2 inch stroke

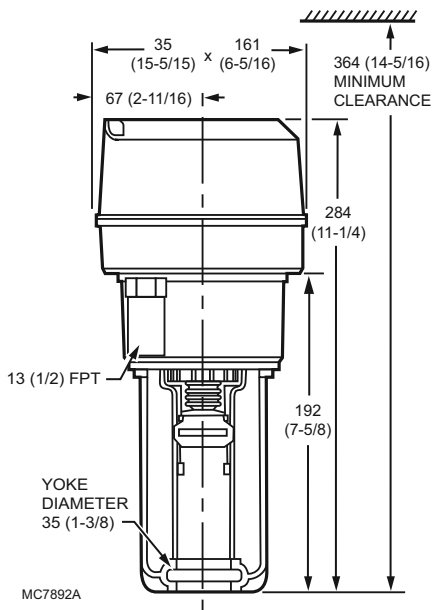
Product Number	(Rated) Stem Force		Control Signal	Feedback	Timing, Nominal Driving @ 60 Hz (sec)	Power Consumption (Driving)	Stroke	
	(Nm)	(lb-in.)					(mm)	(inch)
ML6421A1017	1800 N	405 lbf	SPDT 2-position; Floating	—	95 sec	11 VA	20 mm	3/4 in.
ML6421B1040	1800 N	405 lbf	SPDT 2-position; Floating	—	175 sec	11 VA	38 mm	1 1/2 in.
ML7421A1032	1800 N	405 lbf	2 to 10 Vdc; 0 to 10 Vdc	2-10 Vdc	95 sec	12 VA	20 mm	3/4 in.
ML7421B1023	1800 N	405 lbf	2 to 10 Vdc; 0 to 10 Vdc	2-10 Vdc	175 sec	12 VA	38 mm	1 1/2 in.

# Direct Coupled Valve Actuators

## ML6425; ML7425 Spring Return Direct Coupled Globe Valve Actuators



Dimensions in millimeters (inches)



**Actuator Type:** Valve  
**Cable Entry:** Conduit connector and one knockout on actuator case  
**Electrical Protection:** Class I Insulation (24 Vac)

Direct Coupled Globe Valve Actuators provide floating and modulating control of chilled water, hot water, and steam, and mount directly on VGF series, V5011, and V5013 globe valves. These Spring Return Actuators will operate 1/2 to 3 inch valves.

- Easy and quick installation on valves with 1 3/8" bonnet and 3/4" stroke.
- No separate linkage required.
- Conduit connector standard.
- No adjustments required on linkage.
- Accurate valve positioning.
- Low power consumption.
- High close-off ratings.
- Force limiting end switches.
- Internal manual operator.
- Synchronous motor.
- Maintenance free.

**Electrical Connections:** Screw terminals

**Ingress Protection Rating:** IP54

**Frequency:** 50 Hz; 60 Hz

**Manual operation:** Manual override winding

**Mounting:** Directly on V5011/V5013 Globe Valves and VGF Flanged Globe Valves (3/4" or 20mm stroke)

**Stroke:** 20 mm (3/4 in.)

**Materials:** ABS-FR Plastic, aluminum yoke

**Number of Internal Auxiliary Switch:** 0

**Operating Humidity Range (% RH):** 5 to 95% RH

**Timing (seconds) Nominal Driving @ 60 Hz:** 90 sec

**Spring Return Timing (Nominal (sec)):** 12 sec

**Fluid Temperature:** 150 C Maximum (300 F Maximum)

**Ambient Temperature Range:** -10 C to +50 C (14 F to 122 F)

**Storage Temperature Range:** -40 C to +70 C (-40 F to +158 F)

**Weight:** 2.3 kg (5.1 lb)

**Includes:** 1/2 in. conduit hub; 1/2 in. flexible conduit adapter

**Approvals:**

**CE:** Recognized

**Underwriters Laboratories, Inc.** UL94-5V

**Accessories:**

**312495** Large stem button provides anti-spin for globe valves up to 3 in. (1/4-28UNF stem) with ML6420, ML7420, ML6421A, ML7421A, ML6425, and ML7425 actuators. Not required with ML6984/7984 actuators or Q5022A linkage; not compatible with Q5020 linkage.

**43196000-001** High Temperature Kit for actuators with 3/4 inch (20 mm) stroke, stem button attachment

**43191680-105** Dual Auxiliary Switch for CREVAL actuators

**43191679-111** Potentiometer, 10k ohm, for ML6425, ML7425

**43191679-112** Potentiometer, 220 ohm for ML6425, ML7425

Product Number	(Rated) Stem Force		Spring Return Torque		Fail Safe Mode	Spring Return Direction	Control Signal	Feedback	Supply Voltage	Power Consumption (Driving)
	(Nm)	(lb-in.)	(Nm)	(lb-in.)						
ML6425A3022	600 N	135 lbf	600 N	135 lbf	Stem down on power failure	Stem down on power failure	SPDT 2-position; Floating	—	24 Vac	11 VA
ML6425B3013	600 N	135 lbf	600 N	135 lbf	Stem up on power failure	Stem up on power failure	SPDT 2-position; Floating	—	24 Vac	11 VA
ML7425A3013	600 N	135 lbf	600 N	135 lbf	Stem down on power failure	Stem down on power failure	2 to 10 Vdc; 0 to 10 Vdc	2-10 Vdc	24 Vac ±15%	12 VA
ML7425B3012	600 N	135 lbf	600 N	135 lbf	Stem up on power failure	Stem up on power failure	2 to 10 Vdc; 0 to 10 Vdc	2-10 Vdc	24 Vac ±15%	12 VA

# Direct Coupled Valve Actuators

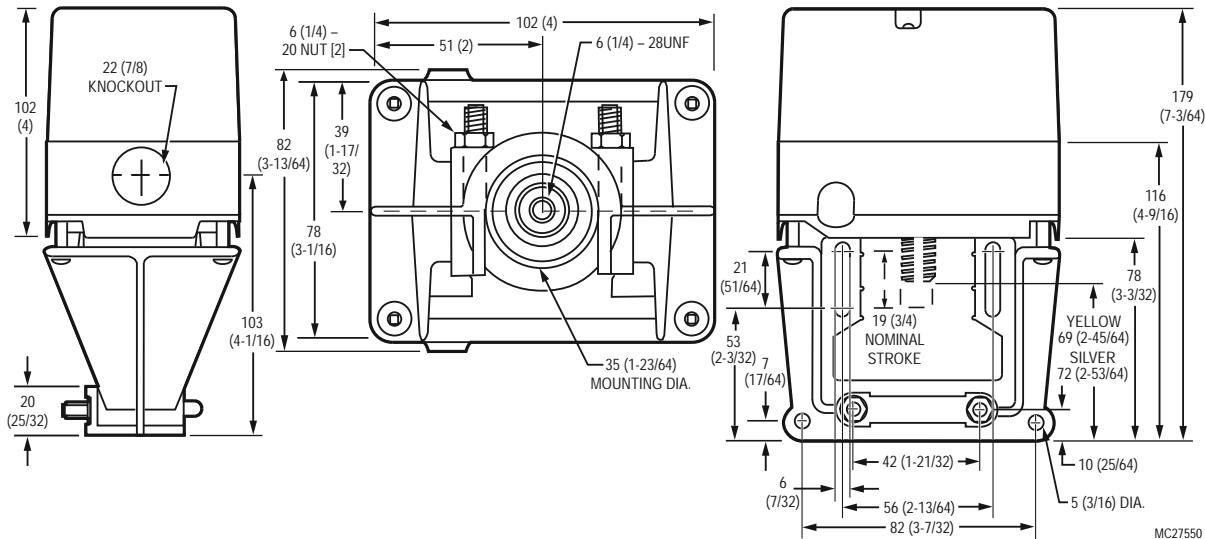
## ML6984 Direct Coupled Linear Valve Actuators



The ML6984 is a self-contained, self-adjusting, motorized linkage that mounts directly onto V5011 two-way or V5013 three-way valves and provides up to 25 mm (1") of linear travel (stem lift). For use with low voltage 3-wire SPDT Series 20 (on-off); Series 60 (floating) electromechanical (dry) contacts; or electronic (triac output) controllers (3-wire installation).

- Allows the use of one common transformer power supply for multiple actuators and controllers.
- Self-contained, motorized valve linkage.
- Linkage self-adjusts to valve stroke of 12 to 25 mm (1/2 to 1").
- Multi-pose mounting.
- Strong valve seat closing force 160 lbf (710 N).
- Compact size for easy installation in confined area.
- One device for either 24 Vac or 28 Vdc power supply application.
- Electronic current sensing provides internal protection and positive full closing force.
- Field-addable position feedback/auxiliary switch module available (5-wire control wiring only).
- Compatible with 3-wire control systems.

### Dimensions in millimeters (inches)



**Actuator Type:** Valve  
**Fail Safe Mode:** Stays in place  
**(Rated) Stem Force:** 710 N (160 lbf)  
**Cable Entry:** 7/8 in. hole for 1/2 in. conduit  
**External Auxiliary Switches Available:** 272630D  
**Electrical Protection:** NEMA 3R  
**Ingress Protection Rating:** NEMA 3R, IP54 (mounted in vertical position)  
**Electrical Connections:** Screw terminals  
**Feedback:** Position feedback available w/ 272630D; 2-10 Vdc  
**Manual operation:** None  
**Mounting:** Screws onto 1/4-28 UNF threaded valve stem  
**Stroke:** 13 to 25 mm (1/2 to 1 in.)  
**Supply Voltage:** 24 Vac; 28 Vdc  
**Frequency:** 50 Hz; 60Hz

**Materials:** UV-stabilized plastic cover, aluminum base & yoke  
**Operating Humidity Range (% RH):** 15 to 95% RH at 40 C (104 F)  
**Fluid Temperature:** 150 C Maximum (300 F Maximum)  
**Ambient Temperature Range:** 0 C to 50 C (32 F to 130 F)  
**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150 F)  
**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)  
**Weight:** 1 kg (2.2 lb)  
**Includes:** Screw terminals  
**Comments:** 3 or 5-wire operation (3-wire required for XL10 controllers).

**Accessories:**  
**272629A** Adapter Kit for mounting ML6984/ML7984 to V5045 and VGF non-pressure balanced 2-way valves  
**272630D** Position feedback and SPDT pilot duty auxiliary switch

Product Number	(Rated) Stem Force		Control Signal	Timing, Nominal Driving @ 60 Hz (sec)	Number of Internal Auxiliary Switch	Switch Ratings	Power Consumption		Used With
	(Nm)	(lb-in.)					Driving	Holding	
ML6984A4000	710 N	160 lbf	SPDT 2-position; Floating	63 at 22 mm stroke	0	24 Vac	6 VA	12 VA	V5011/13, up to 3 in., V5045 w/ 272629A

# Direct Coupled Valve Actuators

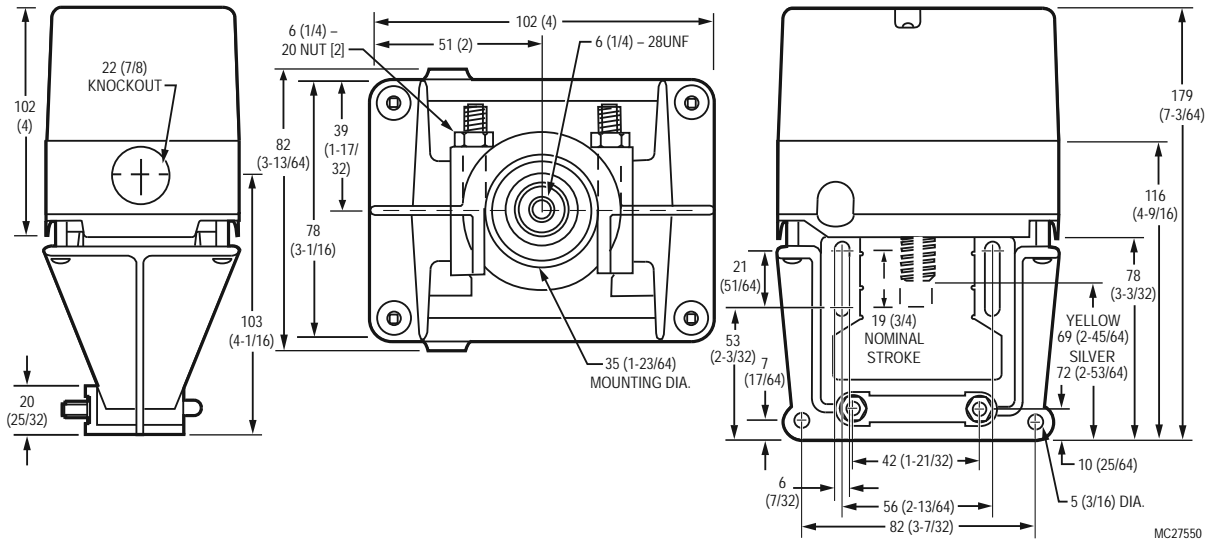
## ML7984 Direct Coupled Linear Valve Actuators



The ML7984 is a self-contained, self-adjusting, motorized linkage that mounts directly onto V5011 two-way or V5013 three-way valves and provides up to 25 mm (1") of linear stem travel. For use with Series 70 2-10Vdc, 4-20mA; Series 90 135 ohm; and Electronic (Super Mod) modulating signals controllers.

- Allows the use of one common transformer power supply for multiple actuators and controllers.
- Self-contained, motorized valve linkage.
- Linkage self-adjusts to valve stroke from 12 to 25 mm (1/2 - 1").
- Multi-pose mounting.
- Strong valve seat closing force 160 lbf (710 N).
- Compact size for easy installation in confined area.
- One device for either Vac or Vdc power supply application.
- Electronic current sensing provides internal protection and positive full closing force.
- Field-addable position feedback/auxiliary switch module available.

### Dimensions in millimeters (inches)



**Actuator Type:** Valve  
**Fail Safe Mode:** Stays in place  
**(Rated) Stem Force:** 710 N (160 lbf)  
**Cable Entry:** 7/8 in. hole for 1/2 in. conduit  
**External Auxiliary Switches Available:** 272630D  
**Electrical Protection:** NEMA 3R  
**Ingress Protection Rating:** NEMA 3R, IP54 (mounted in vertical position)  
**Electrical Connections:** Screw terminals  
**Feedback:** Position feedback available w/ 272630D; 2-10 Vdc  
**Manual operation:** None  
**Mounting:** Screws onto 1/4-28 UNF threaded valve stem  
**Stroke:** 13 to 25 mm (1/2 to 1 in.)  
**Supply Voltage:** 24 Vac; 28 Vdc


**Frequency:** 50 Hz; 60Hz  
**Materials:** UV-stabilized plastic cover, aluminum base & yoke  
**Operating Humidity Range (% RH):** 15 to 95% RH at 40 F (104 F)  
**Ambient Temperature Range:** 0 C to 55 C (32 F to 130 F)  
**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150 F)  
**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)  
**Weight:** 1 kg (2.2 lb)  
**Includes:** Screw terminals  
**Comments:** Direct/Reverse Acting Switch

**Accessories:**  
**272629A** Adapter Kit for mounting ML6984/ML7984 to V5045 and VGF non-pressure balanced 2-way valves  
**272630D** Position feedback and SPDT pilot duty auxiliary switch

Product Number	(Rated) Stem Force		Control Signal	Timing, Nominal Driving @ 60 Hz (sec)	Number of Internal Auxiliary Switch	Switch Ratings	Power Consumption		Input Impedance	Used With
	(Nm)	(lb-in.)					Driving	Holding		
ML7984A4009	710 N	160 lbf	SuperMod; 2 to 10 Vdc; 4 to 20 mA; 135 ohm potentiometer	63 at 22 mm stroke	0	24 Vac	6 VA	12 VA	Voltage - 20 Kohm, Current - 237ohm	V5011/13, up to 3 in., V5045 w/ 272629A

# Direct Coupled Valve Actuators

## Valve Actuator Accessories

Product Number	Description	Used With	
114191A	Auxiliary Switch Assembly	—	
127834A	Switch (made)	—	
272629A	Adapter Kit for mounting ML6984/ML7984 to V5045 and VGF standard 2-way valves	ML6984 or ML7984, V5045; VGF21ES; VGF21LS, VGF22ES; VGF22LS	
272630D	Position feedback and SPDT pilot duty auxiliary switch	ML6984/7984 Series 4000 and higher;	
43191679-008	10k ohm Auxiliary Potentiometer for ML6421B	ML6421B	
43191679-101	Auxiliary Potentiometer for ML6421A	ML6421A	
43191679-102	220 ohm Auxiliary Potentiometer for ML6421B	ML6421B;	
43191679-111	Potentiometer, 10k ohm, for ML6425, ML7425	ML6425, ML7425	
43191679-112	Potentiometer, 220 ohm for ML6425, ML7425	ML6425, ML7425	
43191680-102	Dual Auxiliary Switch for CREVAL actuators	ML6421, ML7421	
43191680-105	Dual Auxiliary Switch for CREVAL actuators	ML6420, ML6425, ML7420, ML7425	
43196000-001	High Temperature Kit for actuators with 20 mm (3/4 inch) stroke, stem button attachment	ML6420, ML6421, ML6425, ML7420, ML7421, or ML7425	
43196000-038	High Temperature Kit for actuators with 38 mm (1-1/2 inch) stroke, stem button attachment	ML6421, ML7421	

# Cartridge Globe Valve Actuator

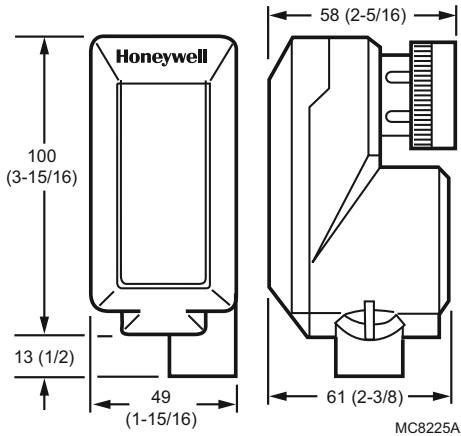
## M6410; M7410 Cartridge Globe Valve Actuator



Cartridge Globe Valve Actuator are small electric actuators for individual room control that provide floating or modulating control of V5852, V5862 two-way or V5853, V5863 three-way valves.

- Suitable for Excel/IRC system or other controllers providing specified signals.
- Magnetic coupling for torque limitation independent of voltage supply and self-adjustment of the close-off port.
- No mounting tools required.
- Small size allows installation in limited space of fan coil units, induction units, and small reheaters or recoolers.
- Visual position indication (red pin).

### Dimensions in millimeters (inches)



**Actuator Type:** Valve

**Fail Safe Mode:** Stays in place

**Cable Entry:** Threaded conduit connector

**Electrical Protection:** Class I Insulation (24 Vac)

**Ingress Protection Rating:** IP42

**Electrical Connections:** Plenum-rated cable

**Feedback:** No

**Manual operation:** None (use valve dust cap)

**Mounting:** Threads onto V58XX valve bonnet

**Stroke:** 6 mm (1/4 in.)

**Supply Voltage:** 24 Vac +10/-30%

**Frequency:** 50 Hz; 60Hz

**Materials:** Low Maintenance Plastic Housing

**Timing, Nominal Driving @ 60 Hz (sec):** 125 sec

**Operating Humidity Range (% RH):** 5 to 95% RH

**Fluid Temperature:** 130 C Maximum (266 F Maximum)

**Ambient Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Storage Temperature Range:** -40 C to +70 C (-40 F to +158 F)

**Weight:** 0.15 kg (0.3125 lb)

**Includes:** 1/2 in. conduit hub

**Approvals:**

Underwriters Laboratories, Inc. UL94-5V

Product Number	(Rated) Stem Force		Control Signal	Power Consumption (Driving)	Input Impedance	Comments	Used With
	(Nm)	(lb-in.)					
M6410A1029	180 N	40.5 lbf	SPDT 2-position; Floating	0.7 VA	—	—	1/2 inch and 3/4 inch V58XX Globe Valves
M6410A3017	300 N	67.5 lbf	SPDT 2-position; Floating	0.7 VA	—	High force for metal-seated valves	1 inch to 1-1/2 inch V58XX Globe Valves
M7410F1000	180 N	40.5 lbf	2 to 10 Vdc; 0 to 10 Vdc	1.4 VA	100K ohm	Direct/Reverse Acting Switch	1/2 inch and 3/4 inch V58XX Globe Valves
M7410F3006	300 N	67.5 lbf	2 to 10 Vdc; 0 to 10 Vdc	1.4 VA	100K ohm	High force for metal-seated valves; Direct/Reverse Acting Switch	1 inch to 1-1/2 inch V58XX Globe Valves

\* TRADELINE models • SUPER TRADELINE models

# Cartridge Globe Valve Actuator

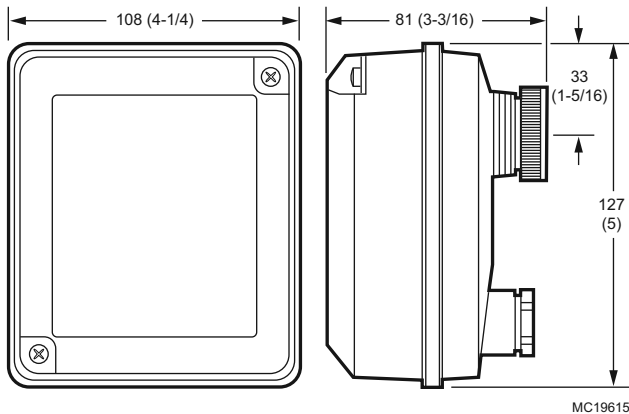
## M6435; M7435 Cartridge Globe Valve Actuator



Cartridge Globe Valve Spring Return Actuators are small electric actuators for individual room control that provide floating or modulating control of V5852, V5862 two-way or V5853, V5863 three-way valves.

- Stem actuator retracts up on power failure. Fail safe mode depends on valve seat rest position.
- Suitable for Excel/IRC system or other controllers providing specified signals.
- Magnetic coupling for torque limitation independent of voltage supply and self-adjustment of the close-off port.
- No mounting tools required.
- Compact size allows installation in limited space of fan coil units, induction units, and small reheaters or coolers.
- Visual position indication (red disk).

### Dimensions in millimeters (inches)



MC19615

**Spring Return Direction:** Stem up

**Cable Entry:** Threaded conduit connector

**Electrical Protection:** Class I Insulation (24 Vac)

**Ingress Protection Rating:** IP54

**Electrical Connections:** Screw terminals

**Feedback:** No

**Frequency:** 50 Hz; 60Hz

**Manual operation:** None (use valve dust cap)

**Mounting:** Threads onto V58XX valve bonnet

**Number of Internal Auxiliary Switch:** 0

**Stroke:** 6 mm (1/4 in.)

**Supply Voltage:** 24 Vac +20%, -15%

**Frequency:** 50 Hz; 60Hz

**Spring Return Direction:** Stem up

**Materials:** Low Maintenance Plastic Housing

**Timing, Nominal Driving @ 60 Hz (sec):** 50 sec

**Spring Return Timing (Nominal (sec)):** 10 sec

**Operating Humidity Range (% RH):** 5 to 95% RH

**Fluid Temperature:** 130 C Maximum (266 F Maximum)

**Ambient Temperature Range:** 0 C to 50 C (32 F to 122 F)

**Storage Temperature Range:** -40 C to +70 C (-40 F to +158 F)

**Weight:** 0.5 kg (1.1 lb)

**Includes:** 1/2 in. conduit hub

**Approvals:**

**Underwriters Laboratories, Inc. UL94-5V**

**Actuator Type:** Valve

**Fail Safe Mode:** Spring Return, operator retracts up  
(Normally open for 1/2 in. and 3/4 in. V5852 and V5862.  
Normally closed for all other V58XX valves.)

**Spring Return Torque:** 180 N (40.5 lbf)

Product Number	(Rated) Stem Force		Spring Return Torque		Control Signal	Power Consumption (Driving)	Input Impedance	Comments	Used With
	(Nm)	(lb-in.)	(Nm)	(lb-in.)					
M6435A1004	180 N	40.5 lbf	180 N	40.5 lbf	SPDT 2-position; Floating	10 VA	—	—	1/2 inch and 3/4 inch V58XX Globe Valves
M6435A3000	400 N	90 lbf	400 N	90 lbf	SPDT 2-position; Floating	10 VA	—	High force for metal-seated valves	1 inch to 1-1/2 inch V58XX Globe Valves
M7435F1001	180 N	40.5 lbf	180 N	40.5 lbf	2 to 10 Vdc; 0 to 10 Vdc	5 VA	100K ohm	Direct/Reverse Acting Switch	1/2 inch and 3/4 inch V58XX Globe Valves
M7435F3007	400 N	90 lbf	400 N	90 lbf	2 to 10 Vdc; 0 to 10 Vdc	5 VA	100K ohm	High force for metal-seated valves Direct/Reverse Acting Switch	1 inch to 1-1/2 inch V58XX Globe Valves



## VC Series Two-position Actuators



Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage SPST or SPDT controller such as a room thermostat.

- Use with two-way or three-way valves.
- Minimal actuator power consumption.
- Double insulated actuator.
- Quick-connect or one meter cable electrical connections available.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- On/Off models with six second nominal timing
- Use two-position actuators with 1000 Series 2-way and 6000 Series 3-way VC valve bodies only.
- All VC Series actuator-valve combinations provide 60 psi close-off.

**Actuator Type:** Valve  
**Fail Safe Mode:** Stays in place  
**Dimensions, Approximate:** 70 mm high x 94 mm wide x 68 mm deep (2.8 in. high x 3.7 in. wide x 2.7 in. deep)  
**Electrical Protection:** Double Insulated  
**Ingress Protection Rating:** IP40  
**Manual operation:** Lever  
**Mounting:** Direct Coupled  
**Shaft Adapter Type:** Self-alignment  
**Stroke:** 10 mm (0.4 in.)  
**Frequency:** 60 Hz  
**Maximum Differential Pressure Ratings (Close-off):** 414 kPa (60 psid)  
**Timing, Nominal Driving @ 60 Hz (sec):** 6 sec

**Materials:** Plastic housing  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Fluid Temperature:** 95 C (203 F)  
**Ambient Temperature Range:** 0 C to 65 C (32 F to 150 F)  
**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150 F)  
**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)  
**Weight:** 0.34 kg (0.75 lb)  
**Used With:** VC Series Valve  
**Approvals:**  
**Canadian Standards Association:** CSA Certified: LR1322-367  
**CE:** 89/336/ECC, 73/23/EEC  
**Underwriters Laboratories, Inc.** UL Recognized, File# MH11826

Product Number	Control Signal	Supply Voltage	Internal Auxiliary Switch		Switch Ratings	Power Consumption (Driving)	Cable Entry	Electrical Connections	Electrical Connection Length		Includes	Comments
			Number	Type					(m)	(inch)		
VC2011ZZ00	2-position SPDT	24 Vac	0	—	—	6 VA	Molded strain relief	Plenum-rated cable	1 m	39 in.	Valve body; 3/8 in. flex conduit adapter	—
VC2114ZZ11	2-position SPDT	24 Vac	0	—	—	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	1.5 m	5 ft.	Flexible conduit adapter	—
VC2711ZZ11	On/Off switch SPDT	24 Vac	1	SPDT	2.2A (5 to 110 Vac)/ 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief	Plenum-rated cable	1 m	39 in.	Valve body; 3/8 in. flex conduit adapter	—
VC4010ZZ00	2-position SPST	100 to 130V	0	—	—	6 VA	—	Cable	—	—	Valve body; Molex connector	—
VC4011ZZ00	2-position SPST	120V	0	—	—	6 VA	Molded strain relief	Cable	1 m	39 in.	Valve body	—
VC4011ZZ11	2-position SPST	100 to 130V	0	—	—	6 VA	Molded strain relief	Cable	1 m	39 in.	—	—
VC4012ZZ00	2-position SPST	240V	0	—	—	6 VA	—	Cable	—	—	Valve body	—
VC4013ZZ00	2-position SPST	240V	0	—	—	6 VA	Molded strain relief	Cable	1 m	39 in.	Valve body	—
VC4013ZZ11	2-position SPST	200 to 240V	0	—	—	6 VA	Molded strain relief	Cable	1 m	39 in.	—	—
VC4611ZZ11	2-position SPST	100 to 130V	1	SPDT	2.2A (5 to 110 Vac)/ 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief	Cable	1 m	39 in.	—	—
VC6013ZZ00	On/Off switch SPDT	240V	0	—	—	6 VA	Molded strain relief	Cable	1 m	39 in.	Valve body	—

Commercial Components

# VC Valve Actuators

Product Number	Control Signal	Supply Voltage	Internal Auxiliary Switch		Switch Ratings	Power Consumption (Driving)	Cable Entry	Electrical Connections	Electrical Connection Length		Includes	Comments
			Number	Type					(m)	(inch)		
VC8010ZZ00	2-position SPST	24 Vac	0	—	—	6 VA	—	Plenum-rated cable	—	—	Valve body; 3/8 in. flex conduit adapter	—
VC8111ZZ11	2-position SPST	24 Vac	0	—	—	6 VA	Molded strain relief	Cable	1 m	39 in.	—	—
VC8114ZZ11	2-position SPST	24 Vac	0	—	—	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	1.5 m	5 ft.	Flexible conduit adapter	—
VC8710ZZ03	2-position SPST	24 Vac	1	SPDT	2.2A (5 to 110 Vac)/ 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	—	Plenum-rated cable	—	—	Valve body; 3/8 in. flex conduit adapter	Added 3K ohm 1/2W resistor to PCB for working with Honeywell power stealing thermostat
VC8711ZZ11	2-position SPST	24 Vac	1	SPDT	2.2A (5 to 110 Vac)/ 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief	Cable	1 m	39 in.	—	—
VC8714ZZ11	2-position SPST	24 Vac	1	SPDT	2.2A (5 to 110 Vac)/ 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	6 VA	Molded strain relief, conduit clamp	Plenum-rated cable	1.5 m	5 ft.	Flexible conduit adapter	—
VC8715ZZ11	2-position SPST	24 Vac	1	SPST	2.2A (5 to 110 Vac) Inductive; Min. DC switching capability: 5 mA @ 24V	6 VA, 3W standby for thermostat anticipator	Molded strain relief	Cable	1 m	39 in.	—	With additional current draw for compatibility with Honeywell power stealing thermostats

## VC Series Proportional Actuators



Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by a low voltage SPST or SPDT switch, pulse-width modulated 24 Vac signal, or floating input, modulating controller such as a room thermostat, Aquastat control, flow switch or a 0/2 to 10 Vdc controller.

- Use with two-way or three-way valves.
- Double insulated actuator.
- Five foot plenum-rated cable.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- Selectable/switchable electronic fail safe normally open or normally closed.
- Available with valve bodies with 1000-series 2-way and 6000-series 3-way cartridges for new construction.
- All VC Series actuator-valve combinations provide 60 psi close-off.

**Actuator Type:** Valve

**Fail Safe Mode:** Stays in place

**Dimensions, Approximate:** 70 mm high x 94 mm wide x 68 mm deep  
(2.8 in. high x 3.7 in. wide x 2.7 in. deep)

**Electrical Protection:** Double Insulated

**Ingress Protection Rating:** IP40

**Manual operation:** Lever

**Mounting:** Direct Coupled

**Shaft Adapter Type:** Self-alignment

**Stroke:** 10 mm (0.4 in.)

**Supply Voltage:** 24 Vac

**Frequency:** 50 Hz; 60Hz

**Maximum Differential Pressure Ratings (Close-off):**  
414 kPa (60 psid)

**Timing, Nominal Driving @ 60 Hz (sec):** 120 sec

**Power Consumption (Driving):** 6 VA

**Materials:** Plastic housing

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Fluid Temperature:** 95 C (203 F)

**Ambient Temperature Range:** 0 C to 65 C (32 F to 150 F)

**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150 F)

**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Weight:** 0.38 kg (0.84 lb)

**Used With:** 3000 Series 2-way and 7000 Series VC valve bodies only

**Approvals:**

**Canadian Standards Association:** CSA Certified: LR1322-367

**Underwriters Laboratories, Inc.** UL Recognized, File# MH11826

Product Number	Control Signal	Internal Auxiliary Switch		Switch Ratings	Cable Entry	Electrical Connections	Electrical Connection Length		Includes
		Number	Type				(m)	(inch)	
VC6834ZZ11	24 Vac; SP3T (tri-state) Floating	1	SPDT	2.2A (5 to 110 Vac)/ 1.0A (110 to 277 Vac) Inductive; Min. DC switching capability: 5 mA @ 24 Vac.	Molded strain relief, conduit clamp	Plenum-rated cable	1.5 m	5 ft.	Flexible conduit adapter
VC6931ZZ11	24 Vac; SP3T (tri-state) Floating	0	—	—	Molded strain relief	Cable	1 m	39 in.	Flexible conduit adapter
VC6934ZZ11	24 Vac; SP3T (tri-state) Floating	0	—	—	Molded strain relief, conduit clamp	Plenum-rated cable	1.5 m	5 ft.	Flexible conduit adapter
VC7930ZZ11	(0)2-10 Vdc	0	—	—	—	6-pin Molex™ connector	—	—	Valve body; Molex connector
VC7931ZZ11	2 to 10 Vdc	0	—	—	Molded strain relief	Cable	1 m	39 in.	—
VC7934ZZ11	2 to 10 Vdc	0	—	—	Molded strain relief, conduit clamp	Plenum-rated cable	1.5 m	5 ft.	Flexible conduit adapter

# VC Valve Actuators

## VC Series Fail Safe Proportional Actuators



**Actuator Type:** Valve  
**Fail Safe Mode:** N.O. or N.C., switchable electronic  
**Cable Entry:** Molded strain relief, conduit clamp  
**Dimensions, Approximate:** 70 mm high x 94 mm wide x 68 mm deep  
 (2.8 in. high x 3.7 in. wide x 2.7 in. deep)  
**Electrical Protection:** Double Insulated  
**Ingress Protection Rating:** IP40  
**Electrical Connections:** Plenum-rated cable  
**Electrical Connection Length:** 1.5 m (5 ft.)  
**Frequency:** 50 Hz; 60Hz  
**Number of Internal Auxiliary Switch:** 0  
**Manual operation:** Lever  
**Mounting:** Direct Coupled  
**Shaft Adapter Type:** Self-alignment  
**Stroke:** 10 mm (0.4 in.)  
**Supply Voltage:** 24 Vac

Control central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage SPST or SPDT or floating or modulating controller such as a room thermostat, Aquastat control, flow switch or a 0/2 to 10 Vdc controller.

- Use with two-way or three-way valves.
- Minimal actuator power consumption.
- Double insulated actuator.
- Five foot plenum-rated cable electrical connections available.
- Quick and easy replacement of moving parts.
- Actuator head installation does not require draining the system.
- Selectable/switchable electronic fail safe normally open or normally closed.
- Includes valve bodies with 1000-series 2-way and 3000-series 3-way cartridges.
- All VC Series actuator-valve combinations provide 60 psi close-off.

**Maximum Differential Pressure Ratings (Close-off):**

414 kPa (60 psid)  
**Materials:** Plastic housing  
**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing  
**Power Consumption (Driving):** 12 Watts, 18 VA inrush  
**Fluid Temperature:** 95 C (203 F)  
**Ambient Temperature Range:** 0 C to 65 C (32 F to 150 F)  
**Temperature Ratings (Shipping):** -40 C to +65 C (-40 F to +150 F)  
**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)  
**Weight:** 0.38 kg (0.84 lb)  
**Used With:** VC Series Valves with 1000-series 2-way and 6000-series 3-way proportional cartridges  
**Includes:** Flexible conduit adapter  
**Approvals:**  
**Canadian Standards Association:** CSA Certified: LR1322-367  
**CE:** 89/336/ECC, 73/23/EEC  
**Underwriters Laboratories, Inc.** Listed 94-5V

Product Number	Control Signal	Nominal Timing (seconds)		Comments
		Driving @ 60 Hz	Spring Return	
VC6936ZZ11-530	24 Vac SPDT; SP3T (tri-state) Floating	120 sec	12 sec.	Power failure reposition installer-selectable for NC/NO. Use with series 60 controller (TB6980 or XL10). Replaces VC6936ZZ11-524/526/527.
VC7936ZZ11-529	On/Off; 24V Pulse Width Modulation; 2 to 10 Vdc; 24 Vac Floating	60 sec; 120 sec	12 sec.	Power failure reposition installer-selectable for NC/NO. Use with series 60/70/80 controller (TB6980, XL15, or XL10). Replaces VC7936ZZ11-523

## VU443, VU444; VU843; VU844 Fan Coil Actuators



The VU844 Fan Coil Valve Actuators are used in conjunction with the VU52, VU53 and VU54 valves for controlling the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors. These valves are humidity resistant and are suitable for use in condensing, non-corrosive environments.

- Compact construction for easy installation.
- Fits under the cover of most baseboard convectors with actuator fitted to valve body.
- One-button, quick release. Secure 3-point, metal latch to valve body.
- Spring return operation.
- Stainless steel case and aluminum cover. Rust-proof nickel-plated motors available.
- Line or low voltage, rust-resistant motors.
- Manual opener for installation and valve operation on power failure.
- Valve returns to automatic position when power is restored.
- Actuator may be reinstalled or serviced without draining the system or disassembling the valve.
- Slotted conduit hole for faster wiring.

**Actuator Type:** Valve  
**Fail Safe Mode:** Spring Return  
**Control Signal:** Two position; SPST  
**Electrical Connections:** Leads  
**Electrical Connection Length:** (6 in.)  
**Frequency:** 60 Hz  
**Manual operation:** Lever  
**Maximum Differential Pressure Ratings (Close-off):**  
 Depends on Cv rating of valve  
**Materials:** Stainless Case, Aluminum Cover  
**Fluid Temperature:** 94 C (200 F)

**Power Consumption (Driving):** 6 Watts  
**Timing Maximum Driving @ 60 Hz (sec):** 15 sec  
**Ambient Temperature Range:** 1 C to 52 C ambient at 93 C Fluid  
 (34 F to 125 F ambient at 200 F Fluid)  
**Comments:** For controlling the flow of hot or chilled water in commercial HVAC equipment such as fan coil units, terminal reheat coils and convectors

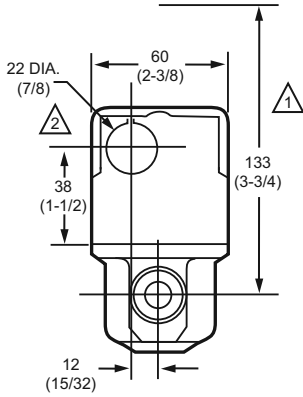
**Approvals:**  
**Canadian Standards Association:** Certified C/US

Product Number	Supply Voltage	Nominal Timing (seconds)		Internal Auxiliary Switch		Stroke	Electrical Connections	Electrical Connection Length		Additional Comments	Used With	
		Driving @ 60 Hz	Spring Return	Number	Type			Switch Ratings	(m)			(inch)
VU443A1008	120V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.15 m	6 in.	—	2-way NC VU valve body (VU53)
VU443A1024	208V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.5 m	18 in.	—	
VU443A1057	277V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.5 m	18 in.	—	
VU443A1115	230V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.15 m	6 in.	—	
VU443A1180	120V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.15 m	6 in.	Nickel plated motor for added humidity resistance	
VU443E1009	120V	15 sec	4 sec.	1	SPST, N.O.	1 A Pilot Duty	22 deg.	Leads	0.5 m	18 in.	Aux Switch Rating - Inductive: 2.2 A from 5 to 110 Vac, 1.0 A from 110 to 277 Vac	
VU444A1007	120V	15 sec	6 sec.	0	—	—	45 deg.	Leads	0.15 m	6 in.	—	2-way NO (VU52) or 3-way VU valve body (VU54)
VU444A1098	227V	15 sec	6 sec.	0	—	—	45 deg.	Leads	0.5 m	18 in.	—	
VU444A1106	230V	15 sec	6 sec.	0	—	—	45 deg.	Leads	0.15 m	6 in.	—	
VU444A1155	120V	15 sec	6 sec.	0	—	—	45 deg.	Leads	0.15 m	6 in.	Nickel plated motor for added humidity resistance	
VU843A1004	24V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.15 m	6 in.	—	2-way NC VU valve body (VU53)
VU843A1020	24V	15 sec	4 sec.	0	—	—	22 deg.	3-pin AMP w/8 in. leads	—	—	—	
VU843A1087	24V	15 sec	4 sec.	0	—	—	22 deg.	Leads	0.15 m	6 in.	Nickel plated motor for added humidity resistance	
VU844A1003	24V	15 sec	6 sec.	0	—	—	45 deg.	Leads	0.15 m	6 in.	—	2-way NO (VU52) or 3-way VU valve body (VU54)
VU844A1045	24V	15 sec	6 sec.	0	—	—	45 deg.	3-pin AMP w/8 in. leads	—	—	—	
VU844A1060	24V	15 sec	6 sec.	0	—	—	45 deg.	Leads	0.15 m	6 in.	Nickel plated motor for added humidity resistance	

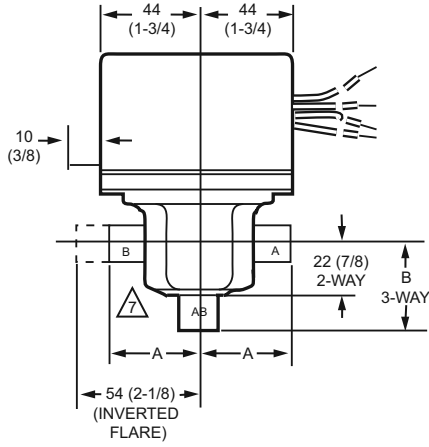
Commercial Components

# Fan Coil Actuators

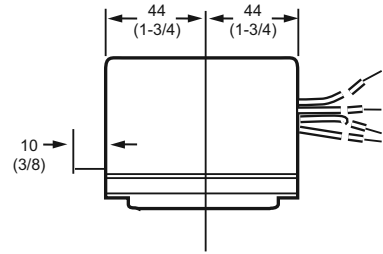
Dimensions in millimeters (inches)





VU53 VALVE WITH VU448 ACTUATOR



VU53 AND VU54 VALVE WITH ACTUATOR



VU5 ACTUATOR

-  HEIGHT NEEDED TO REMOVE ACTUATOR OR COVER
-  OPENING FOR 1/2 IN. CONDUIT ON OPPOSITE SITE OF MANUAL LEVER FOR ALL MODELS.

VALVE BODY SIZE	A	B
1/2 IN. SWEAT	33 (1-5/6)	33 (1-5/6)
3/4 IN. SWEAT	35 (1-3/8)	43 (1-11/16)
1 IN. SWEAT	43 (1-11/16)	43 (1-11/16)
1/2 IN. NPT	35 (1-3/8)	33 (1-5/16)
3/4 IN. NPT	43 (1-11/16)	37 (1-7/16)

MC18261

## SmartVFD COMPACT



You already know the energy savings variable frequency drives (VFDs) deliver. With the Honeywell SmartVFD COMPACT, you

**Drive Family:** SmartVFD COMPACT

**Acceleration time:** 0.1 - 3000 sec

**Deceleration time:** .1 - 3000 sec

**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential

**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm

**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm

**Digital Output:** Open collector, max. load 48V/50mA

**Continuous Output Current:**

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

select the capabilities you need. Our compact line lets you customize the drive features to the application, eliminating waste. The COMPACT provide the perfect balance, with essential features like a standard PI Controller and the ability to program without the need for line voltage. It is a true micro drive and is among the smallest, most streamlined VFDs on the market, which saves space in your equipment cabinet. And because you choose only the options you need to keep your installed cost low. Along with the compact size for installation ease, the intuitive user interface makes commissioning a breeze.

- Easy commissioning
  - Intuitive user interface
  - PID controller included, standard
  - Program without the need for a main power supply
- Easy installation
  - The most streamlined VFDs on the market
  - DIN rail or screw mounting
  - Side-by-side mounting
- Easy communication
  - Up to seven programming control inputs
  - Up to three programmable control outputs
  - Several fieldbus options available

**Relay Output:** Max. switching load: 250Vac/2A or 250Vdc/0,4A

**Reference Output Voltage:** Maximum Load 10mA

**Auxiliary Voltage:** ± 20%, max. load 50 mA

**Starting Torque:** Depends on the Motor

**Peak Current:** 2 x I<sub>N</sub>, 2 secs in every 20 sec period

**Frequency (Hz):** 0 Hz to 320 Hz

**Operating Temperature:** -10 to 50 C (14 to 122 F)

**Type of Enclosure:** Open Chassis

Product Number	Voltage	Horsepower	Frame Type	Software	Type of RFI Filter	Current Rating	Dimensions, Approximate		Weight		Description
							(mm)	(inch)	(kg)	(lb)	
HVFD1B0003F00	230v 1/3	0.3 HP	1	Full	No filter	0.25A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v .3hp Full IO Open No EMC
HVFD1B0003F01	230v 1/3	0.3 HP	1	Full	EMC Filter	0.25A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v .3hp Full IO Open EMC
HVFD1B0005F00	230v 1/3	0.5 HP	1	Full	No filter	0.37A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v .5hp Full IO Open No EMC
HVFD1B0005F01	230v 1/3	0.5 HP	1	Full	EMC Filter	0.37A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v .5hp Full IO Open EMC
HVFD1B0007F00	230v 1/3	0.7 HP	1	Full	No filter	0.55A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v .75hp Full IO Open No EMC
HVFD1B0007F01	230v 1/3	0.7 HP	1	Full	EMC Filter	0.55A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v .75hp Full IO Open EMC
HVFD1B0010F00	230v 1/3	1 HP	1	Full	No filter	0.75A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v 1hp Full IO Open No EMC
HVFD1B0010F01	230v 1/3	1 HP	1	Full	EMC Filter	0.75A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 1-Phase 208/230v 1hp Full IO Open EMC
HVFD1B0015F00	230v 1/3	1.5 HP	2	Full	No filter	1.1A	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 1-Phase 208/230v 1.5hp Full IO Open No EMC
HVFD1B0015F01	230v 1/3	1.5 HP	2	Full	EMC Filter	1.1A	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 1-Phase 208/230v 1.5hp Full IO Open EMC
HVFD1B0020F00	230v 1/3	2 HP	2	Full	No filter	1.5A	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 1-Phase 208/230v 2hp Full IO Open No EMC
HVFD1B0020F01	230v 1/3	2 HP	2	Full	EMC Filter	1.5A	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 1-Phase 208/230v 2hp Full IO Open EMC
HVFD1B0030F00	230v 1/3	3 HP	3	Full	No filter	2.2	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 1-Phase 208/230v 3hp Full IO Open No EMC
HVFD1B0030F01	230v 1/3	3 HP	3	Full	EMC Filter	2.2	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 1-Phase 208/230v 3hp Full IO Open EMC

# SmartVFD COMPACT

Product Number	Voltage	Horse-power	Frame Type	Software	Type of RFI Filter	Current Rating	Dimensions, Approximate		Weight		Description
							(mm)	(inch)	(kg)	(lb)	
HVFDCD3C0005F00	460v 3/3	0.5 HP	1	Full	No filter	0.37A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v .5hp Full IO Open No EMC
HVFDCD3C0005F01	460v 3/3	0.5 HP	1	Full	EMC Filter	0.37A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v .5hp Full IO Open EMC
HVFDCD3C0007F00	460v 3/3	0.7 HP	1	Full	No filter	0.55A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v .75hp Full IO Open No EMC
HVFDCD3C0007F01	460v 3/3	0.7 HP	1	Full	EMC Filter	0.55A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v .75hp Full IO Open EMC
HVFDCD3C0010F00	460v 3/3	1 HP	1	Full	No filter	0.75A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v 1hp Full IO Open No EMC
HVFDCD3C0010F01	460v 3/3	1 HP	1	Full	EMC Filter	0.75A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v 1hp Full IO Open EMC
HVFDCD3C0015F00	460v 3/3	1.5 HP	1	Full	No filter	1.1A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v 1.5hp Full IO Open No EMC
HVFDCD3C0015F01	460v 3/3	1.5 HP	1	Full	EMC Filter	1.1A	157 x 66 x 98	6.2 x 2.6 x 3.9	0.54 kg	1.2 lb	Compact VFD 3-Phase 460v 1.5hp Full IO Open EMC
HVFDCD3C0020F00	460v 3/3	2 HP	2	Full	No filter	1.5A	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 3-Phase 460v 2hp Full IO Open No EMC
HVFDCD3C0020F01	460v 3/3	2 HP	2	Full	EMC Filter	1.5A	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 3-Phase 460v 2hp Full IO Open EMC
HVFDCD3C0030F00	460v 3/3	3 HP	2	Full	No filter	2.2	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 3-Phase 460v 3hp Full IO Open No EMC
HVFDCD3C0030F01	460v 3/3	3 HP	2	Full	EMC Filter	2.2	195 mm x 90 mm x 102 mm	7.7 x 3.5 x 4	0.68 kg	1.5 lb	Compact VFD 3-Phase 460v 3hp Full IO Open EMC
HVFDCD3C0040F00	460v 3/3	4 HP	3	Full	No filter	3	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 3-Phase 460v 4hp Full IO Open No EMC
HVFDCD3C0040F01	460v 3/3	4 HP	3	Full	EMC Filter	3	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 3-Phase 460v 4hp Full IO Open EMC
HVFDCD3C0050F00	460v 3/3	5 HP	3	Full	No filter	4	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 3-Phase 460v 5hp Full IO Open No EMC
HVFDCD3C0050F01	460v 3/3	5 HP	3	Full	EMC Filter	4	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 3-Phase 460v 5hp Full IO Open EMC
HVFDCD3C0075F00	460v 3/3	7.5 HP	3	Full	No filter	5.5 A	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 3phase 460v 7.5hp Full-IO Open No EMC
HVFDCD3C0075F01	460v 3/3	7.5 HP	3	Full	EMC Filter	5.5 A	251 x 100 x 109	9.9 x 3.9 x 4.3	1 kg	2.2 lb	Compact VFD 3-Phase 460v 7.5hp Full IO Open EMC

## Compact Variable Frequency Drive Accessories

Product Number	Description
HVFDCABLE	Compact VFD Commissioning Cable And USB Adaptor
HVFDCDMCA	Compact VFD Commissioning Device
HVFDCDMCAKIT	Compact VFD Commissioning Kit
HVFDCDNEMA1FR1	Compact VFD NEMA 1 Kit
HVFDCDNEMA1FR2	Compact VFD NEMA 1 Kit
HVFDCDNEMA1FR3	Compact VFD NEMA 1 Kit
HVFDCDTRAINER	Compact VFD Training Demonstration Kit



## SmartVFD HVAC and SmartVFD BYPASS



The Honeywell SmartVFD HVAC and BYPASS are designed specifically for commercial buildings to deliver the energy savings that building owners and facility managers need. The SmartVFD HVAC makes installation and commissioning easy for you and energy savings easy for your customers.

- Start-up Wizards—All you have to do is tell the VFD whether you have a pump or a fan, enter nominal motor information, and you are up and running.
- Graphic Interface—The easy-to-use keypad and interface deliver menu-driven programming and monitoring for fast, uniform commissioning. It's also easy for the building owner or manager to learn and use, helping to reduce service calls. Plus, a manual is built into the keypad for easy access when needed.
- Built-in Communications—With BACnet®, N2 and Modbus built in, your customers will enjoy a lower total installed cost and reliable communications with the building management system.
- PC Software Wizards—Commissioning, programming and troubleshooting are all a snap thanks to these guided Startup and PID wizards.
- Built-in PLC—Another reason why SmartVFD HVAC is a great value for your customer, the built-in PLC eliminates the need for an expensive external controller.
- DC Choke for harmonic protection.
- Standard RIF Filter—Ensures that EMC/RFI requirements are met.
- Bypass Options—Meets specifications and system critical applications with a comprehensive bypass offering.
- Real-Time Clock—Battery included.
- Fire Mode for safe operation.
- Motor Switch Ride-Through--easy, fault-free maintenance.

**Drive Family:** SmartVFD HVAC  
**Acceleration time:** 0.1 - 3000 sec  
**Deceleration time:** .1 - 3000 sec  
**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential  
**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm  
**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm  
**Digital Output:** Open collector, max. load 48V/50mA  
**Continuous Output Current:**  
 overload 1.5 x High overload current (1min/10min)  
 overload 1.1 x Low overload current (1min/10min)

**Relay Output:** Max. switching load: 250Vac/2A or 250Vdc/0,4A  
**Reference Output Voltage:** Maximum Load 10mA  
**Auxiliary Voltage:** ± 20%, max. load 50 mA  
**Starting Torque:** Depends on the Motor  
**Peak Current:** 2 x IN, 2 secs in every 20 sec period  
**Frequency (Hz):** 0 Hz to 320 Hz  
**Operating Temperature:** (-10 to 50 C (14 to 122 F)  
**Type of RFI Filter:** EMC Filter

### SmartVFD HVAC

Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight		Description
						(mm)	(inch)	(kg)	(lb)	
HVFDSD3C0015G100	480 Vac	1.5 HP	4	NEMA 1	3.4A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 1
HVFDSD3C0015G200	480 Vac	1.5 HP	4	NEMA 12	3.4A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 12
HVFDSD3C0015G300	480 Vac	1.5 HP	4	NEMA 3R	3.4A	533x508x250	21x20x10	27.3 kg	60 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 3R
HVFDSD3C0020G100	480 Vac	2.0 HP	4	NEMA 1	4.8A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 2HP, Graphical, NEMA 1
HVFDSD3C0020G200	480 Vac	2.0 HP	4	NEMA 12	4.8A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 2HP, Graphical, NEMA 12
HVFDSD3C0020G300	480 Vac	2.0 HP	4	NEMA 3R	4.8A	533x508x250	21x20x10	27.3 kg	60 lb	VFD, 480vac, 2HP, Graphical, NEMA 3R
HVFDSD3C0030G100	480 Vac	3.0 HP	4	NEMA 1	5.6A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 3HP, Graphical, NEMA 1
HVFDSD3C0030G200	480 Vac	3.0 HP	4	NEMA 12	5.6A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 3HP, Graphical, NEMA 12
HVFDSD3C0030G300	480 Vac	3.0 HP	4	NEMA 3R	5.6A	533x508x250	21x20x10	27.3 kg	60 lb	VFD, 480vac, 3HP, Graphical, NEMA 3R
HVFDSD3C0040G100	480 Vac	4 HP	4	NEMA 1	8A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 4HP, Graphical, NEMA 1
HVFDSD3C0040G200	480 Vac	4 HP	4	NEMA 12	8A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 4HP, Graphical, NEMA 12
HVFDSD3C0040G300	480 Vac	4 HP	4	NEMA 3R	8A	533x508x250	21x20x10	27.3 kg	60 lb	VFD, 480vac, 4HP, Graphical, NEMA 3R
HVFDSD3C0050G100	480 Vac	5 HP	4	NEMA 1	9.6A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 5HP, Graphical, NEMA 1
HVFDSD3C0050G200	480 Vac	5 HP	4	NEMA 12	9.6A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 5HP, Graphical, NEMA 12
HVFDSD3C0050G300	480 Vac	5 HP	4	NEMA 3R	9.6A	533x508x250	21x20x10	27.3 kg	60 lb	VFD, 480vac, 5HP, Graphical, NEMA 3R
HVFDSD3C0075G100	480 Vac	7.5 HP	4	NEMA 1	12A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 1
HVFDSD3C0075G200	480 Vac	7.5 HP	4	NEMA 12	12A	128x328x190	5x13x7.5	5.9 kg	13 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 12
HVFDSD3C0075G300	480 Vac	7.5 HP	4	NEMA 3R	12A	533x508x250	21x20x10	27.3 kg	60 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 3R
HVFDSD3C0100G100	480 Vac	10 HP	5	NEMA 1	16A	144x419x214	5.5x16.5x8.5	10 kg	22 lb	VFD, 480vac, 10HP, Graphical, NEMA 1
HVFDSD3C0100G200	480 Vac	10 HP	5	NEMA 12	16A	144x419x214	5.5x16.5x8.5	10 kg	22 lb	VFD, 480vac, 10HP, Graphical, NEMA 12

# SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Current Rating	Dimensions, Approximate		Weight		Description
						(mm)	(inch)	(kg)	(lb)	
HVFSD3C0100G300	480 Vac	10 HP	5	NEMA 3R	16A	533x609x250	21x24x10	30.9 kg	68 lb	VFD, 480vac, 10HP, Graphical, NEMA 3R
HVFSD3C0150G100	480 Vac	15 HP	5	NEMA 1	23A	144x419x214	5.5x16.5x8.5	10 kg	22 lb	VFD, 480vac, 15HP, Graphical, NEMA 1
HVFSD3C0150G200	480 Vac	15 HP	5	NEMA 12	23A	144x419x214	5.5x16.5x8.5	10 kg	22 lb	VFD, 480vac, 15HP, Graphical, NEMA 12
HVFSD3C0150G300	480 Vac	15 HP	5	NEMA 3R	23A	533x609x250	21x24x10	30.9 kg	68 lb	VFD, 480vac, 15HP, Graphical, NEMA 3R
HVFSD3C0200G100	480 Vac	20 HP	5	NEMA 1	31A	144x419x214	5.5x16.5x8.5	10 kg	22 lb	VFD, 480vac, 20HP, Graphical, NEMA 1
HVFSD3C0200G200	480 Vac	20 HP	5	NEMA 12	31A	144x419x214	5.5x16.5x8.5	10 kg	22 lb	VFD, 480vac, 20HP, Graphical, NEMA 12
HVFSD3C0200G300	480 Vac	20 HP	5	NEMA 3R	31A	533x609x250	21x24x10	30.9 kg	68 lb	VFD, 480vac, 20HP, Graphical, NEMA 3R
HVFSD3C0250G100	480 Vac	25 HP	6	NEMA 1	38A	195x557x229	7.7x21.9x9	20 kg	44 lb	VFD, 480vac, 25HP, Graphical, NEMA 1
HVFSD3C0250G200	480 Vac	25 HP	6	NEMA 12	38A	195x557x229	7.7x21.9x9	20 kg	44 lb	VFD, 480vac, 25HP, Graphical, NEMA 12
HVFSD3C0250G300	480 Vac	25 HP	6	NEMA 3R	38A	863x914x305	34x36x12	62.3 kg	137 lb	VFD, 480vac, 25HP, Graphical, NEMA 3R
HVFSD3C0300G100	480 Vac	30 HP	6	NEMA 1	46A	195x557x229	7.7x21.9x9	20 kg	44 lb	VFD, 480vac, 30HP, Graphical, NEMA 1
HVFSD3C0300G200	480 Vac	30 HP	6	NEMA 12	46A	195x557x229	7.7x21.9x9	20 kg	44 lb	VFD, 480vac, 30HP, Graphical, NEMA 12
HVFSD3C0300G300	480 Vac	30 HP	6	NEMA 3R	46A	863x914x305	34x36x12	62.3 kg	137 lb	VFD, 480vac, 30HP, Graphical, NEMA 3R
HVFSD3C0400G100	480 Vac	40 HP	6	NEMA 1	61A	195x557x229	7.7x21.9x9	20 kg	44 lb	VFD, 480vac, 40HP, Graphical, NEMA 1
HVFSD3C0400G200	480 Vac	40 HP	6	NEMA 12	61A	195x557x229	7.7x21.9x9	20 kg	44 lb	VFD, 480vac, 40HP, Graphical, NEMA 12
HVFSD3C0400G300	480 Vac	40 HP	6	NEMA 3R	61A	863x914x305	34x36x12	62.3 kg	137 lb	VFD, 480vac, 40HP, Graphical, NEMA 3R

## SmartVFD BYPASS

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(mm)	(inch)	(kg)	(lb)	
HVFDSB3C0015G110	480 Vac	1.5 HP	4	NEMA 1	—	3.4A	—	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0015G120	480 Vac	1.5 HP	4	NEMA 1	BYPASS	3.4A	2 contactor	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0015G130	480 Vac	1.5 HP	4	NEMA 1	BYPASS	3.4A	3 contactor	226x983x272	8.9x38.7x10.7	20 kg	44 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0015G220	480 Vac	1.5 HP	4	NEMA 12	BYPASS	3.4A	2 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0015G231	480 Vac	1.5 HP	4	NEMA 12	Auto-Bypass	3.4A	3 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0015G320	480 Vac	1.5 HP	4	NEMA 3R	BYPASS	3.4A	2 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0015G332	480 Vac	1.5 HP	4	NEMA 3R	Auto-bypass and HOA	3.4A	3 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 1.5HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0020G110	480 Vac	2.0 HP	4	NEMA 1	—	4.8A	—	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 2HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0020G120	480 Vac	2.0 HP	4	NEMA 1	BYPASS	4.8A	2 contactor	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 2HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0020G130	480 Vac	2.0 HP	4	NEMA 1	BYPASS	4.8A	3 contactor	226x983x272	8.9x38.7x10.7	20 kg	44 lb	VFD, 480vac, 2HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0020G220	480 Vac	2.0 HP	4	NEMA 12	BYPASS	4.8A	2 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 2HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0020G231	480 Vac	2.0 HP	4	NEMA 12	Auto-Bypass	4.8A	3 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 2HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0020G320	480 Vac	2.0 HP	4	NEMA 3R	BYPASS	4.8A	2 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 2HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc

# SmartVFD HVAC

Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(mm)	(inch)	(kg)	(lb)	
HVFSB3C0020G332	480 Vac	2.0 HP	4	NEMA 3R	Auto-bypass and HOA	4.8A	3 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 2HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFSB3C0030G110	480 Vac	3.0 HP	4	NEMA 1	—	5.6A	—	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 3HP, Graphical, NEMA 1, Fused Disc Only,
HVFSB3C0030G120	480 Vac	3.0 HP	4	NEMA 1	BYPASS	5.6A	2 contactor	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 3HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFSB3C0030G130	480 Vac	3.0 HP	4	NEMA 1	BYPASS	5.6A	3 contactor	226x983x272	8.9x38.7x10.7	20 kg	44 lb	VFD, 480vac, 3HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFSB3C0030G220	480 Vac	3.0 HP	4	NEMA 12	BYPASS	5.6A	2 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 3HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFSB3C0030G231	480 Vac	3.0 HP	4	NEMA 12	Auto-Bypass	5.6A	3 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 3HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFSB3C0030G320	480 Vac	3.0 HP	4	NEMA 3R	BYPASS	5.6A	2 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 3HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFSB3C0030G332	480 Vac	3.0 HP	4	NEMA 3R	Auto-bypass and HOA	5.6A	3 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 3HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFSB3C0040G110	480 Vac	4 HP	4	NEMA 1	—	8A	—	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 4HP, Graphical, NEMA 1, Fused Disc Only,
HVFSB3C0040G120	480 Vac	4 HP	4	NEMA 1	BYPASS	8A	2 contactor	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 4HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFSB3C0040G130	480 Vac	4 HP	4	NEMA 1	BYPASS	8A	3 contactor	226x983x272	8.9x38.7x10.7	20 kg	44 lb	VFD, 480vac, 4HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFSB3C0040G220	480 Vac	4 HP	4	NEMA 12	BYPASS	8A	2 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 4HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFSB3C0040G231	480 Vac	4 HP	4	NEMA 12	Auto-Bypass	8A	3 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 4HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFSB3C0040G320	480 Vac	4 HP	4	NEMA 3R	BYPASS	8A	2 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 4HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFSB3C0040G332	480 Vac	4 HP	4	NEMA 3R	Auto-bypass and HOA	8A	3 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 4HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFSB3C0050G110	480 Vac	5 HP	4	NEMA 1	—	9.6A	—	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 5HP, Graphical, NEMA 1, Fused Disc Only,
HVFSB3C0050G120	480 Vac	5 HP	4	NEMA 1	BYPASS	9.6A	2 contactor	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 5HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFSB3C0050G130	480 Vac	5 HP	4	NEMA 1	BYPASS	9.6A	3 contactor	226x983x272	8.9x38.7x10.7	20 kg	44 lb	VFD, 480vac, 5HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFSB3C0050G220	480 Vac	5 HP	4	NEMA 12	BYPASS	9.6A	2 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 5HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFSB3C0050G231	480 Vac	5 HP	4	NEMA 12	Auto-Bypass	9.6A	3 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 5HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFSB3C0050G320	480 Vac	5 HP	4	NEMA 3R	BYPASS	9.6A	2 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 5HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFSB3C0050G332	480 Vac	5 HP	4	NEMA 3R	Auto-bypass and HOA	9.6A	3 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 5HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

# SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(mm)	(inch)	(kg)	(lb)	
HVFDSB3C0075G110	480 Vac	7.5 HP	4	NEMA 1	—	12A	—	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0075G120	480 Vac	7.5 HP	4	NEMA 1	BYPASS	12A	2 contactor	226x805x272	8.9x31.7x10.7	17.3 kg	38 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0075G130	480 Vac	7.5 HP	4	NEMA 1	BYPASS	12A	3 contactor	226x983x272	8.9x38.7x10.7	20 kg	44 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0075G220	480 Vac	7.5 HP	4	NEMA 12	BYPASS	12A	2 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0075G231	480 Vac	7.5 HP	4	NEMA 12	Auto-Bypass	12A	3 contactor	406x914x254	16x36x10	24.1 kg	53 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0075G320	480 Vac	7.5 HP	4	NEMA 3R	BYPASS	12A	2 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0075G332	480 Vac	7.5 HP	4	NEMA 3R	Auto-bypass and HOA	12A	3 contactor	508x609x254	20x24x10	24.5 kg	54 lb	VFD, 480vac, 7.5HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0100G110	480 Vac	10 HP	5	NEMA 1	—	16A	—	226x876x272	8.9x34.5x10.7	25 kg	55 lb	VFD, 480vac, 10HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0100G120	480 Vac	10 HP	5	NEMA 1	BYPASS	16A	2 contactor	226x876x272	8.9x34.5x10.7	25 kg	55 lb	VFD, 480vac, 10HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0100G130	480 Vac	10 HP	5	NEMA 1	BYPASS	16A	3 contactor	226x1054x272	8.9x41.5x10.7	21.8 kg	48 lb	VFD, 480vac, 10HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0100G220	480 Vac	10 HP	5	NEMA 12	BYPASS	16A	2 contactor	406x914x254	16x36x10	29.1 kg	64 lb	VFD, 480vac, 10HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0100G231	480 Vac	10 HP	5	NEMA 12	Auto-Bypass	16A	3 contactor	406x914x254	16x36x10	29.1 kg	64 lb	VFD, 480vac, 10HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0100G320	480 Vac	10 HP	5	NEMA 3R	BYPASS	16A	2 contactor	609x752x254	24x30x10	35.5 kg	78 lb	VFD, 480vac, 10HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0100G332	480 Vac	10 HP	5	NEMA 3R	Auto-bypass and HOA	16A	3 contactor	609x752x254	24x30x10	35.5 kg	78 lb	VFD, 480vac, 10HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0150G110	480 Vac	15 HP	5	NEMA 1	—	23A	—	226x876x272	8.9x34.5x10.7	25 kg	55 lb	VFD, 480vac, 15HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0150G120	480 Vac	15 HP	5	NEMA 1	BYPASS	23A	2 contactor	226x876x272	8.9x34.5x10.7	25 kg	55 lb	VFD, 480vac, 15HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0150G130	480 Vac	15 HP	5	NEMA 1	BYPASS	23A	3 contactor	226x1054x272	8.9x41.5x10.7	21.8 kg	48 lb	VFD, 480vac, 15HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0150G220	480 Vac	15 HP	5	NEMA 12	BYPASS	23A	2 contactor	406x914x254	16x36x10	29.1 kg	64 lb	VFD, 480vac, 15HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0150G231	480 Vac	15 HP	5	NEMA 12	Auto-Bypass	23A	3 contactor	406x914x254	16x36x10	29.1 kg	64 lb	VFD, 480vac, 15HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0150G320	480 Vac	15 HP	5	NEMA 3R	BYPASS	23A	2 contactor	609x752x254	24x30x10	35.5 kg	78 lb	VFD, 480vac, 15HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0150G332	480 Vac	15 HP	5	NEMA 3R	Auto-bypass and HOA	23A	3 contactor	609x752x254	24x30x10	35.5 kg	78 lb	VFD, 480vac, 15HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

# SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(mm)	(inch)	(kg)	(lb)	
HVFDSB3C0200G110	480 Vac	20 HP	5	NEMA 1	—	31A	—	226x876x272	8.9x34.5x10.7	25 kg	55 lb	VFD, 480vac, 20HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0200G120	480 Vac	20 HP	5	NEMA 1	BYPASS	31A	2 contactor	226x876x272	8.9x34.5x10.7	25 kg	55 lb	VFD, 480vac, 20HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0200G130	480 Vac	20 HP	5	NEMA 1	BYPASS	31A	3 contactor	226x1054x272	8.9x41.5x10.7	21.8 kg	48 lb	VFD, 480vac, 20HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0200G220	480 Vac	20 HP	5	NEMA 12	BYPASS	31A	2 contactor	406x1118x254	16x44x10	31.8 kg	70 lb	VFD, 480vac, 20HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0200G231	480 Vac	20 HP	5	NEMA 12	Auto-Bypass	31A	3 contactor	406x1118x254	16x44x10	31.8 kg	70 lb	VFD, 480vac, 20HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0200G320	480 Vac	20 HP	5	NEMA 3R	BYPASS	31A	2 contactor	609x752x254	24x30x10	35.5 kg	78 lb	VFD, 480vac, 20HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0200G332	480 Vac	20 HP	5	NEMA 3R	Auto-bypass and HOA	31A	3 contactor	609x752x254	24x30x10	35.5 kg	78 lb	VFD, 480vac, 20HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0250G110	480 Vac	25 HP	6	NEMA 1	—	38A	—	314x1143x320	12.4x45x12.6	38.6 kg	85 lb	VFD, 480vac, 25HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0250G120	480 Vac	25 HP	6	NEMA 1	BYPASS	38A	2 contactor	314x1143x320	12.4x45x12.6	38.6 kg	85 lb	VFD, 480vac, 25HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0250G130	480 Vac	25 HP	6	NEMA 1	BYPASS	38A	3 contactor	314x1397x320	12.4x55x12.6	43.6 kg	96 lb	VFD, 480vac, 25HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0250G220	480 Vac	25 HP	6	NEMA 12	BYPASS	38A	2 contactor	406x1270x254	16x50x10	54.5 kg	120 lb	VFD, 480vac, 25HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0250G231	480 Vac	25 HP	6	NEMA 12	Auto-Bypass	38A	3 contactor	406x1270x254	16x50x10	54.5 kg	120 lb	VFD, 480vac, 25HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0250G320	480 Vac	25 HP	6	NEMA 3R	BYPASS	38A	2 contactor	762x914x305	30x36x12	56.4 kg	124 lb	VFD, 480vac, 25HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0250G332	480 Vac	25 HP	6	NEMA 3R	Auto-bypass and HOA	38A	3 contactor	762x914x305	30x36x12	56.4 kg	124 lb	VFD, 480vac, 25HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA
HVFDSB3C0300G110	480 Vac	30 HP	6	NEMA 1	—	46A	—	314x1143x320	12.4x45x12.6	38.6 kg	85 lb	VFD, 480vac, 30HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0300G120	480 Vac	30 HP	6	NEMA 1	BYPASS	46A	2 contactor	314x1143x320	12.4x45x12.6	38.6 kg	85 lb	VFD, 480vac, 30HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0300G130	480 Vac	30 HP	6	NEMA 1	BYPASS	46A	3 contactor	314x1397x320	12.4x55x12.6	43.6 kg	96 lb	VFD, 480vac, 30HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0300G220	480 Vac	30 HP	6	NEMA 12	BYPASS	46A	2 contactor	406x1270x254	16x50x10	54.5 kg	120 lb	VFD, 480vac, 30HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0300G231	480 Vac	30 HP	6	NEMA 12	Auto-Bypass	46A	3 contactor	406x1270x254	16x50x10	54.5 kg	120 lb	VFD, 480vac, 30HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0300G320	480 Vac	30 HP	6	NEMA 3R	BYPASS	46A	2 contactor	762x914x305	30x36x12	56.4 kg	124 lb	VFD, 480vac, 30HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0300G332	480 Vac	30 HP	6	NEMA 3R	Auto-bypass and HOA	46A	3 contactor	762x914x305	30x36x12	56.4 kg	124 lb	VFD, 480vac, 30HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

# SmartVFD HVAC

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Bypass	Current Rating	Contactor	Dimensions, Approximate		Weight		Description
								(mm)	(inch)	(kg)	(lb)	
HVFDSB3C0400G110	480 Vac	40 HP	6	NEMA 1	—	61A	—	314x114 3x320	12.4x45x 12.6	38.6 kg	85 lb	VFD, 480vac, 40HP, Graphical, NEMA 1, Fused Disc Only,
HVFDSB3C0400G120	480 Vac	40 HP	6	NEMA 1	BYPASS	61A	2 contactor	314x114 3x320	12.4x45x 12.6	38.6 kg	85 lb	VFD, 480vac, 40HP, Graphical, NEMA 1, 2 Cont. Bypass, No Disc
HVFDSB3C0400G130	480 Vac	40 HP	6	NEMA 1	BYPASS	61A	3 contactor	314x139 7x320	12.4x55x 12.6	43.6 kg	96 lb	VFD, 480vac, 40HP, Graphical, NEMA 1, 3 Cont. Bypass, Fused Disc
HVFDSB3C0400G220	480 Vac	40 HP	6	NEMA 12	BYPASS	61A	2 contactor	508x137 1x254	20x54x10	61.8 kg	136 lb	VFD, 480vac, 40HP, Graphical, NEMA 12, 2 Cont. Bypass, No Disc
HVFDSB3C0400G231	480 Vac	40 HP	6	NEMA 12	Auto-Bypass	61A	3 contactor	508x137 1x254	20x54x10	61.8 kg	136 lb	VFD, 480vac, 40HP, Graphical, NEMA 12, 3 Cont. Bypass, Fused Disc, Auto-bypass
HVFDSB3C0400G320	480 Vac	40 HP	6	NEMA 3R	BYPASS	61A	2 contactor	762x914 x305	30x36x12	56.4 kg	124 lb	VFD, 480vac, 40HP, Graphical, NEMA 3R, 2 Cont. Bypass, No Disc
HVFDSB3C0400G332	480 Vac	40 HP	6	NEMA 3R	Auto-bypass and HOA	61A	3 contactor	762x914 x305	30x36x12	56.4 kg	124 lb	VFD, 480vac, 40HP, Graphical, NEMA 3R, 3 Cont. Bypass, Fused Disc, Auto-bypass and HOA

## NXL Variable Frequency Drives



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Multi-Control applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2599, Users Manual, Technical Data sections).
- Open Chassis, NEMA 1 and NEMA 12 enclosures.
- Compact Size.
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus Standard

### Drive Family: NXL

**Acceleration time:** 0 - 3000 sec

**Deceleration time:** 0 - 3000 sec

**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential

**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm

**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm

**Digital Output:** 50 mA/48v open collector

### Continous Output Current:

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

**Relay Output:** 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

**Reference Output Voltage:** +10V, +3%, max 10mA

**Auxiliary Voltage:** 24V,  $\pm$  15%, max 250 mA

**Starting Current:** 2 x high overload current,  
2 seconds every 20 seconds

**Starting Torque:** 200% High; 150% Low

**Frequency:** 0 Hz to 320 Hz

### Operating Temperature:

High Overload -10 to 50 (High Overload 14 to 122)

Low Overload -10 to 40(Low Overload 14 to 104)

**Type of RFI Filter:** Industrial filter

**Layout:** Stand-alone drive

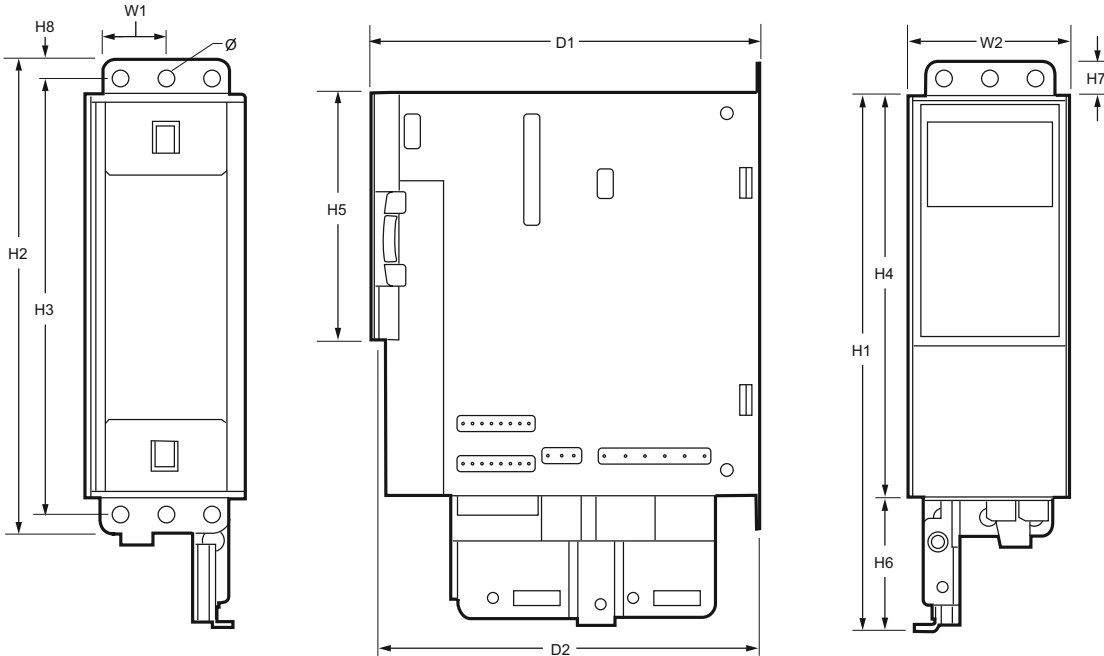
**Bypass:** Drive only, no bypass

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Amp Rating, Ivt (A)	Dimensions, Approximate		Weight	
						(mm)	(inch)	(kg)	(lb)
NXL0005B1006	208 Vac; 230 Vac	0.5 HP	MF2	Open Chassis	2.4 A	61 x 130 x 150	2.4 x 5.1 x 5.9	0.99 kg	2.2 lb
NXL0007B1004	208 Vac; 230 Vac	0.75 HP	MF3	Open Chassis	3.7 A	83.8 x 185.4 x 175.3	3.3 in. x 7.3 in. x 6.9 in.	1.9 kg	4.19 lb
NXL0010B1009	208 Vac; 230 Vac	1 HP	MF3	Open Chassis	4.8 A	83.8 x 185.4 x 175.3	3.3 in. x 7.3 in. x 6.9 in.	1.9 kg	4.19 lb
NXL0007A1006	460 Vac	0.75 HP	MF2	Open Chassis	1.9 A	61 x 130 x 150	2.4 x 5.1 x 5.9	0.99 kg	2.2 lb
NXL0010A1001	460 Vac	1 HP	MF2	Open Chassis	2.4 A	61 x 130 x 150	2.4 x 5.1 x 5.9	0.99 kg	2.2 lb
NXL0015A1006	460 Vac	1.5 HP	MF3	Open Chassis	3.3 A	83.8 x 185.4 x 175.3	3.3 in. x 7.3 in. x 6.9 in.	1.9 kg	4.19 lb
NXL0015A1014	460 Vac	1.5 HP	MF3	NEMA 1	3.3 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0015A1204	460 Vac	1.5 HP	MF3	NEMA 12	3.3 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0020A1017	460 Vac	2 HP	MF3	NEMA 1	4.3 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0020A1207	460 Vac	2 HP	MF3	NEMA 12	4.3 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0030A1015	460 Vac	3 HP	MF3	NEMA 1	5.6 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0030A1205	460 Vac	3 HP	MF3	NEMA 12	5.6 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0040A1005	460 Vac	4 HP	MF4	NEMA 1	7.6 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0040A1203	460 Vac	4 HP	MF4	NEMA 12	7.6 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0050A1002	460 Vac	5 HP	MF4	NEMA 1	9.0 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0050A1200	460 Vac	5 HP	MF4	NEMA 12	9.0 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0075A1003	460 Vac	7.5 HP	MF4	NEMA 1	12.0 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0075A1201	460 Vac	7.5 HP	MF4	NEMA 12	12.0 A	128 x 292 x 190	5 x 11.5 x 7.5	5.0 kg	11 lb
NXL0100A1002	460 Vac	10 HP	MF5	NEMA 1	16.0 A	144 x 391 x 214	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXL0100A1200	460 Vac	10 HP	MF5	NEMA 12	16.0 A	144 x 391 x 214	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXL0150A1001	460 Vac	15 HP	MF5	NEMA 1	23.0 A	144 x 391 x 214	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXL0150A1209	460 Vac	15 HP	MF5	NEMA 12	23.0 A	144 x 391 x 214	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXL0200A1001	460 Vac	20 HP	MF5	NEMA 1	31.0 A	144 x 391 x 214	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXL0200A1209	460 Vac	20 HP	MF5	NEMA 12	31.0 A	144 x 391 x 214	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXL0250A1000	460 Vac	25 HP	MF6	NEMA 1	38.0 A	195 x 519 x 237	7.7 x 20.4 x 9.1	19.0 kg	41.8 lb

# Variable Frequency Drives

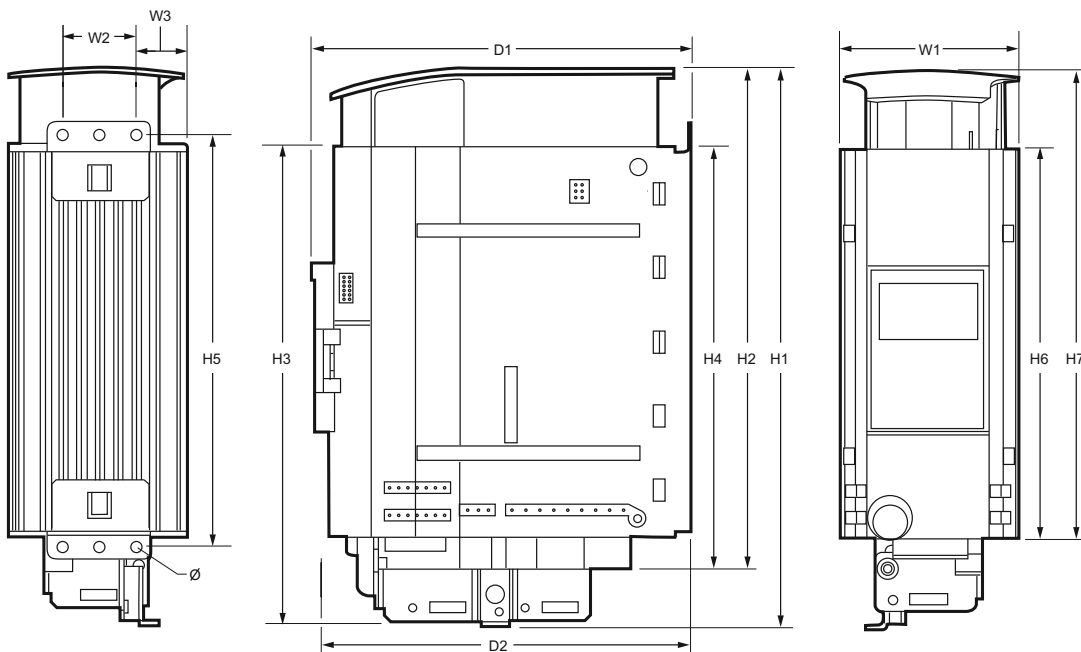
Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Amp Rating, lvt (A)	Dimensions, Approximate		Weight	
						(mm)	(inch)	(kg)	(lb)
NXL0250A1208	460 Vac	25 HP	MF6	NEMA 12	38.0 A	195 x 519 x 237	7.7 x 20.4 x 9.1	19.0 kg	41.8 lb
NXL0300A1000	460 Vac	30 HP	MF6	NEMA 1	46.0 A	195 x 519 x 237	7.7 x 20.4 x 9.2	19.0 kg	41.8 lb
NXL0300A1208	460 Vac	30 HP	MF6	NEMA 12	46.0 A	195 x 519 x 237	7.7 x 20.4 x 9.2	19.0 kg	41.8 lb
NXL0400A1009	460 Vac	40 HP	MF6	NEMA 1	61.0 A	195 x 519 x 237	7.7 x 20.4 x 9.3	19.0 kg	41.8 lb

Dimensions in millimeters (inches)



TYPE	DIMENSIONS (INCH)													
	W1	W2	H1	H2	H3	H4	H5	H6	H7	H8	D1	D2	Ø	
MF2	1.18	2.36	6.77	5.98	5.51	5.12	3.15	1.65	0.43	0.24	5.91	5.67	0.24	

M19555



TYPE	DIMENSIONS (INCH)												
	W1	W2	W3	H1	H2	H3	H4	H5	H6	H7	D1	D2	Ø
MF3	1.31	1.38	0.91	10.31	9.25	8.78	7.83	7.60	7.24	8.66	6.77	6.54	0.24

M19556



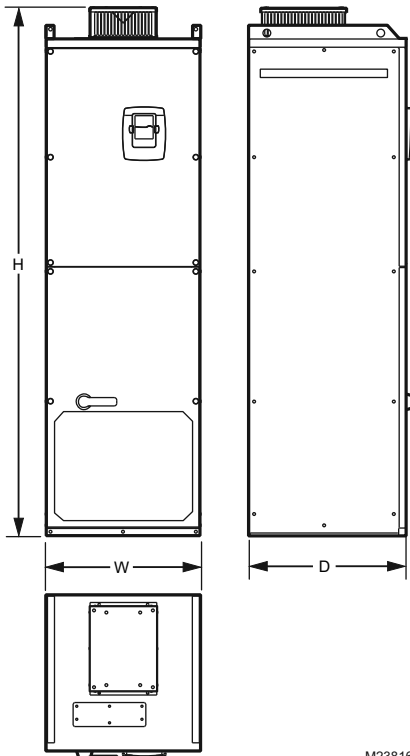
## NXP Variable Frequency Drives



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices are free-standing to ensure secure installation.
- Insulated gate bi-polar transistor (IGBT) technology.

Dimensions in millimeters (inches)



M23816

**Drive Family:** NXP

**Acceleration time:** 0 - 3000 sec

**Deceleration time:** 0 - 3000 sec

**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential

**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm

**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm

**Digital Output:** 50 mA/48v open collector

**Continuous Output Current:**

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

**Relay Output:** 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

**Reference Output Voltage:** +10V, +3%, max 10mA

**Auxiliary Voltage:** 24V, ± 15%, max 250 mA

**Starting Current:** 2 x high overload current,  
2 seconds every 20 seconds

**Starting Torque:** 200% High; 150% Low

**Frequency:** 0 Hz to 320 Hz

**Operating Temperature:**

High Overload -10 to 50 (High Overload 14 to 122)

Low Overload -10 to 40 (Low Overload 14 to 104)

**Type of RFI Filter:** Industrial filter

**Layout:** Stand-alone drive

**Bypass:** Drive only, no bypass

Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Amp Rating, Ivt (A)	Dimensions, Approximate		Weight	
						(mm)	(inch)	(kg)	(lb)
NXP3000A1003	460 Vac	300 HP	FR10	NEMA 1	385 A	595 x 2018 x 602	23.4 x 79.5 x 23.7	270.0 kg	595.25 lb
NXP3500A1008	460 Vac	350 HP	FR10	NEMA 1	460 A	595 x 2018 x 602	23.4 x 79.5 x 23.7	270.0 kg	595.25 lb
NXP4500A1006	460 Vac	450 HP	FR10	NEMA 1	520 A	595 x 2018 x 602	23.4 x 79.5 x 23.7	270.0 kg	595.25 lb

# Variable Frequency Drives

## NXS Variable Frequency Drives



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2600, Users Manual, Technical Data sections).
- Compact Size.
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus, BacNet, Device Net, Profibus, LobBus, NS available as options cards.

### Drive Family: NXS

**Acceleration time:** 0 - 3000 sec

**Deceleration time:** 0 - 3000 sec

**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential

**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm

**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm

**Digital Output:** 50 mA/48v open collector

**Continuous Output Current:**

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

**Relay Output:** 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

**Reference Output Voltage:** +10V, +3%, max 10mA

**Auxiliary Voltage:** 24V, ± 15%, max 250 mA

**Starting Current:** 2 x high overload current, 2 seconds every 20 seconds

**Starting Torque:** 200% High; 150% Low

**Frequency:** 0 Hz to 320 Hz

**Operating Temperature:**

High Overload -10 to 50 (High Overload 14 to 122)

Low Overload -10 to 40 (Low Overload 14 to 104)

**Type of RFI Filter:** Industrial filter

**Layout:** Stand-alone drive

**Bypass:** Drive only, no bypass

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Amp Rating, lvt (A)	Dimensions, Approximate		Weight	
						(mm)	(inch)	(kg)	(lb)
NXS0010B1000	208 Vac; 230 Vac	1 HP	FR4	NEMA 1	4.8 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0015B1005	208 Vac; 230 Vac	1.5 HP	FR4	NEMA 1	6.6 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0015B1203	208 Vac; 230 Vac	1.5 HP	FR4	NEMA 12	6.6 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0020B1008	208 Vac; 230 Vac	2 HP	FR4	NEMA 1	7.8 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0020B1206	208 Vac; 230 Vac	2 HP	FR4	NEMA 12	7.8 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0030B1006	208 Vac; 230 Vac	3 HP	FR4	NEMA 1	11.0 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0040B1004	208 Vac; 230 Vac	4 HP	FR4	NEMA 1	12.5 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	8.1 kg	17.9 lb
NXS0040B1202	208 Vac; 230 Vac	4 HP	FR4	NEMA 12	12.5 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	8.1 kg	17.9 lb
NXS0050B1001	208 Vac; 230 Vac	5 HP	FR5	NEMA 1	17.5 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0050B1209	208 Vac; 230 Vac	5 HP	FR5	NEMA 12	17.5 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0075B1002	208 Vac; 230 Vac	7.5 HP	FR5	NEMA 1	25 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0075B1200	208 Vac; 230 Vac	7.5 HP	FR5	NEMA 12	25 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0100B1001	208 Vac; 230 Vac	10 HP	FR5	NEMA 1	31.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	18.5 kg	40.8 lb
NXS0100B1209	208 Vac; 230 Vac	10 HP	FR5	NEMA 12	31.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	18.5 kg	40.8 lb
NXS0150B1000	208 Vac; 230 Vac	15 HP	FR6	NEMA 1	48 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0150B1208	208 Vac; 230 Vac	15 HP	FR6	NEMA 12	48 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0200B1000	208 Vac; 230 Vac	20 HP	FR6	NEMA 1	61.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	35.0 kg	77.2 lb
NXS0200B1208	208 Vac; 230 Vac	20 HP	FR6	NEMA 12	61.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	35.0 kg	77.2 lb
NXS0250B1009	208 Vac; 230 Vac	25 HP	FR7	NEMA 1	75 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0300B1009	208 Vac; 230 Vac	30 HP	FR7	NEMA 1	88 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0400B1008	208 Vac; 230 Vac	40 HP	FR8	NEMA 1	114 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	58.0 kg	127.9 lb
NXS0500B1007	208 Vac; 230 Vac	50 HP	FR8	NEMA 1	143 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0500B1205	208 Vac; 230 Vac	50 HP	FR8	NEMA 12	143 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb

# Variable Frequency Drives

Product Number	Voltage	Horsepower	Frame Type	Type of Enclosure	Amp Rating, lvt (A)	Dimensions, Approximate		Weight	
						(mm)	(inch)	(kg)	(lb)
NXS0600B1006	208 Vac; 230 Vac	60 HP	FR8	NEMA 1	169 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0600B1204	208 Vac; 230 Vac	60 HP	FR8	NEMA 12	169 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0750B1004	208 Vac; 230 Vac	75 HP	FR8	NEMA 1	205 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0030B1204	230 Vac	3 HP	FR4	NEMA 12	11.0 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0100S1001	230 Vac	10 HP	FR5	NEMA 1	31.0 A	279 x 1168 x 279	11 x 46 x 11	28.1 kg	62 lb
NXS0015A1007	460 Vac	1.5 HP	FR4	NEMA 1	3.3 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0015A1205	460 Vac	1.5 HP	FR4	NEMA 12	3.3 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0020A1000	460 Vac	2 HP	FR4	NEMA 1	4.3 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0020A1208	460 Vac	2 HP	FR4	NEMA 12	4.3 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0030A1008	460 Vac	3 HP	FR4	NEMA 1	5.6 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0030A1206	460 Vac	3 HP	FR4	NEMA 12	5.6 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0040A1006	460 Vac	4 HP	FR4	NEMA 1	7.6 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0040A1204	460 Vac	4 HP	FR4	NEMA 12	7.6 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0050A1003	460 Vac	5 HP	FR4	NEMA 1	9.0 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0050A1201	460 Vac	5 HP	FR4	NEMA 12	9.0 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0075A1004	460 Vac	7.5 HP	FR4	NEMA 1	12.0 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0075A1202	460 Vac	7.5 HP	FR4	NEMA 12	12.0 A	137.2 x 292.1 x 190.5	5.4 x 11.5 x 7.5	5.0 kg	11 lb
NXS0100A1003	460 Vac	10 HP	FR5	NEMA 1	16.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0100A1201	460 Vac	10 HP	FR5	NEMA 12	16.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0150A1002	460 Vac	15 HP	FR5	NEMA 1	23.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0150A1200	460 Vac	15 HP	FR5	NEMA 12	23.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0200A1002	460 Vac	20 HP	FR5	NEMA 1	31.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0200A1200	460 Vac	20 HP	FR5	NEMA 12	31.0 A	144.8 x 391.2 x 213.4	5.7 x 15.4 x 8.4	8.1 kg	17.9 lb
NXS0250A1001	460 Vac	25 HP	FR6	NEMA 1	38.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0250A1209	460 Vac	25 HP	FR6	NEMA 12	38.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0300A1001	460 Vac	30 HP	FR6	NEMA 1	46.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0300A1209	460 Vac	30 HP	FR6	NEMA 12	46.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0400A1000	460 Vac	40 HP	FR6	NEMA 1	61.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0400A1208	460 Vac	40 HP	FR6	NEMA 12	61.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0500A1009	460 Vac	50 HP	FR7	NEMA 1	72 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0500A1207	460 Vac	50 HP	FR7	NEMA 12	72 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0600A1008	460 Vac	60 HP	FR7	NEMA 1	87 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0600A1206	460 Vac	60 HP	FR7	NEMA 12	87 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0750A1006	460 Vac	75 HP	FR7	NEMA 1	105 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0750A1204	460 Vac	75 HP	FR7	NEMA 12	105 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS1000A1002	460 Vac	100 HP	FR8	NEMA 1	140 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1000A1200	460 Vac	100 HP	FR8	NEMA 12	140 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1250A1009	460 Vac	125 HP	FR8	NEMA 1	170 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1250A1207	460 Vac	125 HP	FR8	NEMA 12	170 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1500A1007	460 Vac	150 HP	FR8	NEMA 1	205 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1500A1205	460 Vac	150 HP	FR8	NEMA 12	205 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS2000A1000	460 Vac	200 HP	FR9	NEMA 1	261 A	480 x 1150 x 362	18.9 x 45.3 x 14.3	146.0 kg	321.9 lb
NXS0030C1004	575 Vac	3 HP	FR6	NEMA 1	4.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0030C1202	575 Vac	3 HP	FR6	NEMA 12	4.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0040C1002	575 Vac	4 HP	FR6	NEMA 1	5.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0040C1200	575 Vac	4 HP	FR6	NEMA 12	5.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0050C1009	575 Vac	5 HP	FR6	NEMA 1	7.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0050C1207	575 Vac	5 HP	FR6	NEMA 12	7.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0075C1000	575 Vac	7.5 HP	FR6	NEMA 1	10.0 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0075C1208	575 Vac	7.5 HP	FR6	NEMA 12	10.0 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb

# Variable Frequency Drives

Product Number	Voltage	Horse-power	Frame Type	Type of Enclosure	Amp Rating, lvt (A)	Dimensions, Approximate		Weight	
						(mm)	(inch)	(kg)	(lb)
NXS0100C1009	575 Vac	10 HP	FR6	NEMA 1	13.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0100C1207	575 Vac	10 HP	FR6	NEMA 12	13.5 A	195 x 519 x 237	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0150C1008	575 Vac	15 HP	FR6	NEMA 1	18.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0150C1206	575 Vac	15 HP	FR6	NEMA 12	18.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0200C1008	575 Vac	20 HP	FR6	NEMA 1	22.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0200C1206	575 Vac	20 HP	FR6	NEMA 12	22.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0250C1007	575 Vac	25 HP	FR6	NEMA 1	27.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0250C1205	575 Vac	25 HP	FR6	NEMA 12	27.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0300C1007	575 Vac	30 HP	FR6	NEMA 1	34.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0300C1205	575 Vac	30 HP	FR6	NEMA 12	34.0 A	195.6 x 518.2 x 236.2	7.7 x 20.4 x 9.3	18.5 kg	40.8 lb
NXS0400C1006	575 Vac	40 HP	FR7	NEMA 1	41.0 A	406 x 1575 x 330	16 x 62 x 12	35.0 kg	77.2 lb
NXS0400C1204	575 Vac	40 HP	FR7	NEMA 12	41.0 A	236.2 x 519.9 x 256.5	9.3 x 23.3 x 10.1	35.0 kg	77.2 lb
NXS0500C1005	575 Vac	50 HP	FR7	NEMA 1	52 A	406 x 1575 x 330	16 x 62 x 12	35.0 kg	77.2 lb
NXS0500C1203	575 Vac	50 HP	FR7	NEMA 12	52 A	406 x 1575 x 330	16 x 62 x 12	35.0 kg	77.2 lb
NXS0600C1004	575 Vac	60 HP	FR8	NEMA 1	62 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0600C1202	575 Vac	60 HP	FR8	NEMA 12	62 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0750C1002	575 Vac	75 HP	FR8	NEMA 1	80 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS0750C1200	575 Vac	75 HP	FR8	NEMA 12	80 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1000C1008	575 Vac	100 HP	FR8	NEMA 1	100 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1000C1206	575 Vac	100 HP	FR8	NEMA 12	100 A	284.5 x 721.4 x 312.4	11.2 x 28.4 x 12.3	58.0 kg	127.9 lb
NXS1250C1005	575 Vac	125 HP	FR9	NEMA 1	125 A	480 x 1150 x 362	18.9 x 45.3 x 14.3	146.0 kg	321.9 lb
NXS1250C1203	575 Vac	125 HP	FR9	NEMA 12	125 A	480 x 1150 x 362	18.9 x 45.3 x 14.3	146.0 kg	321.9 lb
NXS1500C1003	575 Vac	150 HP	FR9	NEMA 1	144 A	480 x 1150 x 362	18.9 x 45.3 x 14.3	146.0 kg	321.9 lb
NXS1500C1201	575 Vac	150 HP	FR9	NEMA 12	144 A	480 x 1150 x 362	18.9 x 45.3 x 14.3	146.0 kg	321.9 lb

# Variable Frequency Drives

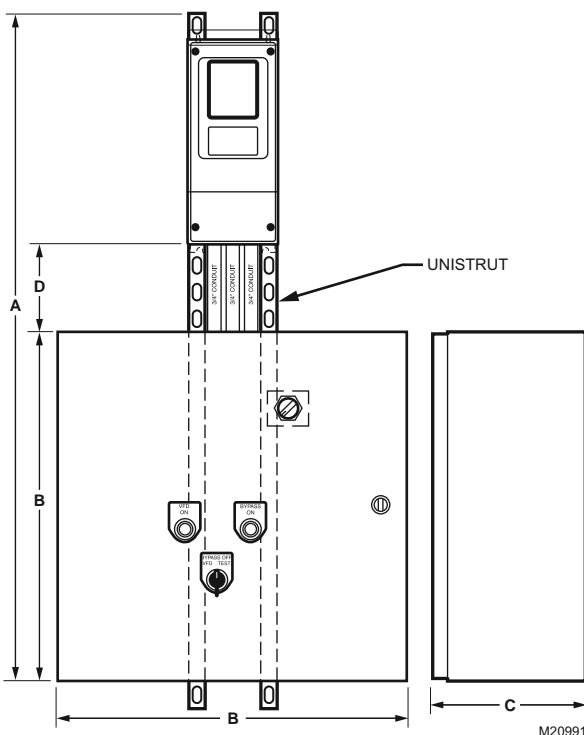
## NXL Variable Frequency Drives with Cool Blue bypass



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Multi-Control applications built in.
- Easy commissioning through software or control panel.
- Eleven protective functions (see Form 63-2599, Users Manual, Technical Data sections).
- NEMA 1 and NEMA 12 enclosures available.
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus Standard

### Dimensions in millimeters (inches)



### Drive Family: NXL

**Acceleration time:** 0 - 3000 sec

**Deceleration time:** 0 - 3000 sec

**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential

**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm

**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm

**Digital Output:** 50 mA/48v open collector

### Continuous Output Current:

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

**Relay Output:** 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

**Reference Output Voltage:** +10V, +3%, max 10mA

**Auxiliary Voltage:** 24V, ± 15%, max 250 mA

**Starting Current:** 2 x high overload current,  
2 seconds every 20 seconds

**Starting Torque:** 200% High; 150% Low

**Frequency:** 0 Hz to 320 Hz

### Operating Temperature:

High Overload -10 to 50 (High Overload 14 to 122)

Low Overload -10 to 40 (Low Overload 14 to 104)

**Type of RFI Filter:** Industrial filter

**Layout:** Vertical

**Bypass:** Cool Blue

# Variable Frequency Drives

460 Voltage

Type of Enclosure: NEMA 1

Product Number	Horsepower	Frame Type	Amp Rating, Ivt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
										(mm)	(inch)	(kg)	(lb)
NXBJ0015CL10200000	1.5 HP	FR4	3.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0015CL103F1110	1.5 HP	FR4	3.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CL10200000	2 HP	FR4	4.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CL103F1110	2 HP	FR4	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CL10200000	3 HP	FR4	5.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CL103F1110	3 HP	FR4	5.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CL10200000	4 HP	FR4	7.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CL103F1110	4 HP	FR4	7.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CL10200000	5 HP	FR4	0.37 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CL103F1110	5 HP	FR4	0.37 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CL10200000	7.5 HP	FR4	0	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CL103F1110	7.5 HP	FR4	0	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0100CL10200000	10 HP	FR5	16 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0100CL103F1110	10 HP	FR5	16 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CL10200000	15 HP	FR5	23 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CL103F1110	15 HP	FR5	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CL10200000	20 HP	FR5	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CL103F1110	20 HP	FR5	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0250CL10200000	25 HP	FR6	38 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0250CL103F1110	25 HP	FR6	38 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CL10200000	30 HP	FR6	46 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CL103F1110	30 HP	FR6	46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CL10200000	40 HP	FR6	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CL103F1110	40 HP	FR6	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb

460 Voltage

Type of Enclosure: NEMA 12

Product Number	Horsepower	Frame Type	Amp Rating, Ivt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
										(mm)	(inch)	(kg)	(lb)
NXBJ0015CL20200000	1.5 HP	FR4	3.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0015CL203F1110	1.5 HP	FR4	3.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CL20200000	2 HP	FR4	4.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CL203F1110	2 HP	FR4	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CL20200000	3 HP	FR4	5.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CL203F1110	3 HP	FR4	5.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb

# Variable Frequency Drives

Product Number	Horsepower	Frame Type	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
										(mm)	(inch)	(kg)	(lb)
NXBJ0040CL20200000	4 HP	FR4	7.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CL203F1110	4 HP	FR4	7.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CL20200000	5 HP	FR4	0.37 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CL203F1110	5 HP	FR4	0.37 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CL20200000	7.5 HP	FR4	0	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CL203F1110	7.5 HP	FR4	0	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0100CL20200000	10 HP	FR5	16 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0100CL203F1110	10 HP	FR5	16 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CL20200000	15 HP	FR5	23 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CL203F1110	15 HP	FR5	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CL20200000	20 HP	FR5	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CL203F1110	20 HP	FR5	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0250CL20200000	25 HP	FR6	38 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0250CL203F1110	25 HP	FR6	38 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CL20200000	30 HP	FR6	46 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CL203F1110	30 HP	FR6	46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CL20200000	40 HP	FR6	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CL203F1110	40 HP	FR6	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb

# Variable Frequency Drives

## NXS Variable Frequency Drives with Cool Blue bypass



Variable Frequency Drives (VFD) accept a control input and then output tailored PWM control signal to operate (motors, fans, pumps, etc.) with maximum efficiency. The VFD can be field-programmed without any extra devices or computer connections.

- Seven configurable applications built in.
- Easy commissioning through software or control panel.
- Devices can be wall-mounted or panel-mounted.
- Eleven protective functions (see Form 63-2600, Users Manual, Technical Data sections).
- Insulated gate bi-polar transistor (IGBT) technology.
- Modbus, BacNet, Device Net, Profibus, LobBus, NS available as options cards.

### Drive Family: NXS

**Acceleration time:** 0 - 3000 sec

**Deceleration time:** 0 - 3000 sec

**Analog Current Input:** 0 (4) - 20 mA, 250 ohm differential

**Analog Voltage Input:** 0 - 10 Vdc, 200K ohm

**Analog Current Output:** 0 (4) - 20 mA, max 500 ohm

**Digital Output:** 50 mA/48v open collector

### Continous Output Current:

overload 1.5 x High overload current (1min/10min)

overload 1.1 x Low overload current (1min/10min)

**Relay Output:** 24 Vdc/8A; 125 Vdc/0.4A; 250 Vac/8A

**Reference Output Voltage:** +10V, +3%, max 10mA

**Auxiliary Voltage:** 24V, ± 15%, max 250 mA

**Starting Current:** 2 x high overload current,

2 seconds every 20 seconds

**Starting Torque:** 200% High; 150% Low

**Frequency:** 0 Hz to 320 Hz

### Operating Temperature:

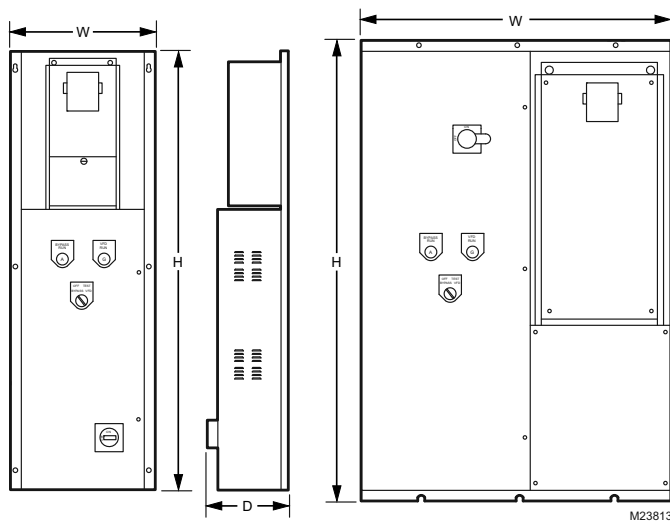
High Overload -10 to 50 (High Overload 14 to 122)

Low Overload -10 to 40 (Low Overload 14 to 104)

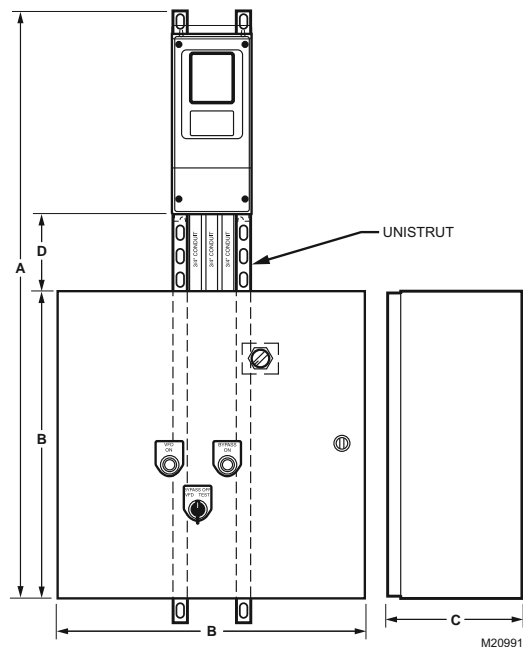
**Type of RFI Filter:** Industrial filter

**Bypass:** Cool Blue

Dimensions in millimeters (inches)



Dimensions in millimeters (inches)





# Variable Frequency Drives

## 208 Voltage

Type of Enclosure: NEMA 1

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBK0015CS10200000	1.5 HP	FR4	Vertical	6.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0015CS103F1110	1.5 HP	FR4	Vertical	6.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0020CS10200000	2 HP	FR4	Vertical	7.8 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0020CS103F1110	2 HP	FR4	Vertical	7.8 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0030CS10200000	3 HP	FR4	Vertical	0.46 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0030CS103F1110	3 HP	FR4	Vertical	0.46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0040CS10200000	4 HP	FR4	Vertical	12.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0040CS103F1110	4 HP	FR4	Vertical	12.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0050CS10200000	5 HP	FR5	Vertical	17.5 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0050CS103F1110	5 HP	FR5	Vertical	17.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0075CS10200000	7.5 HP	FR5	Vertical	25 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0075CS103F1110	7.5 HP	FR5	Vertical	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0100CS10200000	10 HP	FR5	Vertical	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0100CS103F1110	10 HP	FR5	Vertical	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0150CS10200000	15 HP	FR6	Vertical	48 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0150CS103F1110	15 HP	FR6	Vertical	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0200CS10200000	20 HP	FR6	Vertical	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0200CS103F1110	20 HP	FR6	Vertical	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0250CS10200000	25 HP	FR7	Vertical	75 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBK0250CS103F1110	25 HP	FR7	Vertical	75 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 300	16 x 62 x 12	69.8 kg	154 lb
NXBK0300CS10200000	30 HP	FR7	Vertical	88 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBK0300CS103F1110	30 HP	FR7	Vertical	88 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 300	16 x 62 x 12	69.8 kg	154 lb
NXBK0400CS10200000	40 HP	FR8	Side by Side	114 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0400CS103F1110	40 HP	FR8	Side by Side	114 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0500CS10200000	50 HP	FR8	Side by Side	140 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0500CS103F1110	50 HP	FR8	Side by Side	140 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0600CS10200000	60 HP	FR8	Side by Side	170 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0600CS103F1110	60 HP	FR8	Side by Side	170 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0750CS10200000	75 HP	FR8	Side by Side	205 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb

## 208 Voltage

Type of Enclosure: NEMA 12

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBK0015CS20200000	1.5 HP	FR4	Vertical	6.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0015CS203F1110	1.5 HP	FR4	Vertical	6.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb

# Variable Frequency Drives

Product Number	Horse-power	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBK0020CS20200000	2 HP	FR4	Vertical	7.8 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0020CS203F1110	2 HP	FR4	Vertical	7.8 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0030CS20200000	3 HP	FR4	Vertical	0.46 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0030CS203F1110	3 HP	FR4	Vertical	0.46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0040CS20200000	4 HP	FR4	Vertical	12.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0040CS203F1110	4 HP	FR4	Vertical	12.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBK0050CS20200000	5 HP	FR5	Vertical	17.5 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0050CS203F1110	5 HP	FR5	Vertical	17.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0075CS20200000	7.5 HP	FR5	Vertical	25 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0075CS203F1110	7.5 HP	FR5	Vertical	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0100CS20200000	10 HP	FR5	Vertical	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0100CS203F1110	10 HP	FR5	Vertical	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBK0150CS20200000	15 HP	FR6	Vertical	48 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0150CS203F1110	15 HP	FR6	Vertical	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0200CS20200000	20 HP	FR6	Vertical	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0200CS203F1110	20 HP	FR6	Vertical	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBK0250CS20200000	25 HP	FR7	Vertical	75 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBK0300CS20200000	30 HP	FR7	Vertical	88 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBK0400CS20200000	40 HP	FR8	Side by Side	114 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0500CS20200000	50 HP	FR8	Side by Side	140 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0600CS20200000	60 HP	FR8	Side by Side	170 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBK0750CS20200000	75 HP	FR8	Side by Side	205 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb

## 230 Voltage

Type of Enclosure: NEMA 1

Product Number	Horse-power	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBS0015CS10200000	1.5 HP	FR4	Vertical	6.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0015CS103F1110	1.5 HP	FR4	Vertical	6.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0020CS10200000	2 HP	FR4	Vertical	7.8 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0020CS103F1110	2 HP	FR4	Vertical	7.8 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0030CS10200000	3 HP	FR4	Vertical	11.0 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0030CS103F1110	3 HP	FR4	Vertical	11.0 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0040CS10200000	4 HP	FR4	Vertical	12.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0040CS103F1110	4 HP	FR4	Vertical	12.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0050CS10200000	5 HP	FR5	Vertical	17.5 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0050CS103F1110	5 HP	FR5	Vertical	17.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb

# Variable Frequency Drives

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBS0075CS10200000	7.5 HP	FR5	Vertical	25 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0075CS103F1110	7.5 HP	FR5	Vertical	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0100CS10200000	10 HP	FR5	Vertical	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0100CS103F1110	10 HP	FR5	Vertical	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0150CS10200000	15 HP	FR6	Vertical	48 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0150CS103F1110	15 HP	FR6	Vertical	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0200CS10200000	20 HP	FR6	Vertical	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0200CS103F1110	20 HP	FR6	Vertical	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0250CS10200000	25 HP	FR7	Vertical	75 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBS0250CS103F1110	25 HP	FR7	Vertical	75 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 300	16 x 62 x 12	69.8 kg	154 lb
NXBS0300CS10200000	30 HP	FR7	Vertical	88 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBS0300CS103F1110	30 HP	FR7	Vertical	88 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 300	16 x 62 x 12	69.8 kg	154 lb
NXBS0400CS10200000	40 HP	FR8	Side by Side	114 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0400CS103F1110	40 HP	FR8	Side by Side	114 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0500CS10200000	50 HP	FR8	Side by Side	140 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0500CS103F1110	50 HP	FR8	Side by Side	140 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0600CS10200000	60 HP	FR8	Side by Side	170 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0600CS103F1110	60 HP	FR8	Side by Side	170 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0750CS10200000	75 HP	FR8	Side by Side	205 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0750CS103F1110	75 HP	FR8	Side by Side	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb

## 230 Voltage

Type of Enclosure: NEMA 12

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBS0015CS20200000	1.5 HP	FR4	Vertical	6.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0015CS203F1110	1.5 HP	FR4	Vertical	6.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0020CS20200000	2 HP	FR4	Vertical	7.8 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0020CS203F1110	2 HP	FR4	Vertical	7.8 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0030CS20200000	3 HP	FR4	Vertical	11.0 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0030CS203F1110	3 HP	FR4	Vertical	11.0 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0040CS20200000	4 HP	FR4	Vertical	12.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0040CS203F1110	4 HP	FR4	Vertical	12.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBS0050CS20200000	5 HP	FR5	Vertical	17.5 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0050CS203F1110	5 HP	FR5	Vertical	17.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0075CS20200000	7.5 HP	FR5	Vertical	25 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0075CS203F1110	7.5 HP	FR5	Vertical	25 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb

# Variable Frequency Drives

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBS0100CS20200000	10 HP	FR5	Vertical	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0100CS203F1110	10 HP	FR5	Vertical	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBS0150CS20200000	15 HP	FR6	Vertical	48 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0150CS203F1110	15 HP	FR6	Vertical	48 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0200CS20200000	20 HP	FR6	Vertical	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0200CS203F1110	20 HP	FR6	Vertical	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBS0250CS20200000	25 HP	FR7	Vertical	75 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBS0300CS20200000	30 HP	FR7	Vertical	88 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBS0400CS20200000	40 HP	FR8	Side by Side	114 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0500CS20200000	50 HP	FR8	Side by Side	140 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0600CS20200000	60 HP	FR8	Side by Side	170 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb
NXBS0750CS20200000	75 HP	FR8	Side by Side	205 A	Two Contactor	No	No Disconnect	No	No	No	914.4 x 1371.6 x 406.4	36 x 54 x 16	163.3 kg	360 lb

## 460 Voltage

Type of Enclosure: NEMA 1

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBJ0015CS10200000	1.5 HP	FR4	Vertical	3.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0015CS103F1110	1.5 HP	FR4	Vertical	3.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CS10200000	2 HP	FR4	Vertical	4.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CS103F1110	2 HP	FR4	Vertical	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CS10200000	3 HP	FR4	Vertical	5.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CS103F1110	3 HP	FR4	Vertical	5.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CS10200000	4 HP	FR4	Vertical	7.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CS103F1110	4 HP	FR4	Vertical	7.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CS10200000	7.5 HP	FR4	Vertical	0	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CS103F1110	7.5 HP	FR4	Vertical	0	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CS10200000	5 HP	FR4	Vertical	0.37 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CS103F1110	5 HP	FR4	Vertical	0.37 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0100CS10200000	10 HP	FR5	Vertical	16 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0100CS103F1110	10 HP	FR5	Vertical	16 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CS10200000	15 HP	FR5	Vertical	23 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CS103F1110	15 HP	FR5	Vertical	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CS10200000	20 HP	FR5	Vertical	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CS103F1110	20 HP	FR5	Vertical	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0250CS10200000	25 HP	FR6	Vertical	38 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb

# Variable Frequency Drives

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBJ0250CS103F1110	25 HP	FR6	Vertical	38 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CS10200000	30 HP	FR6	Vertical	46 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CS103F1110	30 HP	FR6	Vertical	46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CS10200000	40 HP	FR6	Vertical	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CS103F1110	40 HP	FR6	Vertical	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0500CS10200000	50 HP	FR7	Vertical	72 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0500CS103F1110	50 HP	FR7	Vertical	72 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0600CS10200000	60 HP	FR7	Vertical	87 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0600CS103F1110	60 HP	FR7	Vertical	87 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0750CS10200000	75 HP	FR7	Vertical	105 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0750CS103F1110	75 HP	FR7	Vertical	105 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ1000CS10200000	100 HP	FR8	Side by Side	140 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1000CS103F1110	100 HP	FR8	Side by Side	140 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1250CS10200000	125 HP	FR8	Side by Side	170 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1250CS103F1110	125 HP	FR8	Side by Side	170 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1500CS10200000	150 HP	FR8	Side by Side	205 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1500CS103F1110	150 HP	FR8	Side by Side	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL0030CS10200000	3 HP	FR4	Vertical	4.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb

## 460 Voltage

Type of Enclosure: NEMA 12

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBJ0015CS20200000	1.5 HP	FR4	Vertical	3.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0015CS203F1110	1.5 HP	FR4	Vertical	3.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CS20200000	2 HP	FR4	Vertical	4.3 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0020CS203F1110	2 HP	FR4	Vertical	4.3 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CS20200000	3 HP	FR4	Vertical	5.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0030CS203F1110	3 HP	FR4	Vertical	5.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CS20200000	4 HP	FR4	Vertical	7.6 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0040CS203F1110	4 HP	FR4	Vertical	7.6 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CS20200000	7.5 HP	FR4	Vertical	0	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0075CS203F1110	7.5 HP	FR4	Vertical	0	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CS20200000	5 HP	FR4	Vertical	0.37 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0050CS203F1110	5 HP	FR4	Vertical	0.37 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBJ0100CS20200000	10 HP	FR5	Vertical	16 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0100CS203F1110	10 HP	FR5	Vertical	16 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb

# Variable Frequency Drives

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBJ0150CS20200000	15 HP	FR5	Vertical	23 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0150CS203F1110	15 HP	FR5	Vertical	23 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CS20200000	20 HP	FR5	Vertical	31 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0200CS203F1110	20 HP	FR5	Vertical	31 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBJ0250CS20200000	25 HP	FR6	Vertical	38 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0250CS203F1110	25 HP	FR6	Vertical	38 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CS20200000	30 HP	FR6	Vertical	46 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0300CS203F1110	30 HP	FR6	Vertical	46 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CS20200000	40 HP	FR6	Vertical	61 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0400CS203F1110	40 HP	FR6	Vertical	61 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBJ0500CS20200000	50 HP	FR7	Vertical	72 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0500CS203F1110	50 HP	FR7	Vertical	72 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0600CS20200000	60 HP	FR7	Vertical	87 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0600CS203F1110	60 HP	FR7	Vertical	87 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0750CS20200000	75 HP	FR7	Vertical	105 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ0750CS203F1110	75 HP	FR7	Vertical	105 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBJ1000CS20200000	100 HP	FR8	Side by Side	140 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1000CS203F1110	100 HP	FR8	Side by Side	140 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1250CS20200000	125 HP	FR8	Side by Side	170 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1250CS203F1110	125 HP	FR8	Side by Side	170 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1500CS20200000	150 HP	FR8	Side by Side	205 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBJ1500CS203F1110	150 HP	FR8	Side by Side	205 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb

## 575 Voltage

Type of Enclosure: NEMA 1

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBL0030CS10200000	3 HP	FR4	Vertical	4.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0030CS103F1110	3 HP	FR4	Vertical	4.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0040CS10200000	4 HP	FR4	Vertical	5.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0040CS103F1110	4 HP	FR4	Vertical	5.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0050CS10200000	5 HP	FR4	Vertical	7.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0050CS103F1110	5 HP	FR4	Vertical	7.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0075CS10200000	7.5 HP	FR4	Vertical	0.42 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0075CS103F1110	7.5 HP	FR4	Vertical	0.42 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0100CS10200000	10 HP	FR5	Vertical	13.5 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0100CS103F1110	10 HP	FR5	Vertical	13.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb

# Variable Frequency Drives

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBL0150CS10200000	15 HP	FR5	Vertical	18 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0150CS103F1110	15 HP	FR5	Vertical	18 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0200CS10200000	20 HP	FR5	Vertical	22 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0200CS103F1110	20 HP	FR5	Vertical	22 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0250CS10200000	25 HP	FR6	Vertical	27 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0250CS103F1110	25 HP	FR6	Vertical	27 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0300CS10200000	30 HP	FR6	Vertical	34 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0300CS103F1110	30 HP	FR6	Vertical	34 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0400CS10200000	40 HP	FR6	Vertical	41 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0400CS103F1110	40 HP	FR6	Vertical	41 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0500CS10200000	50 HP	FR7	Vertical	52 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0500CS103F1110	50 HP	FR7	Vertical	52 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0600CS10200000	60 HP	FR7	Vertical	62 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0600CS103F1110	60 HP	FR7	Vertical	62 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0750CS10200000	75 HP	FR7	Vertical	80 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0750CS103F1110	75 HP	FR7	Vertical	80 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL1000CS10200000	100 HP	FR8	Side by Side	100 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1000CS103F1110	100 HP	FR8	Side by Side	100 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1250CS10200000	125 HP	FR8	Side by Side	125 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1250CS103F1110	125 HP	FR8	Side by Side	125 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1500CS10200000	150 HP	FR8	Side by Side	144 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1500CS103F1110	150 HP	FR8	Side by Side	144 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb

## 575 Voltage

Type of Enclosure: NEMA 12

Product Number	Horsepower	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBL0030CS20200000	3 HP	FR4	Vertical	4.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0030CS203F1110	3 HP	FR4	Vertical	4.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0040CS20200000	4 HP	FR4	Vertical	5.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0040CS203F1110	4 HP	FR4	Vertical	5.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0050CS20200000	5 HP	FR4	Vertical	7.5 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0050CS203F1110	5 HP	FR4	Vertical	7.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0075CS20200000	7.5 HP	FR4	Vertical	0.42 A	Two Contactor	No	No Disconnect	No	No	No	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0075CS203F1110	7.5 HP	FR4	Vertical	0.42 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	237.5 x 1000 x 237.5	9.5 x 40 x 9.5	19.5 kg	43 lb
NXBL0100CS20200000	10 HP	FR5	Vertical	13.5 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0100CS203F1110	10 HP	FR5	Vertical	13.5 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb

# Variable Frequency Drives

Product Number	Horse power	Frame Type	Layout	Amp Rating, lvt (A)	Contactor	Control Transformer	Disconnect Type	Drive Input Disconnect	Drive Input Fuses	Pilot Lights	Dimensions, Approximate		Weight	
											(mm)	(inch)	(kg)	(lb)
NXBL0150CS20200000	15 HP	FR5	Vertical	18 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0150CS203F1110	15 HP	FR5	Vertical	18 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0200CS20200000	20 HP	FR5	Vertical	22 A	Two Contactor	No	No Disconnect	No	No	No	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0200CS203F1110	20 HP	FR5	Vertical	22 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	275 x 1150 x 262.5	11 x 46 x 10.5	28.1 kg	62 lb
NXBL0250CS20200000	25 HP	FR6	Vertical	27 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0250CS203F1110	25 HP	FR6	Vertical	27 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0300CS20200000	30 HP	FR6	Vertical	34 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0300CS203F1110	30 HP	FR6	Vertical	34 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0400CS10200000	40 HP	FR6	Vertical	41 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0400CS103F1110	40 HP	FR6	Vertical	41 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0400CS20200000	40 HP	FR6	Vertical	41 A	Two Contactor	No	No Disconnect	No	No	No	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0400CS203F1110	40 HP	FR6	Vertical	41 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	350 x 1325 x 300	14 x 53 x 12	44.9 kg	99 lb
NXBL0500CS20200000	50 HP	FR7	Vertical	52 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0500CS203F1110	50 HP	FR7	Vertical	52 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0600CS20200000	60 HP	FR7	Vertical	62 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0600CS203F1110	60 HP	FR7	Vertical	62 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0750CS20200000	75 HP	FR7	Vertical	80 A	Two Contactor	No	No Disconnect	No	No	No	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL0750CS203F1110	75 HP	FR7	Vertical	80 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	400 x 1550 x 325	16 x 62 x 13	69.8 kg	154 lb
NXBL1000CS20200000	100 HP	FR8	Side by Side	100 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1000CS203F1110	100 HP	FR8	Side by Side	100 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1250CS20200000	125 HP	FR8	Side by Side	125 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1250CS203F1110	125 HP	FR8	Side by Side	125 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1500CS20200000	150 HP	FR8	Side by Side	144 A	Two Contactor	No	No Disconnect	No	No	No	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb
NXBL1500CS203F1110	150 HP	FR8	Side by Side	144 A	Three Contactor	Yes	Fused Disconnect	Yes	No	Yes	900 x 1350 x 400	36 x 54 x 16	163.3 kg	360 lb

## Variable Frequency Drive Accessories

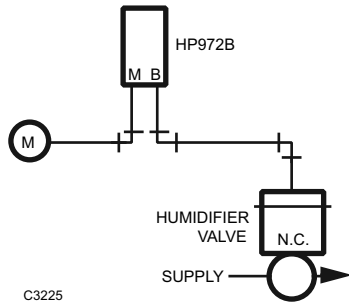
Product Number	Description	Used With
32006629-002	Alphanumeric Display	NXS
32006629-003	7 segment display for NXL	NXL
32006629-004	Variable Frequency Drive RS232 Adapter	—
32006630-001	Lonbus Card	NXS/NXL



## HP970 Pneumatic Humidistat



### HP970 Typical Piping



**Application:** Humidity

**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep  
(3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)

**Airflow Usage:** 0.011 scfm (5.2 mL/s)

**Maximum Operating Temperature:** 7 C to 52 C (45 F to 125 F)

**Maximum Storage Temperature:** -34 to +66 C (-30 to +150 F)

**Maximum Operating Pressure:** 170 kPa (25 psi)

**Two-pipe, single setpoint, pneumatic humidistat used to provide proportional control of pneumatic valves on humidification or dehumidification systems.**

- Durable HP970 series humidistat.
- Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Vertical or horizontal mounting.
- Backplate has molded air connections; no separate fittings needed.
- Variety of cover finishes and display styles available.

### Accessories:

**AK3863** Honeywell Thermostat Tool Kit, TP970/TP900

**CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

**CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

**14004406-124** Humidistat Cover assembly Satin Chrome with setpoint display and Honeywell logo for vertical mounting, scale range 15 to 75% RH

**14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

**14002362-001** Duct Sampling Chamber

**14002430-001** Thermostat Guard

**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with  $\pm 4\%$  accuracy

**14004406-910H** Humidistat Satin Chrome Cover Kit with setpoint display and Honeywell logo for vertical and horizontal mounting, scale range 15 to 75% RH.

### Replacement Parts:

**14001865-001** Filter Cartridge Assembly

**14002053-001** Back Plate Assembly

**14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

**14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

Product Number	Action	Number of Pipes	Scale Range (% RH)	Throttling Range (% RH)	Setpoint	Comments
HP970A1009	Direct Acting	2	15 to 75% RH	3 to 15% RH	Single	Order Cover Separately
HP970B1007	Reverse Acting	2	15 to 75% RH	3 to 15% RH	Single	Order Cover Separately
HP970B1015	Reverse Acting	2	65 to 95% RH	3 to 15% RH	Single	Order Cover Separately

# Pneumatic Humidistats

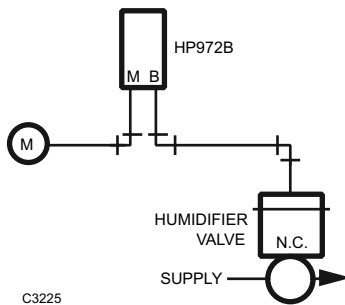
## HP972 Pneumatic Humidistat



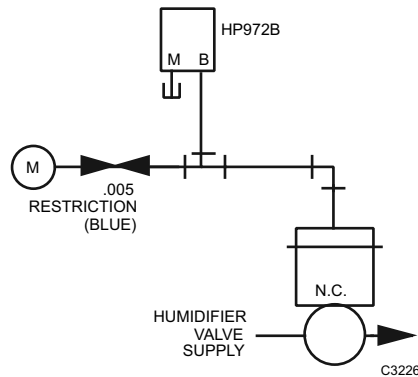
A proportioning pneumatic humidistat used on one- or two-pipe installations for controlling actuators on valves and dampers in air conditioning systems for humidification or dehumidification control.

- Durable HP970 series humidistat.
- Snap-on mounting to backplate.
- Vertical or horizontal mounting.
- Backplate has molded air connections; no separate fittings needed.
- Variety of cover finishes and display styles available.
- Wide throttling range.

Typical Two-Pipe HP972B Hook-up



Typical One-pipe HP972B Hook-up



**Application:** Humidity

**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep (3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)

**Airflow Usage:** 0.011 scfm (5.2 mL/s)

**Maximum Operating Temperature:** 7 C to 52 C (45 F to 125 F)

**Maximum Storage Temperature:** -34 to +66 C (-30 to +150 F)

**Maximum Operating Pressure:** 170 kPa (25 psi)

**Accessories:**

**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy

**AK3863** Honeywell Thermostat Tool Kit, TP970/TP900

**CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

**CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

**14002430-001** Thermostat Guard

**14002362-001** Duct Sampling Chamber

**14004406-124** Humidistat Cover assembly Satin Chrome with setpoint display and Honeywell logo for vertical mounting, scale range 15 to 75% RH

**14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

**Replacement Parts:**

**14002496-003** Nylon element assembly, with Spring

**14001865-001** Filter Cartridge Assembly

**14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

**14002374-004** Restrictor Block Assembly, 0.005 in., For TP970A-D; TP971A-E except C; TP972A; TP973A-B; TP9600 family; HP970A-B; and HP972B



**14002053-001** Back Plate Assembly

Product Number	Action	Number of Pipes	Scale Range (% RH)	Throttling Range (% RH)	Setpoint	Comments
HP972B1005	Reverse Acting	1 or 2	15 to 75% RH	7 to 35% RH	Single	Order Cover Separately

## Humidistat Cover Assemblies

Product Number	Scale Range (% RH)	Description	Used With
14004406-124	15 to 75% RH	Humidistat Cover assembly Satin Chrome with setpoint display and Honeywell logo for vertical mounting, scale range 15 to 75% RH	HP972; HP970
14004406-224	15 to 75% RH	Humidistat Cover assembly Satin Chrome with setpoint display and Honeywell logo for horizontal mounting. Scale Range 15 to 75% RH	HP972; HP970
14004406-300	—	Humidistat Cover assembly Satin Chrome with no setpoint display and Honeywell logo for vertical mounting	HP972; HP970
14004406-400	—	Humidistat Cover assembly Satin Chrome with no setpoint display and Honeywell logo for horizontal mounting	HP972; HP970
14004406-800	—	Humidistat Cover assembly Satin Chrome with no setpoint display and no logo for vertical or horizontal mounting	HP972; HP970

## Humidistat Accessories

Product Number	Description	Used With	
CCT729A	Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.	HP970, HP972	
CCT735A	Thermostat Calibration Tool includes Allen wrench for cover installation.	HP970, HP972	

# Pneumatic Thermostats

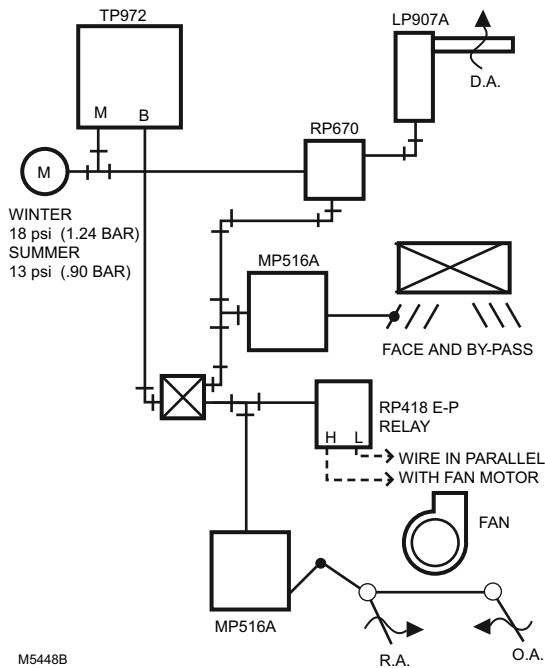
## LP907 Airstream Insertion Pneumatic Thermostat



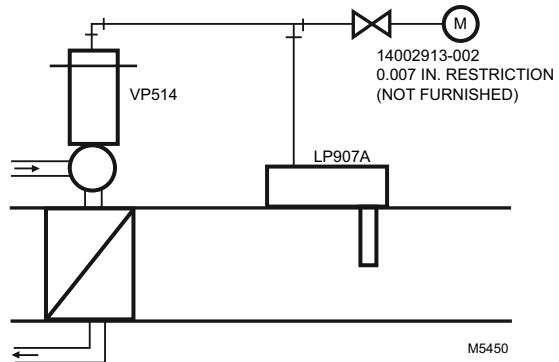
One-pipe, single setpoint, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Commonly used as discharge controllers for unit ventilators.

- Rod and tube insertion sensing element.
- Wide throttling range.
- Gage tee and tank valve facilitate checking line pressures.

### Typical Heating/Cooling Application



### Typical Duct Mounted Application



**Application Type:** Low Limit controller

**Dimensions, Approximate:** 138 mm high x 27 mm wide x 57 mm deep (5 7/16 in. high x 1 1/16 in. wide x 2 1/4 in. deep)

**Airflow Usage:** 0.011 scfm (5.2 mL/s)

**Air Connections:** Barb fittings 1/4 in. (6 mm) poly tubing

**Mounting:** Insertion with locknut on boss of insertion shank

**Operating Temperature:** 4 C to 60 C (40 F to 140 F)

**Storage Temperature:** 66 C maximum (150 F maximum)

**Remote Bulb:** Yes

**Sensor Element:** Invar rod and seamless brass tube, 18 3/4 in. (476 mm) long and 11/32 in. (9 mm) diameter

**Maximum Operating Pressure:** 170 kPa (25 psi)

#### Accessories:

**14002913-002** .005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 5/32 in. and 5/32 in.; Order in Quantities of 10

**14002913-003** External Restriction Assembly. 0.007 in. Restriction, Red, Inlet 1/4 in.; Outlet 1/4 in. and 5/32 in.

**CCT2085** Pneumatic Fitting - Gauge Adapter fits any standard 1/8 in. NPT gauge,

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Capacity	Throttling Range		Includes
				(C)	(F)		(C)	(F)	
LP907A1002	Direct Acting	1	Single	4 C to 60 C	40 F to 140 F	Low	6 C to 39 C	10 F to 70 F	Fittings for mounting on sheet metal duct. Order restrictor separately.
LP907A1044	Direct Acting	1	Single	4 C to 60 C	40 F to 140 F	Low	3 C to 19 C	5 F to 35 F	Fittings for mounting on sheet metal duct. Order restrictor separately.

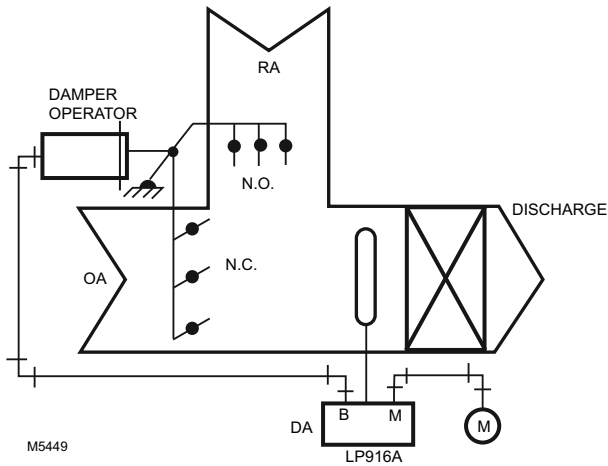
## LP916 Pneumatic Thermostat



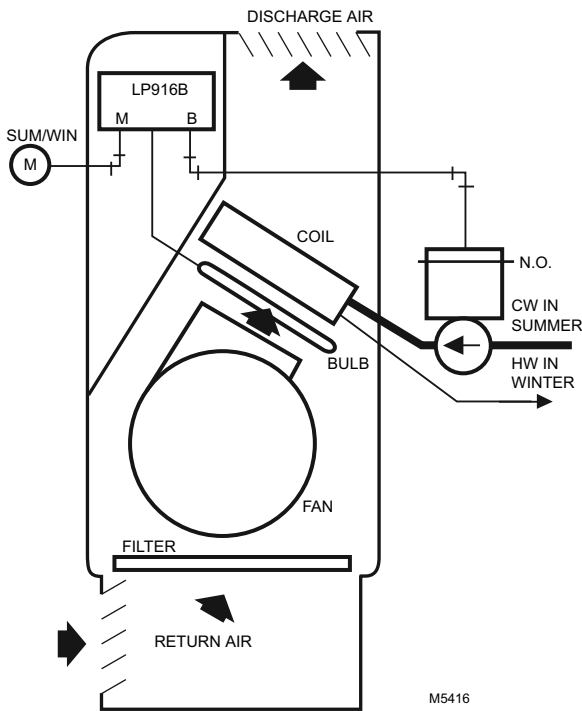
Two-pipe, single temperature, unit mounted, remote bulb pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

- Liquid filled remote bulb.
- Direct Acting (DA), Reverse Acting (RA) and Heating/Cooling (DA/RA) models are available.

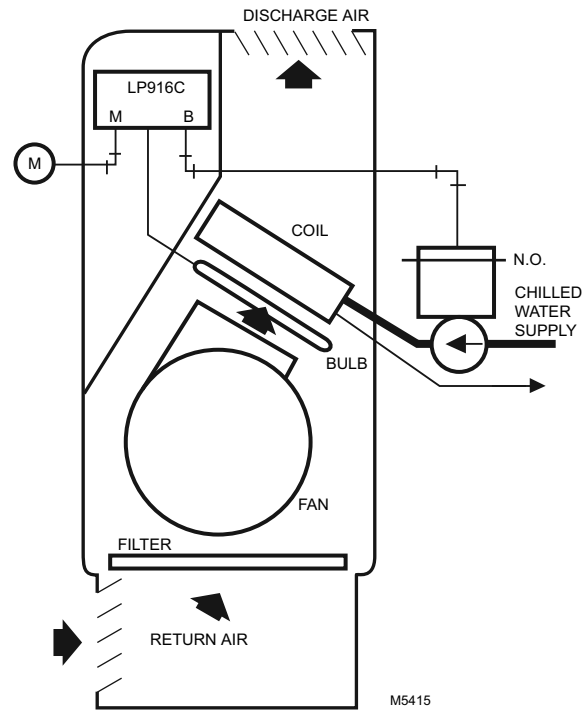
Typical LP916A Mixed Air Application



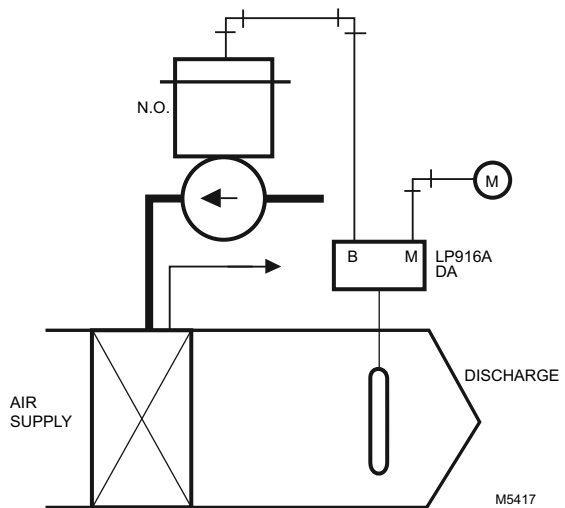
Typical LP916B Fan Coil Application, Heating/Cooling with Seasonal Changeover



Typical LP916C Fan Coil Application, Cooling Only



Typical LP916A Duct Mounted Heating Application



# Pneumatic Thermostats

**Application Type:** Unit Ventilator

**Dimensions, Approximate:** 121 mm high x 95 mm wide x 76 mm deep (4 3/4 in. high x 3 3/4 in. wide x 3 in. deep)

**Airflow Usage:** 0.022 scfm (10.4 mL/s) with 0.007 in. restriction

**Air Connections:** Barb fittings 1/4 in. (6 mm)

**Mounting:** In compartment of a unit ventilator

**Operating Temperature:** 57 C maximum (135 F maximum)

**Storage Temperature:** 66 C maximum (150 F maximum)

**Remote Bulb:** Yes

**Sensor Element:** Bulb 1/2 x 5 7/8 in., capillary 36 in. (914 mm) long

**Maximum Operating Pressure:** 170 kPa (25 psi)

**Accessories:**

**107324A** Capillary Holder Assembly for duct insertion, 8 3/8 in. long

**14004376-001** Gasket for 14004378 Connector Assembly

**14004378-002** Connector Assembly, with integral 0.005 in. restriction and filters for post 1984 units

**Replacement Parts:**

**14003113-002** Repair kit containing 0.007 in. restrictor plate, filters, and gaskets

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Throttling Range		Scale Markings	Includes	Comments
				(C)	(F)	(C)	(F)			
LP916A1019	Direct Acting	2	Single	19 C to 30 C	65 F to 85 F	2 C	3.5 F	Warmer / Cooler	Integral Mounting Bracket and 304528A Bag Assembly (mounting hardware). Order bulb hangers (316297-00021) separately.	—
LP916A1134	Direct Acting	2	Single	19 C to 30 C	65 F to 85 F	2 C	3.5 F	Warmer / Cooler	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—
LP916A1159	Direct Acting	—	Single	16 C to 27 C	60 F to 80 F	2 C	3.5 F	Warmer / Cooler	Integral mounting bracket	—
LP916A1175	Direct Acting	2	Single	4 C to 26 C	40 F to 80 F	13 C	7 F	40 F to 80 F	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—
LP916B1017	Direct Acting Heating, Reverse Acting Cooling	2	Single	19 C to 30 C	65 F to 85 F	2 C	3.5 F	Warmer / Cooler	Integral Mounting Bracket and 304528A Bag Assembly (mounting hardware). Order bulb hangers (316297-00021) separately.	—
LP916B1074	Direct Acting Heating, Reverse Acting Cooling	2	Single	19 C to 30 C	65 F to 85 F	2 C	3.5 F	Warmer / Cooler	Order Mounting Bracket, Knob, Bulb Hangers, and Scale Plate separately.	—
LP916B1082	Direct Acting Heating, Reverse Acting Cooling	2	Single	19 C to 30 C	65 F to 85 F	2 C	3.5 F	Warmer / Cooler	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	New installation model
LP916C1023	Reverse Acting	2	Single	15 C to 26 C	60 F to 80 F	2 C	3.5 F	60 F to 80 F	Integral Mounting Bracket, (2) 316297-00021 Bulb Hangers and 304528A Bag Assembly (mounting hardware).	—

## TP9600 Pneumatic Thermostat



**Application Type:** Wall Thermostat

**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep  
(3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)

**Airflow Usage:** 0.011 scfm (5.2 mL/s)

**Air Connections:** Barb fittings 5/32 in. (4 mm)

**Mounting:** Vertical Wall Mounting

**Operating Temperature:** 10 C to 38 C (50 F to 100 F)

**Storage Temperature:** 66 C maximum (150 F maximum)

**Remote Bulb:** No

**Sensor Element:** Bimetal

**Maximum Operating Pressure:** 170 kPa (25 psi)

**Accessories:**

**14002362-001** Duct Sampling Chamber

**14002430-001** Thermostat Guard

**14002913-001** .005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in.,  
Outlets: 1/4 in. and 5/32 in.; Order in Quantities of 10

**14002913-004** External Restriction Assembly. 0.005 in. Restriction,  
Blue Inlet 1/4 in.; Outlet 5/32 in. and 5/32 in.

**14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series  
stats to HP900 and TP900 flush mounted and TP910 series flush or  
surface mounted installations

Pneumatic thermostat for proportional control of pneumatic valves and actuators with one- or two-pipe systems. Available with two cover options, the TP9600 is not only affordable and easy to install, but it controls temperature with the reliability that only Honeywell can provide.

- TP9600 delivers the Honeywell TP970s unparalleled sensing and control.
- Redesigned models fit your high-volume pneumatic applications.
- Backplate mounts quickly.
- Thermostat snaps onto backplate.
- Cover is mounted and locked into place with concealed setscrews.
- Attractive Euro-contoured design comes with choice of two cover options.
- Neutral taupe color blends with today's commercial interiors.
- Adapter kits are available to retrofit most pneumatic jobs.
- Branch line capacity Low for TP9630 and TP9633 Branch line capacity High for TP9600, TP9610, TP9603, TP9620.

**14004439-001** Setpoint Extension

**14004911-001** Taupe Convertastat wall plate with 2 screws

**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure  
Indicating gauge (0 to 30 psi scale) with ± 4% accuracy

**AK3863** Honeywell Thermostat Tool Kit, TP970/TP900

**CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge  
for Complete Tool.

**CCT735A** Thermostat Calibration Tool includes Allen wrench for cover  
installation.

**Replacement Parts:**

**14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series  
stats to HP900 and TP900 flush mounted and TP910 series flush or  
surface mounted installations

**14001865-001** Filter Cartridge Assembly

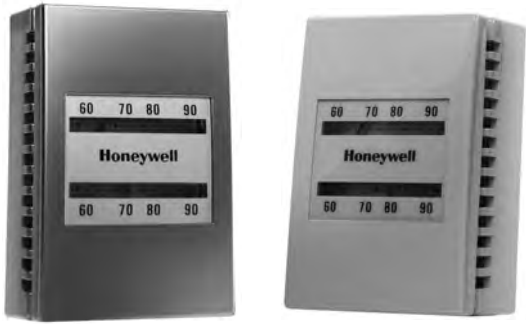
**14002053-001** Back Plate Assembly

**14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell &  
competitive pneumatic stats to TP970, TP971A, TP972, TP973,  
TP974, TP9600 family; HP970, HP971 and HP972

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Changeover		Throttling Range		Includes
				(C)	(F)	(kPa)	(psi)	(C)	(F)	
TP9600A1007	Direct Acting	2	Single	15 C to 32 C	59 F to 90 F	—	—	1 C to 5 C	2 F to 10 F	Cover, Setpoint, and Thermometer are Visible
TP9600B1006	Reverse Acting	2	Single	15 C to 32 C	59 F to 90 F	—	—	1 C to 5 C	2 F to 10 F	Cover, Setpoint, and Thermometer are Visible
TP9620A1005	Direct Acting Heating, Reverse Acting Cooling	2	Single	16 C to 32 C	60 F to 90 F	Heat 124 kPa, Cool 90 kPa	Heat 18 psi, Cool 13 psi	1 C to 5 C	2 F to 10 F	Cover, Setpoint, and Thermometer are Visible

# Pneumatic Thermostats

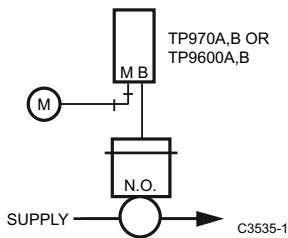
## TP970 Pneumatic Thermostat



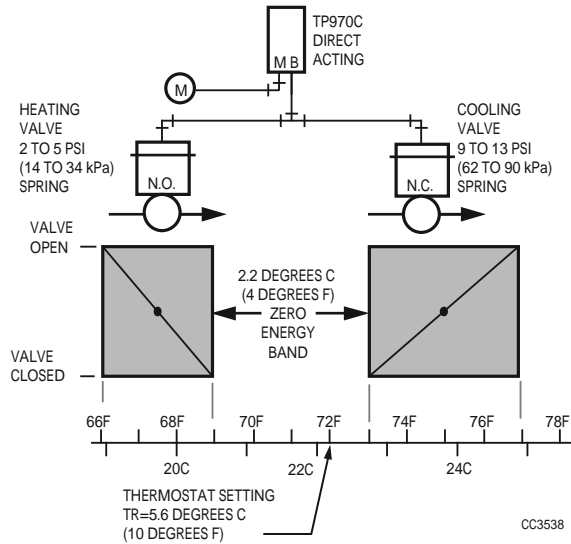
**Two-pipe, single setpoint, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic thermostats.**

- Honeywell's best pneumatic thermostat-TP970 series.
- Shock-resistant, suspension-mounted thermostats provide dependable performance and responsiveness year in and year out.
- Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Wide throttling range models for Zero Energy Band (ZEB) operation are available.
- Adapter plate in Convertastat® and Modernization kits covers existing thermostat wall mark.
- Backplate has molded air connections-no separate fittings needed.
- Universal locking cover with satin chrome finish and horizontal, vertical, or blank window options.
- Typical Wide Throttling Range Application.

### Typical Standard Throttling Range Piping



### Typical Wide Throttling Range Piping



**Application Type:** Heating  
**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep  
 (3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)  
**Airflow Usage:** 0.011 scfm (5.2 mL/s)  
**Mounting:** Wall  
**Operating Temperature:** 38 C (100 F maximum)  
**Storage Temperature:** 66 C maximum (150 F maximum)  
**Remote Bulb:** No  
**Sensor Element:** Bimetal  
**Maximum Operating Pressure:** 170 kPa (25 psi)

#### Accessories:

- 14002362-001** Duct Sampling Chamber
- 14002430-001** Thermostat Guard
- 14004439-001** Setpoint Extension
- 14004447-001** Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127
- 14004447-002** Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108

- 14004447-005** Setpoint Cam Assembly for TP970B1044; TP972A1051, A1101
- 14004459-001** Repair kit consisting of a thermometer assembly, a thermometer post and a 60 to 90F aluminum scaleplate
- AK3863** Honeywell Thermostat Tool Kit, TP970/TP900
- CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.
- CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

#### Replacement Parts:

- 14001865-001** Filter Cartridge Assembly
- 14002053-001** Back Plate Assembly
- 14002374-004** Restrictor Block Assembly, 0.005 in., For TP970A-D; TP971A-E except C; TP972A; TP973A-B; TP9600 family; HP970A-B; and HP972B
- 14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972
- 14004460-001** Nozzle, Throttling Plate and Bimetal Assembly, DA, Left side
- 14004460-002** Nozzle, Throttling plate and Bimetal Assembly, reverse acting, left side



# Pneumatic Thermostats

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Throttling Range		Includes	Comments**
				(C)	(F)	(C)	(F)		
TP970A2004	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Order Cover Separately	—
TP970A2012	Direct Acting	2	Single	—	40 F to 70 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Order Cover Separately	—
TP970A2020	Direct Acting	2	Single	15 C to 30 C	—	1 C to 5 C (factory set 2 C)	33 F to 41 F (factory set 35 F)	Order Cover Separately	—
TP970A2038	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat, large wall plate and satin chrome cover.	Modernization kit used to convert older Honeywell Thermostats.
TP970A2053	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat, large wall plate and satin chrome cover.	Modernization kit used to convert older Honeywell Thermostats and competitive thermostats.
TP970A2145	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat, small wall plate and satin chrome cover.	Convertastat® Kit
TP970A2234	Direct Acting	2	Single	15 C to 30 C	—	1 C to 5 C (factory set 2 C)	33 F to 41 F (factory set 35 F)	Thermostat, small wall plate and satin chrome cover.	Convertastat® Kit
TP970A2242	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat, small wall plate and beige cover.	Convertastat® Kit
TP970A2259	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat and satin chrome cover.	Tradeline Kit
TP970A2283	Direct Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat and beige cover.	Tradeline Kit
TP970B2002	Reverse Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Order Cover Separately	—
TP970B2010	Reverse Acting	2	Single	15 C to 30 C	—	1 C to 5 C (factory set 2 C)	33 F to 41 F (factory set 35 F)	Order Cover Separately	—
TP970B2077	Reverse Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat, small wall plate and satin chrome cover.	Convertastat® Kit
TP970B2150	Reverse Acting	2	Single	15 C to 30 C	—	1 C to 5 C (factory set 2 C)	33 F to 41 F (factory set 35 F)	Thermostat, small wall plate and satin chrome cover.	Convertastat® Kit
TP970B2182	Reverse Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat and satin chrome cover.	Tradeline Kit
TP970B2216	Reverse Acting	2	Single	—	59 F to 90 F	-16 C to -12 C (factory set -15 C)	2 F to 10 F (factory set 4 F)	Thermostat and beige cover.	Tradeline Kit
TP970C2000	Direct Acting	2	Single	—	59 F to 90 F	-15 C to -3 C	5 F to 25 F	Order Cover Separately	Wide Throttling Range 5-25 F

\*\*A **Tradeline Kit** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A **Convertastat® Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a large Universal Wall Plate Adapter to convert older thermostats.

# Pneumatic Thermostats

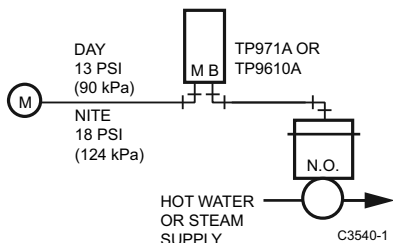
## TP971 Pneumatic Day/Night Thermostat



Pneumatic thermostat with night setback used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic thermostats.

- Durable TP970 series thermostat Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Three-pipe thermostats are available for unit ventilator applications where the outdoor damper must operate when the thermostat is manually set to day operation.
- Adapter plate in thermostat kits covers existing thermostat watermark.
- Backplate has molded air connections-no separate fittings needed.
- Universal Locking cover with satin chrome finish and horizontal, vertical, or blank window options-other covers available.

### TP971 Typical Piping



**Application Type:** Wall Thermostat, Day/Night operation  
**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep  
 (3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)  
**Airflow Usage:** 0.011 scfm (5.2 mL/s)  
**Mounting:** Wall  
**Operating Temperature:** 38 C (100 F maximum)  
**Storage Temperature:** 66 C maximum (150 F maximum)  
**Remote Bulb:** No  
**Sensor Element:** Bimetal  
**Maximum Operating Pressure:** 170 kPa (25 psi)

**14004439-001** Setpoint Extension  
**14004447-003** Setpoint Cam Assembly for TP971A, C, D; TP972A1168, A2168, A2176  
**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy  
**AK3863** Honeywell Thermostat Tool Kit, TP970/TP900  
**CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.  
**CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

### Accessories:

**14002362-001** Duct Sampling Chamber  
**14002430-001** Thermostat Guard  
**14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

### Replacement Parts:

**14001865-001** Filter Cartridge Assembly  
**14002053-001** Back Plate Assembly  
**14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Changeover		Throttling Range		Includes	Comments**
				(C)	(F)	(kPa)	(psi)	(C)	(F)		
TP971A2003	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971A2011	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971A2029	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 110 kPa, Night 144 kPa	Day 16 psi, Night 21 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971A2052	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 110 kPa, 144 kPa	Day 16 psi, Night 21 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971A2086	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 137 kPa, Night 172 kPa	Day 20 psi, Night 25 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971A2102	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi or 16-20 psi	1 C to 5 C	2 F to 10 F	Thermostat, small wall plate and satin chrome cover.	Convertastat® Kit
TP971A2191	Direct Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi or 16-21 psi	1 C to 5 C	2 F to 10 F	Thermostat and satin chrome cover.	Tradeline Kit

# Pneumatic Thermostats

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Changeover		Throttling Range		Includes	Comments**
				(C)	(F)	(kPa)	(psi)	(C)	(F)		
TP971B2001	Reverse Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971B2019	Reverse Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 110 kPa, Night 144 kPa	Day 16 psi, Night 21 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971B2027	Reverse Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 60 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971B2043	Reverse Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 137 kPa, Night 172 kPa	Day 20 psi, Night 25 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP971B2068	Reverse Acting Heating, two temp.	2	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi or 16-21 psi	1 C to 5 C	2 F to 10 F	Thermostat and satin chrome cover.	Tradeline Kit
TP971C2009	Direct Acting Heating, two temp.	3	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	Has secondary branch line
TP971C2017	Direct Acting Heating, two temp.	3	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	Has secondary branch line
TP971C2025	Direct Acting Heating, two temp.	3	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 110 kPa, Night 144 kPa	Day 16 psi, Night 21 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	Has secondary branch line
TP971C2058	Direct Acting Heating, two temp.	3	Day/Night	Day: 15 C to 30 C, Night: 10 C to 27 C	Day: 59 F to 90 F, Night: 50 F to 80 F	Day 90 kPa, Night 124 kPa	Day 13 psi, Night 18 psi or 16-21 psi	1 C to 5 C	2 F to 10 F	Thermostat and Satin Chrome Cover	Tradeline Kit. Has secondary branch line.

\*\*A **Tradeline Kit** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A **Convertastat® Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a large Universal Wall Plate Adapter to convert older thermostats.

# Pneumatic Thermostats

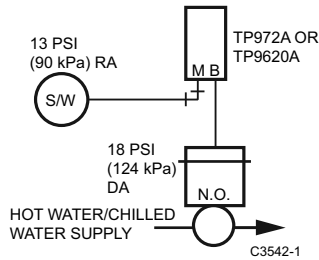
## TP972 Pneumatic Heating/Cooling Thermostat



Two-pipe, one- or two-temperature, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic thermostats.

- Durable TP970 Series Thermostat. Pilot operated for high capacity.
- Two-temperature energy conservation model available.
- Adapter plate in Convertastat® kits covers existing thermostat wall mark.
- Backplate has molded air connections-no separate fittings needed.
- Universal locking cover with satin chrome finish and horizontal, vertical, or blank window options with Tradeline model-other covers available.

### TP972 Typical Piping



**Application Type:** Wall Thermostat, Heat/Cool Operation  
**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep (3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)  
**Airflow Usage:** 0.011 scfm (5.2 mL/s)  
**Mounting:** Wall  
**Operating Temperature:** 38 C (100 F maximum)  
**Storage Temperature:** 66 C maximum (150 F maximum)  
**Remote Bulb:** No  
**Sensor Element:** Bimetal  
**Maximum Operating Pressure:** 170 kPa (25 psi)

### Accessories:

- 14002362-001** Duct Sampling Chamber
- 14002430-001** Thermostat Guard
- 14003923-001** 20 to 25 psi spring
- 14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations
- 14004439-001** Setpoint Extension

- 14004447-001** Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127
- 14004447-002** Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108
- 14004447-003** Setpoint Cam Assembly for TP971A, C, D; TP972A1168, A2168, A2176
- 14004447-005** Setpoint Cam Assembly for TP970B1044; TP972A1051, A1101
- 305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy
- AK3863** Honeywell Thermostat Tool Kit, TP970/TP900
- CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.
- CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

### Replacement Parts:

- 14001865-001** Filter Cartridge Assembly
- 14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972
- 14002374-004** Restrictor Block Assembly, 0.005 in., For TP970A-D; TP971A-E except C; TP972A; TP973A-B; TP9600 family; HP970A-B; and HP972B
- 14004460-001** Nozzle, Throttling Plate and Bimetal Assembly, DA, Left side
- 14004460-002** Nozzle, Throttling plate and Bimetal Assembly, reverse acting, left side

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Changeover		Throttling Range		Includes	Comments**
				(C)	(F)	(kPa)	(psi)	(C)	(F)		
TP972A2002	Direct Acting Heating, Reverse Acting Cooling	2	Single	15 C to 30 C	59 F to 90 F	Heat 124 kPa, Cool 90 kPa	Heat 18 psi, Cool 13 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP972A2010	Direct Acting Heating, Reverse Acting Cooling	2	Single	15 C to 30 C	59 F to 90 F	Heat 124 kPa, Cool 90 kPa	Heat 18 psi, Cool 13 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP972A2036	Direct Acting Heating, Reverse Acting Cooling	2	Dual	Heating 10 C to 23 C, Cooling 15 C to 30 C	Heating 50 F to 75 F, Cooling 60 F to 90 F	Heat 124 kPa, Cool 90 kPa	Heat 18 psi, Cool 13 psi	1 C to 5 C	2 F to 10 F	Energy Conservation Model, Order Cover Separately	Two concealed setpoint knobs

# Pneumatic Thermostats

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Changeover		Throttling Range		Includes	Comments**
				(C)	(F)	(kPa)	(psi)	(C)	(F)		
TP972A2143	Direct Acting Heating, Reverse Acting Cooling	2	Single	15 C to 30 C	59 F to 90 F	Heat 96 kPa, Cool 131 kPa	Heat 14 psi, Cool 19 psi	1 C to 5 C	2 F to 10 F	Order Cover Separately	—
TP972A2192	Direct Acting Heating, Reverse Acting Cooling	2	Single	15 C to 30 C	59 F to 90 F	Heat 124 kPa, Cool 90 kPa	Heat 18 psi, Cool 13 psi	1 C to 5 C	2 F to 10 F	Thermostat, small wall plate and satin chrome cover	Convertastat® Kit
TP972A2226	Direct Acting Heating, Reverse Acting Cooling	2	Single	15 C to 30 C	59 F to 90 F	Heat 96 kPa, Cool 131 kPa	Heat 14 psi, Cool 19 psi	1 C to 5 C	2 F to 10 F	Thermostat and satin chrome cover.	Tradeline Kit
TP972A2242	Direct Acting Heating, Reverse Acting Cooling	2	Single	15 C to 30 C	59 F to 90 F	Heat 124 kPa, Cool 90 kPa	Heat 18 psi, Cool 13 psi	1 C to 5 C	2 F to 10 F	Thermostat and satin chrome cover.	Tradeline Kit

\*\*A **Tradeline Kit** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A **Convertastat® Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a large Universal Wall Plate Adapter to convert older thermostats.

# Pneumatic Thermostats

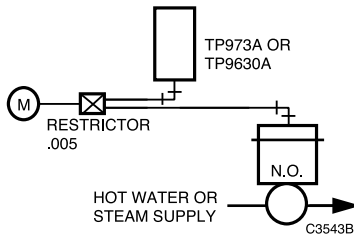
## TP973 Pneumatic Thermostat



**One- or two-pipe, single temperature, low capacity, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic thermostats.**

- Durable TP970 Series Thermostat. Direct Acting (DA) and Reverse Acting (RA) models are available.
- Backplate has molded air connections-no separate fittings needed.
- Universal locking cover with satin chrome finish and horizontal, vertical, or blank window options available.
- Other Covers Available.
- Low capacity thermostat.
- Built in restrictor for two-pipe applications.

### TP973 Typical Piping (One-pipe)



**Application Type:** Wall Thermostat, Single Temperature  
**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep  
 (3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)  
**Airflow Usage:** 0.011 scfm (5.2 mL/s)  
**Mounting:** Wall  
**Operating Temperature:** 38 C (100 F)  
**Storage Temperature:** 66 C maximum (150 F maximum)  
**Remote Bulb:** No  
**Sensor Element:** Bimetal  
**Maximum Operating Pressure:** 170 kPa (25 psi)

### Accessories:

- 14002430-001** Thermostat Guard
- 14002362-001** Duct Sampling Chamber
- 14002913-004** External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in.; Outlet 5/32 in. and 5/32 in.
- 14003192-001** Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations

### 14004439-001 Setpoint Extension

**14004447-001** Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127

**14004447-002** Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108

**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy

**AK3863** Honeywell Thermostat Tool Kit, TP970/TP900

**CCT729A** Gauge Adapter for Calibration. Add 305965 0 to 30 psi gauge for Complete Tool.

**CCT735A** Thermostat Calibration Tool includes Allen wrench for cover installation.

### Replacement Parts:

**14001865-001** Filter Cartridge Assembly

**14002374-004** Restrictor Block Assembly, 0.005 in., For TP970A-D; TP971A-E except C; TP972A; TP973A-B; TP9600 family; HP970A-B; and HP972B

**14002573-001** Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972

**14004460-001** Nozzle, Throttling Plate and Bimetal Assembly, DA, Left side

**14004460-002** Nozzle, Throttling plate and Bimetal Assembly, reverse acting, left side

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Throttling Range		Includes	Comments**
				(C)	(F)	(C)	(F)		
TP973A2076	Direct Acting	1 or 2	Single	—	59 F to 90 F	1 C to 5 C	2 F to 10 F	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973A2084	Direct Acting	1 or 2	Single	15 C to 30 C	—	1 C to 5 C	2 F to 10 F	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973A2167	Direct Acting	1 or 2	Single	—	59 F to 90 F	1 C to 5 C	2 F to 10 F	Thermostat and cover # 14004407-121	For one-pipe order an external 0.005 in. restriction
TP973A2209	Direct Acting	1 or 2	Single	—	59 F to 90 F	1 C to 5 C	2 F to 10 F	Thermostat and Satin Chrome Cover	Tradeline Kit. For one-pipe application- order an external .005 in. restriction
TP973A2223	Direct Acting	1 or 2	Single	—	59 F to 90 F	1 C to 5 C	2 F to 10 F	Thermostat and beige cover	Tradeline Kit. For one-pipe application- order an external .005 in. restriction

# Pneumatic Thermostats

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Throttling Range		Includes	Comments**
				(C)	(F)	(C)	(F)		
TP973B2066	Reverse Acting	1 or 2	Single	—	59 F to 90 F	1 C to 5 C	2 F to 10 F	Order Cover Separately	For one-pipe order an external 0.005 in. restriction
TP973B2074	Reverse Acting	1 or 2	Single	15 C to 30 C	—	1 C to 5 C	2 F to 10 F	Order Cover Separately	For one-pipe order an external 0.005 in. restriction

\*\*A **Tradeline Kit** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] for new installations or to convert newer, small size Honeywell or competitor thermostat, not requiring a wall plate adapter.

A **Convertastat® Kit™** includes a TP970 Series thermostat with either a Satin Chrome or Beige Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a small Universal Wall Plate Adapter to convert newer, small size Honeywell or competitor thermostats.

A **Modernization Kit** includes a TP970 Series thermostat with Satin Chrome Universal Cover, Windows [horizontal (F), vertical (F) and blank] and a large Universal Wall Plate Adapter to convert older thermostats.

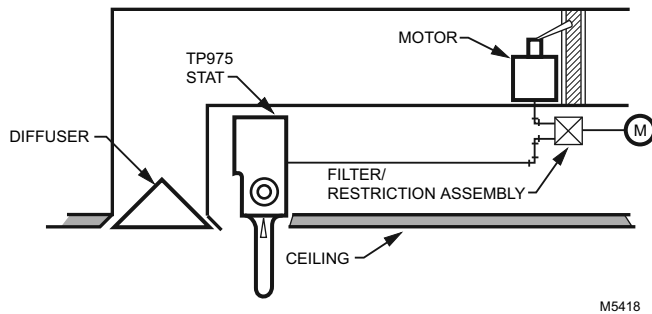
## TP975 Pneumatic Diffuser Thermostat



**One-pipe, single temperature, low-capacity pneumatic thermostat used to provide proportional control of pneumatic valves and mixing boxes in heating and air conditioning systems. It mounts in a slot or light troffer diffuser or a return air grill.**

- Two-way setpoint indicator for vertical or horizontal mounting.
- Detents in 0.5 C (1 F) increments for blind operation.

### TP975 Typical Piping



**Application Type:** Single temperature, low capacity, pneumatic thermostat

**Dimensions, Approximate:** 25 mm high x 63 mm wide x 27 mm deep (1 in. high x 2 1/2 in. wide x 1 1/8 in. deep)

**Airflow Usage:** 0.011 scfm (5.2 mL/s)

**Mounting:** Wall

**Operating Temperature:** 43 C maximum (110 F maximum)

**Storage Temperature:** 66 C maximum (150 F maximum)

**Remote Bulb:** No

**Sensor Element:** Bimetal

**Maximum Operating Pressure:** 207 kPa (30 psi)

#### Accessories:

**14002913-001** .005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 1/4 in. and 5/32 in.; Order in Quantities of 10

**14002913-004** External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in.; Outlet 5/32 in. and 5/32 in.

Product Number	Action	Number of Pipes	Setpoint	Setpoint Temperature Range		Throttling Range		Comments
				(C)	(F)	(C)	(F)	
TP975A1009	Direct Acting	1	Single	19 C to 28 C	67 F to 83 F	1 C to 5 C	2 F to 10 F	Requires external 0.005 in. restrictor



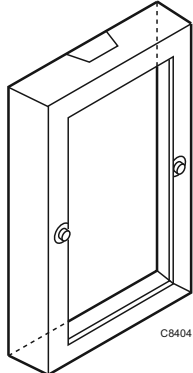
# Pneumatic Thermostats

## Pneumatic Thermostat Accessories


Product Number	Description	Used With	
14001491-002	Two-Pipe Airhead, tubing assembly for wall box	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	<p>PROTECTIVE CAP OR CAPS PROVIDED</p> <p>2.5 M [8 FT]</p> <p>SNAP RING [FITS KNOCKOUT FOR 12.7 MM (1/2 INCH) CONDUIT]</p> <p>MC5477</p> <p>BRASS ELBOW</p>
14001494-002	2 Pipe Airhead Assembly	—	
14001496-001	Mounting Plate for TP970 to 2" x 4" Electrical Box	TP970	
14001527-001	Three pipe straight white connector	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	<p>C5356</p>
14001614-001	Shallow wall plate assembly	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14001615-002	Two-pipe plastic tube assembly for shallow wall	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14001616-002	Thermostat fitting plastic	—	
14002136-004	Black Trim plate	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14002136-005	Beige Trim plate	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14002136-006	Premier White Trim Plate	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14002172-001	Gage Tap repair plug	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14002362-001	Duct Sampling Chamber	TP970; TP972; TP971; TP973; TP974; TP9600 Family; HP970 Family	
14002373-001	Switchover Springs 16 To 21 psi	TP972; TP971	
14002390-001	Bag assembly of screws	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14002430-001	Thermostat Guard	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14002573-002	Modernization Kit to convert 3 pipe Honeywell TP911C & competitive three pipe pneumatic	TP971C	



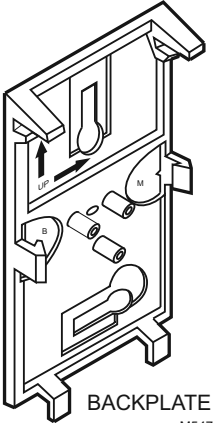
# Pneumatic Thermostats

Product Number	Description	Used With	
14002636-001	Base for 14002362-001 Sampling Chamber	14002362-001	
14002913-001	.005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 1/4 in. and 5/32 in.; Order in Quantities of 10	—	
14002913-002	.005 in. Blue Filter Restriction Assembly; Inlet: 1/4 in., Outlets: 5/32 in. and 5/32 in.; Order in Quantities of 10	—	
14003113-002	Repair kit containing 0.007 in. restrictor plate, filters, and gaskets	LP916	
14003929-001	Bimetal TP928	—	
14004068-001	Mounting Hardware	—	
14004193-001	Stand-Off Ring	—	
14004376-001	Gasket for 14004378 Connector Assembly	LP916	
14004378-002	Connector Assembly, with integral 0.005 in. restriction and filters for post-1984 units	LP916	
14004401-002	Convertastat® Wall Plate	—	
14004401-004	Adapter plate for Convertastat, beige	—	
14004437-001	Insert Cover	—	
14004438-001	Insert Cover	—	
14004439-001	Setpoint Extension	—	
14004441-001	Window inserts for use on Satin Chrome Cover fahrenheit scale (60 to 90 F) for vertical and horizontal mounting	—	
14004447-001	Setpoint Cam Assembly for TP970A1004, A1012, A1020, A1038, A1046, A1053, A1095, A2004, A2012, A2020, A2038, A2053, A2095; TP970C; TP972A1143, A2143; TP973A1001, A1019, A1127	TP970A; TP970C; TP972A2143; TP979A	
14004447-002	Setpoint Cam Assembly for TP970B1002, B1010, B1028, B1036, B2002, B2010, B2028, B2036; TP970D; TP972A1002, A1010, A1028, A1044, A2002, A2010, A2028, A2044; TP973B1009, B1017, B1025, B1108	TP970B; TP970D; TP972A2002; TP972A2010; TP973B2108; TP979B	
14004447-003	Setpoint Cam Assembly for TP971A, C, D; TP972A1168, A2168, A2176	TP971A; TP971C; TP971D	
14004447-005	Setpoint Cam Assembly for TP970B1044; TP972A1051, A1101	TP970B; TP972A	
14004458-001	Stand-Off Ring for surface or flush mounting	TP970; TP972; TP971; TP973; TP9600 Family HP970 Family	

# Pneumatic Thermostats



Product Number	Description	Used With	
14004459-001	Repair kit consisting of a thermometer assembly, a thermometer post and a 60 to 90F aluminum scaleplate	TP970 Family	
14004505-001	Twin elbow connector	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14004558-001	Six inch main branch tube-spring assembly	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14004729-002	Cover Screw	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14004908-001	Stop Kit	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14004911-001	Taupe Convertastat wall plate with 2 screws	TP9600 Family	
311699	Tubing Spring	LP916	
314826	Diaphragm	LP916	
315949	Scaleplate for TP928	TP928	
316016A	General purpose mounting assembly, includes 3 3/4 in. mounting bracket, scale plate, knob, bulb hangers, screws, and nuts	LP916	
316016C	Knob and scale plate assembly with screws	LP916	
AK3863	Honeywell Thermostat Tool Kit, TP970/TP900	HP970, HP972, TP970	
AK3970	Cover for Aspirator Boxes 14002424-002 and 14002424-003	TP9600	

## Pneumatic Thermostat Replacement Parts





Product Number	Description	Used With	
14000742-002	Two-pipe straight red connector	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14001865-001	Filter Cartridge Assembly	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14001957-001	Plug, BLP Tap,	TP970	
14002053-001	Back Plate Assembly	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	 <p>BACKPLATE M5479</p>
14002374-004	Restrictor Block Assembly, 0.005 in., For TP970A-D; TP971A-E except C; TP972A; TP973A-B; TP9600 family; HP970A-B; and HP972B	TP970	
14002374-005	Package assembly-repair kit includes 4 screw machine - 14002281-001, plate assembly - 14003479-008, and 2 gaskets - 14004419-001	TP970; TP971	
14002420-001	Mounting. Plate assembly, with mounting plate (14002421-001), 4 clips (14002422-001), 4 rivets (305835)	TP970	
14002573-001	Modernization Kit to convert all 1 & 2 pipe Honeywell & competitive pneumatic stats to TP970, TP971A, TP972, TP973, TP974, TP9600 family; HP970, HP971 and HP972	TP970; TP9600; TP972; HP970; HP971; TP971A; HP972; TP973; TP974	
14003192-001	Wallplate adapter kit. Adapts HP970 or TP970 series stats to HP900 and TP900 flush mounted and TP910 series flush or surface mounted installations	TP970; TP972; TP971; TP973; TP9600 Family; HP970 Family	
14003194-001	TP910 black base plate	TP910	
14003195-001	TP910 beige base plate	TP910	
14004406-901	Thermostat Cover Assembly satin chrome with assembly-cover [chrome] (14004402-001), window thermostat (14004405-020)	TP970	
14004459-003	Repair plate package assembly includes: thermostat assembly - 14004440-001, pointer - 144002124-001, scale plate - 14004434-003, post, thermostat assembly - 14004436-001, box, plastic - 14004645-002.	TP970	
14004460-001	Nozzle, Throttling Plate and Bimetal Assembly, DA, Left side	TP970A, TP971A, C, D, TP972 DA, left side, TP973A, TP979A	
14004609-001	Steel Stiffener plate	TP970	
14004610-001	Zinc plate metal stud Adapter	TP970	
303627	Gasket for LP901	LP901	

# Pneumatic Thermostats

## TP9600 Series Standard Covers

Product Number	Description	Used With	
14004910-001	TP9600 Series Standard Cover	TP9600	
14004910-004	TP9600 Series Standard Cover	TP9600	

## TP970 Series Standard Covers

Product Number	Description	Comments	Used With	
14004406-910	Satin Chrome Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting.	—	TP970 TP972 TP971 TP973	
14004407-910	Beige Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting.	See Specification Data sheet, Form No. 77-1003 for details	TP970 TP972 TP971 TP973	
14004787-910	Bright Chrome Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting	—	TP970 TP971 TP972 TP973	
14004878-910	Premier White Thermostat Cover Kit - includes window inserts for 60 to 90 F setpoint display for vertical and horizontal mounting, or 60 to 90 F thermometer display and setpoint display for vertical and horizontal mounting	—	TP970 TP971 TP972 TP973	

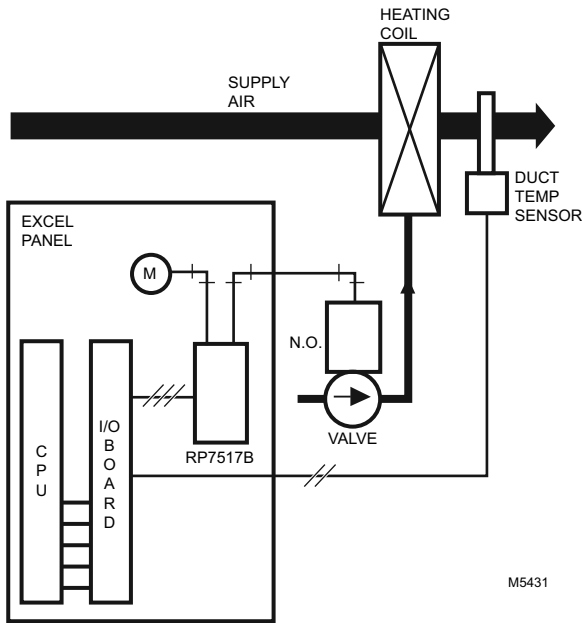
## RP7517 Electronic-Pneumatic Transducer



Electronic-Pneumatic Transducers are used in electronic-pneumatic control systems to convert a proportional electric output signal from a controller into a direct-acting, proportional pneumatic signal.

- Screw mounting or snap rail (models with cover).
- Factory calibrated.
- Dual barb fittings.
- High accuracy.

### RP7517 Typical Piping/Wiring



**Application:** Electric to pneumatic Transducer

**Action:** Direct Acting

**Airflow Usage:** 0.025 scfm (117mL/s)

**Connections:** Dual barb-fittings for 1/4 in. or 5/32 in. O.D. plastic tubing

**Current:** 16 mA

**Maximum Operating Temperature:** 55 C (131 F)

**Maximum Operating Pressure:** 205 kPa (30 psi)

**Pressure Ranges:** 0 to 125 kPa (0 to 18 psi)

**Nominal High End:** 110 kPa with 125 kPa main pressure at 12 Vdc (16 psi with 18 psi main pressure at 12 Vdc)

**Nominal Low End:** 3.5 kPa at 0 Vdc (0.5 psi at 0 Vdc)

**Output Pressure Range:** 21 to 103 kPa (3 to 15 psi)

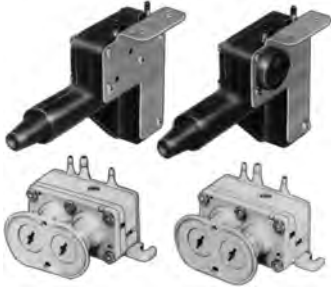
**Humidity Ratings:** 5 to 95% RH

**Capacity:** 0.45 scfm (211 mL/s)

Product Number	Electrical Connections	Dimensions, Approximate		Input Signal	Voltage	Description	Includes
		(mm)	(inch)				
RP7517A1009	30 in. (762 mm) lead wire	62 mm wide x 92 mm high x 52 mm deep	2 7/16 in. wide x 3 5/8 in. high x 2 in. deep	2 to 10 Vdc	Powered by Control signal	Electronic Pneumatic Transducer with direct action and 2 to 10 vdc input signal	With cover, without internal power supply (2-wire)
RP7517A1017	screw terminals for 14 to 22 gage wire	62 mm wide x 86 mm high x 48 mm deep	2 7/16 in. wide x 3 3/8 in. high x 1 7/8 in. deep	2 to 10 Vdc	Powered by Control signal	Electronic Pneumatic Transducer with direct action and 2 to 10 vdc input signal	Without cover, without internal power supply for panel mounting (2 wire)
RP7517B1016	30 in. (762 mm) lead wire	62 mm wide x 92 mm high x 52 mm deep	2 7/16 in. wide x 3 5/8 in. high x 2 in. deep	2 to 10 Vdc at 0.1 mA max	24 Vac external transformer	Electronic Pneumatic Transducer with direct action and 2 to 10 Vdc at 0.1 mA max input signal. External transformer required.	With cover, external transformer required, 24 Vac, 50/60 Hz, (3 wire)
RP7517B1024	Screw terminals for 14 to 22 gage wire	62 mm wide x 86 mm high x 48 mm deep	2 7/16 in. wide x 3 3/8 in. high x 1 7/8 in. deep	2 to 10 Vdc at 0.1 mA max	24 Vac external transformer	Electronic Pneumatic Transducer with direct action and 2 to 10 Vdc at 0.1 mA max input signal. External transformer required.	Without cover, external transformer required, 24 Vac, 50/60 Hz, (3 wire)

# Pneumatic Velocity Sensor/Controller

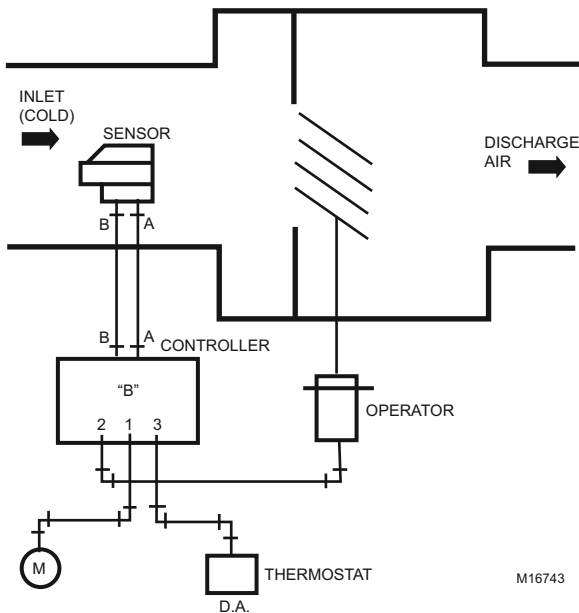
## CP980 Velocitrol Velocity Sensor/Controller



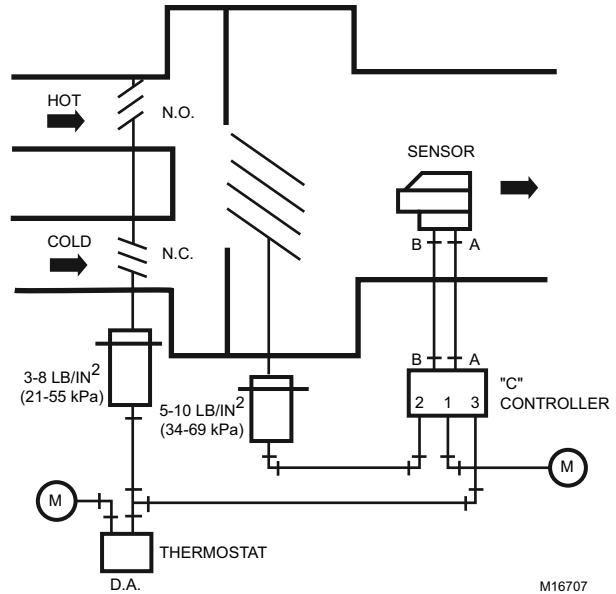
An ultra-sensitive air velocity sensor and pneumatic controller, control pneumatic damper actuators in heating and air conditioning systems to provide constant air velocity in the duct regardless of the static pressure.

- State-of-the-art design provides reliable operation.
- Not position sensitive.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Insensitive to static pressure changes.
- Accurate control throughout entire velocity range.
- Graduated scales for minimum and maximum velocity adjustments.
- Velocity reset by thermostat demand.
- Adaptable to many terminal unit control strategies.

### Single Duct, Variable Constant Volume Application



### Dual Duct, Variable Constant Volume Application



**Application:** Velocitrol Air Velocity Sensor

**Dimensions, Approximate:** Controller: 44 mm high x 83 mm wide x 60 mm deep / Sensor: 81 mm high x 45 mm wide x 107 mm long with orifice and 86 mm long without orifice.

(Controller: 1 3/4 in. high x 3 1/4 in. wide x 2 3/8 in. deep / Sensor: 3 3/16 in. high x 1 3/4 in. wide x 4 3/16 in. long with orifice and 3 3/8 in. long without orifice)

**Airflow Usage:** 0.029 scfm (13.7 mL/s), includes supply for bleed type thermostats for type B, does not include thermostat air for type C controller

**Humidity Ratings:** 5 to 95% RH

**Temperature Range:** 5 C to 55 C (40 F to 130 F)

**Maximum Operating Pressure:** 207 kPa (30 psi)

Product Number	Remote Sensor	Control Range		Reset Pressure Range		Description	Comments
		(m/s)	(fpm)	(kPa)	(psi)		
CP980C1065	Yes	2.5 m/s up to 17.8 m/s by changing orifice	500 fpm up to 3500 fpm by changing orifice	7 to 103 kPa	1 to 15 psi	Direct acting Pneumatic Velocity Controller, uses "B" type supply unit	For normally open damper and one-pipe thermostat
CP980D1063	Yes	2.5 m/s up to 17.8 m/s by changing orifice	500 fpm up to 3500 fpm by changing orifice	7 to 103 kPa	1 to 15 psi	Reverse acting Pneumatic Velocity Controller, uses "B" type supply unit	For normally closed damper and one-pipe thermostat
CP980E1060	Yes	2.5 m/s up to 17.8 m/s by changing orifice	500 fpm up to 3500 fpm by changing orifice	62 to 103 kPa	9 to 15 psi	Direct acting Pneumatic Velocity Controller for reheat sequencing, uses "C" type supply unit	For normally open damper and two-pipe thermostat
CP980F1068	Yes	2.5 m/s up to 17.8 m/s by changing orifice	500 fpm up to 3500 fpm by changing orifice	62 to 103 kPa	9 to 15 psi	Reverse acting Pneumatic Velocity Controller for reheat sequencing, uses "C" type supply unit	For normally closed damper and two-pipe thermostat

# Pneumatic Velocity Sensor/Controller

## CP980C,D,E, and F Cross-Reference Table

Current Order Number (Less Orifice)	Orifice Order No.	Velocity Range ft/min (m/s)	Orifice Set	Replaces Honeywell		
				Original Set Less Orifice	Interim Matched Set (Less Orifice)	Matched Set (Includes Orifice)
CP980C1065	None	500 (2.5)	None	—	—	—
	14003642-002	750 (3.8)	Green	—	—	CP980C1016
	14003642-003	1500 (7.6)	White	—	—	CP980C1024
	14003642-004	2000 (10.2)	Blue	—	—	CP980C1032
	14003749-001	2500 (12.7)	Black	—	—	CP980C1040
	14003749-002	3500 (17.8)	Gray	—	—	CP980C1057
CP980D1063	None	500 (2.5)	None	CP980A1002/	CP980B1000	—
	14003642-002	750 (3.8)	Green	RP980A1006	or	CP980D1014
	14003642-003	1500 (7.6)	White	or	CP980B1018	CP980D1022
	14003642-004	2000 (10.2)	Blue	CP980A1002/	—	CP980D1030
	14003749-001	2500 (12.7)	Black	RP980B1004	—	CP980D1048
	14003749-002	3500 (17.8)	Gray	CP980A1010/	CP980B1034	CP980D1055
			or			
			RP980A1010/			
			RP980B1004	CP980B1042		
CP980E1060	None	500 (2.5)	None	—	—	—
	14003642-002	750 (3.8)	Green	—	—	CP980E1011
	14003642-003	1500 (7.6)	White	—	—	CP980E1029
	14003642-004	2000 (10.2)	Blue	—	—	CP980E1037
	14003749-001	2500 (12.7)	Black	—	—	CP980E1045
	14003749-002	3500 (17.8)	Gray	—	—	CP980E1052
CP980F1068	None	500 (2.5)	None	CP980A1002/	CP980B1026	—
	14003642-002	750 (3.8)	Green	RP980C1002	—	CP980F1019
	14003642-003	1500 (7.6)	White	CP980A1010/	CP980B1059 <sup>a</sup>	CP980F1027
	14003642-004	2000 (10.2)	Blue	RP980C1002 <sup>a</sup>	—	CP980F1035
	14003749-001	2500 (12.7)	Black	—	—	CP980F1043
	14003749-002	3500 (17.8)	Gray	—	—	CP980F1050

## Pneumatic Velocity Control Accessories and Replacement Parts

Product Number	Description	Used With
14003514-001	Sensor for CP980E Velocitrol Velocity Control	CP980E
14003642-002	Orifice Green, Velocity Range 750 ft/min (3.8 m/s)	CP980
14003642-003	Orifice White, Velocity Range 1500 ft/min (7.6 m/s)	CP980
14003642-004	Orifice Blue, Velocity Range 2000 ft/min (10.2 m/s)	CP980
14003749-001	Orifice Black, Velocity Range 2500 ft/min (12.7 m/s)	CP980
14003749-002	Orifice Gray, Velocity Range 3500 ft/min (17.8 m/s)	CP980
316155A	Cover Assembly, RP908	RP908

# Pneumatic Temperature Controllers

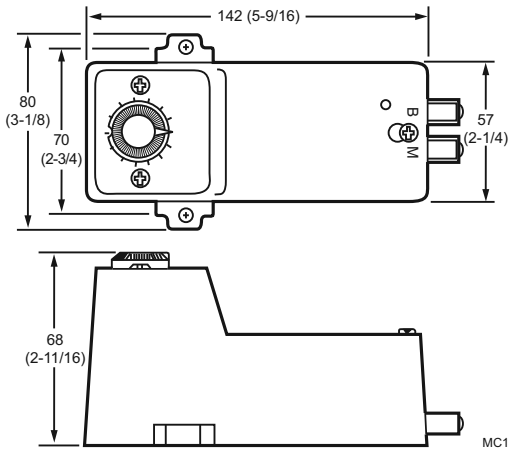
## LP920 Remote Bulb Temperature Controllers



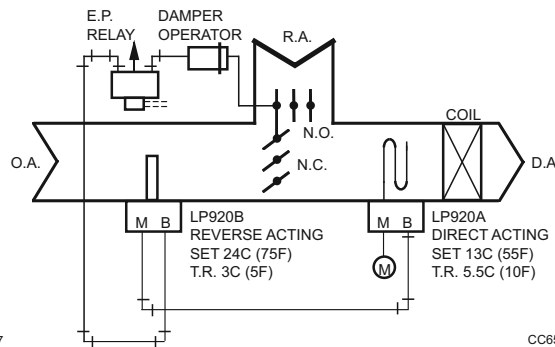
Two-pipe, single temperature, pneumatic temperature controller used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell two-pipe pneumatic temperature controller.

- Fahrenheit or Celsius scales for all adjustments.
- Pilot operated for high capacity.
- Direct Acting (DA) and Reverse Acting (RA) models are available.
- Adjustable setpoint and throttling ranges.
- Scales in bold type for high visibility.
- Replaceable filter cartridge.
- Single point or averaging elements.

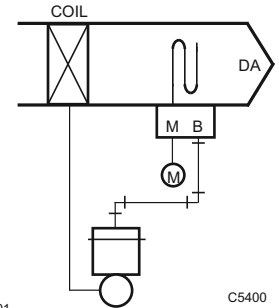
### Dimensions in millimeters (inches)



### Typical mixed air control



### Typical coil discharge control



**Airflow Usage:** 0.011 scfm (5.2 mL/s)  
**Maximum Operating Temperature:** Element: 110 C, Controller: 66 C (Element: 230 F, Controller: 150 F)  
**Maximum Storage Temperature:** 66 C (150 F)  
**Maximum Operating Pressure:** 207 kPa (30 psi)  
**Throttling Range:** Factory set at 6K with adjustment range of 3 to 15 K (Factory set at 10 F with adjustment range of 5 to 25 F)  
**Remote Bulb Sensor:** Yes

### Accessories:

**315904B** 1/2 in. NPT stainless steel Well, 7 5/16 in. (186 mm) long  
**315046B** Well, 1/2 NPT Copper, 7 1/2 in. (191 mm) long

### Replacement Parts:

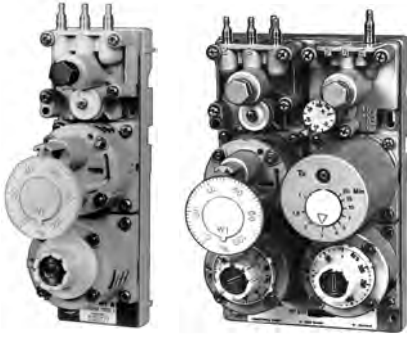
**14001865-001** Filter Cartridge Assembly  
**14002172-001** Gage Tap repair plug

Product Number	Application	Action	Number of Pipes	Scale Range		Comments	Includes
				(C)	(F)		
LP920A1005	Remote Bulb Temperature	Direct Acting	2	-1 C to +66 C	30 F to 150 F	Scale plate is reversible for F and C applications	8 ft (2.4 m) averaging element for duct mounting
LP920A1013	Remote Bulb Temperature	Direct Acting	2	-1 C to +66 C	30 F to 150 F	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 3 in. (76 mm) capillary, well mount
LP920A1021	Remote Bulb Temperature	Direct Acting	2	-1 C to +66 C	30 F to 150 F	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 10 in. (254 mm) capillary, integral duct mount
LP920A1039	Remote Bulb Temperature	Direct Acting	2	-1 C to +66 C	30 F to 150 F	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 5 ft. (1.5 m) capillary, remote duct mount
LP920B1037	Remote Bulb Temperature	Reverse Acting	2	-1 C to +66 C	30 F to 150 F	Scale plate is reversible for F and C applications	3/8 x 5 1/4 in. (10 x 133 mm) bulb with 5 ft. (1.5 m) capillary, remote duct mount



# Pneumatic Temperature Controllers

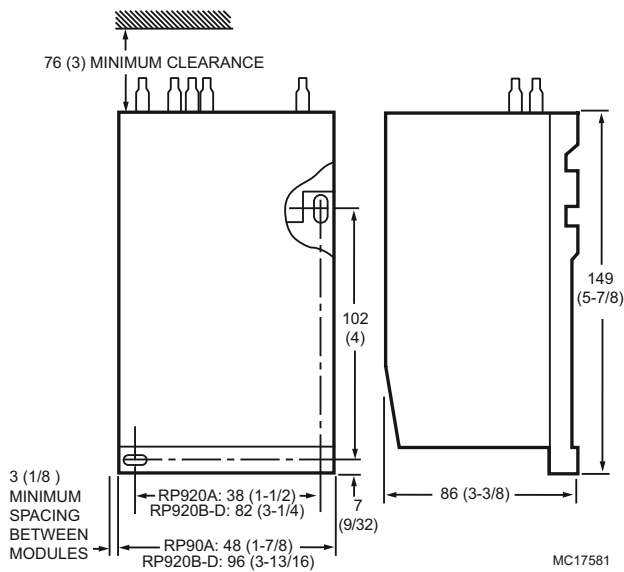
## RP920 Pneumatic Controller



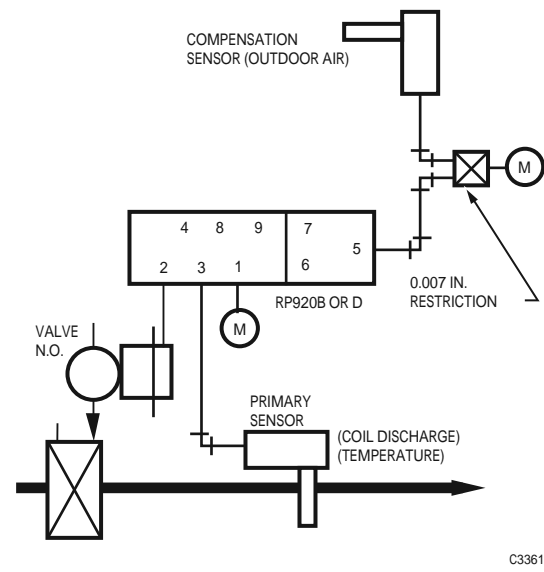
Proportional, high capacity, single or dual input pneumatic controller used in conjunction with remote sensors to provide proportional (P) or proportional plus integral (P+I) control of temperature, humidity, pressure, or dewpoint for heating and air conditioning systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell controllers.

- Proportional plus integral control option minimizes offset.
- Miniature diaphragm technology provides high degree of accuracy and reliability.
- Direct Acting models can be converted to Reverse Acting (RA) function in field.
- Field adjustable compensation start point.
- Local or remote setpoint field option. Integral action cut-off provides trouble-free automatic startup.
- Transparent cover (optional) provides protection while allowing easy reading of settings and gages.
- Corrosion resistant construction.

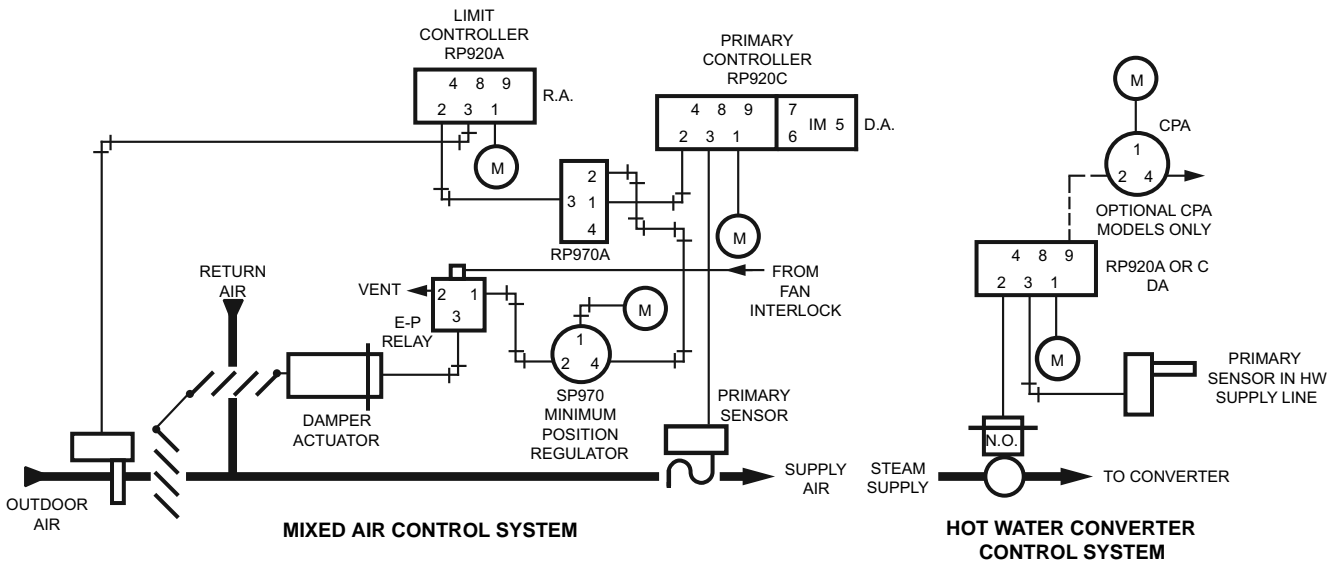
### Dimensions in millimeters (inches)



### Typical Dual-Input Control System



### Typical Single-Input Control System



Pneumatic Controls

# Pneumatic Temperature Controllers

**Airflow Usage:** 0.07 scfm (33.0 mL/s) with 1 psi (7kPa) pressure drop at 18 psi (124 kPa) main air supply

**Connections:** Air: Combination 5/32 in. by 1/4 in. barb. Optional accessory 14003755-001 (barb fitting for port 4,6,7, or 8 for all RP920).

**Input Signal:** 21 to 103 kPa (3 to 15 psi)

**Maximum Operating Temperature:** 54 C (130 F)

**Temperature Range:** 5 C to 55 C (40 F to 130 F)

**Maximum Operating Pressure:** 207 kPa (30 psi)

**Humidity Ratings:** 5 to 95% RH

**Remote Bulb Sensor:** No

**Remote Control Point Adjustment:** Yes

## Accessories:

**14000786-001** Receiver Gauge, 25 F-125 F scale, 1 1/2 in. diameter, 1/8 in. NPT connection

**14000786-002** Receiver Gauge, -5 to 55 C scale, 1 1/2 in. diameter, 1/8 in. NPT connection

**14000786-003** Receiver Gauge, 15 to 75% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection

**14000786-004** Receiver Gauge, 65 to 95% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection

**14000786-005** Receiver Gauge, 15 to 85% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection

**14004267-001** Temperature and Humidity scaleplate insert for setpoint knob for all RP920

**14004322-001** DIN Rail Mount

**14505694-003** 13 3/4 inch (350 mm) long mounting rail for RP920

**14505694-004** 17 3/4 inch (450 mm) long mounting rail for RP920

**305616** 1-1/2 in. diameter, 1/8 NPT center stem back mount Receiver gauge (0 to 2 in. w.c. scale) with ± 2% accuracy

**305929** 1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (-40 to +160 F scale) with ± 2% accuracy

**305930** 1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (0 to 200 F scale) with ± 2% accuracy

**305931** 1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (40 to 240 F scale) with ± 2% accuracy

**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy

**305972** Receiver gauge, 1-1/2 in. 1/8 NPT center back, temperature 50 to 100F

**305986** Receiver Gauge. -20 to 80 F scale 1-1/2 in. diameter, 1/2 NPT connection

**43188057-010** Clear plastic cover for all RP920A pneumatic controllers

**43188123-010** Clear plastic cover for all RP920B, RP920C, RP920D pneumatic controllers

## Replacement Parts:

**14001865-001** Filter Cartridge Assembly

**14002172-001** Gage Tap repair plug

**14003757-001** Seal screw for port 8 and O-ring repair parts for RP920

**14004277-003** Setpoint module with gasket with CPA for RP920

**14004278-002** Compensation module with gasket for RP920B and RP920D

**14004533-001** Connector block with gasket and CPA for RP920

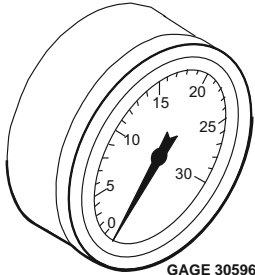
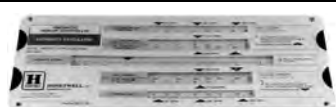
**43188059-001** Setpoint knob for all RP920 pneumatic controllers

**43915905-110** O-ring for filter in RP920

Product Number	Application	Action	Capacity	Number of Sensors	Output Pressure Range		Comments	Includes
					(kPa)	(psi)		
RP920A1025	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	With remote control point adjustment capability.
RP920A1033	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	Without remote control point adjustment capability.
RP920B1023	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.046 scfm (21.7 mL/s)	dual	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	With remote control point adjustment capability.
RP920B1031	Proportional pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.046 scfm (21.7 mL/s)	dual	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	Without remote control point adjustment capability.
RP920C1021	Proportional plus integral pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	With remote control point adjustment capability.
RP920C1039	Proportional plus integral pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.021 scfm (10 mL/s)	single	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	Without remote control point adjustment capability.
RP920D1029	Proportional plus integral pneumatic controller	Direct Acting	at 18 psi (124 kPa) MLP and 8.5 psi (59 kPa) BLP (does not include sensor usage): 0.046 scfm (21.7 mL/s)	dual	21 to 90 kPa, output signal maximum is Mainline Pressure minus 7 kPa	3 to 13 psi, output signal maximum is Mainline Pressure minus 1/2 psi	All RP920s can be converted to reverse acting in the field. For additional technical information see literature Form no. 85-0224 and 95-7392EF.	With remote control point adjustment capability.

# Pneumatic Temperature Controllers

## Pneumatic Temperature Controller Accessories

Product Number	Description	Used With	
14000786-001	Receiver Gauge, 25 F-125 F scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-002	Receiver Gauge, -5 to 55 C scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-003	Receiver Gauge, 15 to 75% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-004	Receiver Gauge, 65 to 95% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14000786-005	Receiver Gauge, 15 to 85% RH scale, 1 1/2 in. diameter, 1/8 in. NPT connection	RP920	
14002696-001	Repair kit including filters, screens, washers, gaskets, O-rings, and restrictors for RP908A and RP908B controllers	RP908	
14004278-002	Compensation module with gasket for RP920B and RP920D	RP920	
14004322-001	DIN Rail Mount	RP920	
305616	1-1/2 in. diameter, 1/8 NPT center stem back mount Receiver gauge (0 to 2 in. w.c. scale) with $\pm 2\%$ accuracy	RP920	
305617	1-1/2 in. diameter, 1/8 NPT center stem back mount Receiver gauge (1.0 to 3.0 in. w.c. scale) with $\pm 2\%$ accuracy	RP920	
305929	1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (-40 to +160 F scale) with $\pm 2\%$ accuracy	RP920	
305930	1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (0 to 200 F scale) with $\pm 2\%$ accuracy	RP920	
305931	1-1/2 in. diameter, 1/8 NPT center back stem mount Receiver gauge (40 to 240 F scale) with $\pm 2\%$ accuracy	RP920	
305965	1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with $\pm 4\%$ accuracy	RP920	 <p>GAGE 305965 0-30 PSI (0-207 kPa) C8402</p>
305972	Receiver gauge, 1-1/2 in. 1/8 NPT center back, temperature 50 to 100F	RP920	
43188057-010	Clear plastic cover for all RP920A pneumatic controllers	RP920	
43188123-010	Clear plastic cover for all RP920B, RP920C, RP920D pneumatic controllers	RP920	
CCT813	Slide Rule for Calculating Pneumatic Controller Settings for all RP908 and RP920's.	RP908; RP920	

## Pneumatic Temperature Controller Replacement Parts

Product Number	Description	Used With
14003757-001	Seal screw for port 8 and O-ring repair parts for RP920	RP920
14004277-003	Setpoint module with gasket with CPA for RP920	RP920
14004533-001	Connector block with gasket and CPA for RP920	RP920
43188059-001	Setpoint knob for all RP920 pneumatic controllers	RP920
43915905-110	O-ring for filter in RP920	RP920

# Pneumatic Pressure Controllers

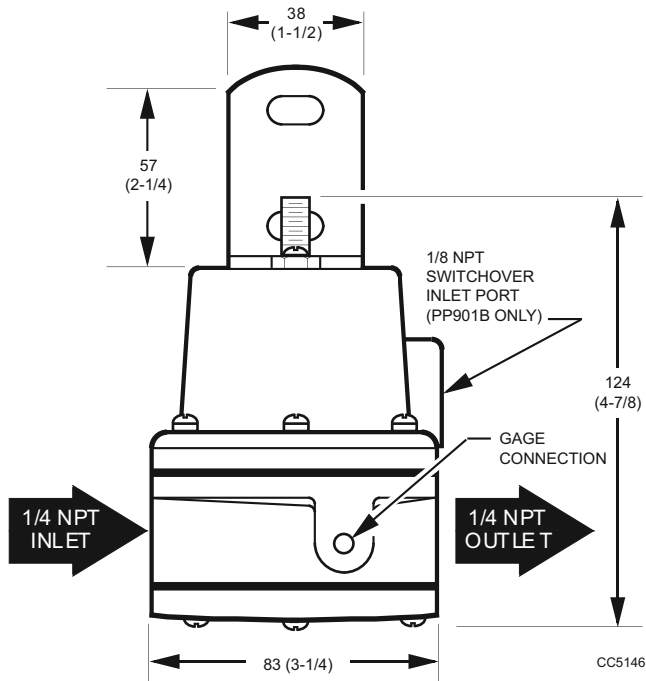
## PP901; PP902 Pressure Reducing Valves



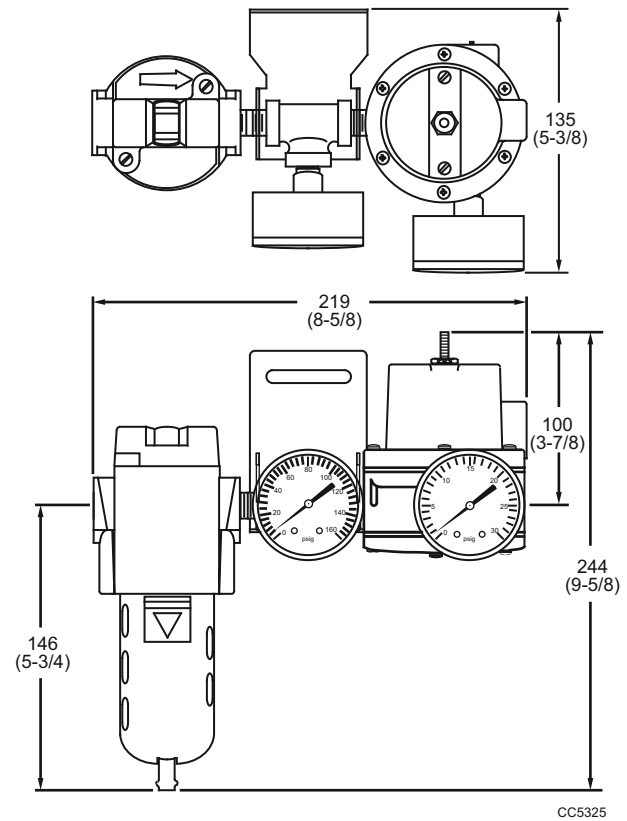
Used to control the pressure of the air delivered to pneumatic control systems. Models available for single-pressure systems or two-pressure systems (Day/Night or Summer/Winter) requiring two independently regulated pressure settings. Dual-pressure units switch from the lower settings to the higher settings when main air is applied to the pilot port. Models also available including a sub-micron filter assembly and pressure gauges. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman and older Honeywell pressure reducing valves.

- Built-in adjustable safety relief valve for limiting downstream pressure.
- For two-pressure models: Pressure changes accomplished with manual switch or automatically with electric pneumatic switch.
- Adjustable stops for desired settings.

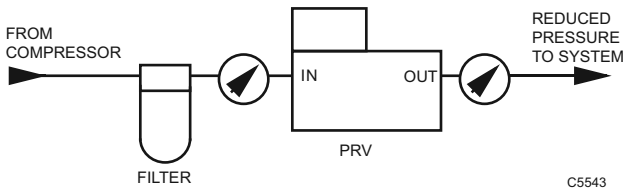
PP901 Dimensions in millimeters (inches)



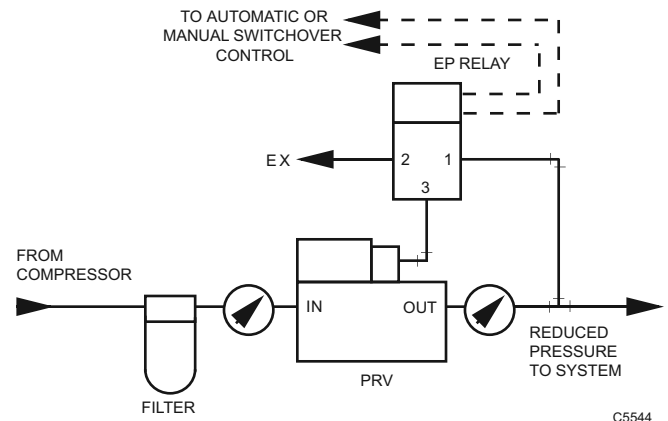
PP902 Dimensions in millimeters (inches)



PP902C Typical Operation



PP902D Typical Operation



# Pneumatic Pressure Controllers

**Application Type:** Pressure Reducing

**Dimensions, Approximate:** 279 mm high, 225 mm wide, 95 mm deep (11 in. high, 8 7/8 in. wide, 3 3/4 in. deep)

**Connection Size:** Inlet and out air: 1/4 in. NPT (female) Air gage: 3 mm (1/8 in.) NPT (female)

**Mounting:** Bracket furnished

**Accessories:**

**305917** 2 in. diameter, 1/4 NPT center stem back mount Pressure Indicating gauge (0 to 160 psi scale) with ± 3% accuracy

**804191E** 2-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 160 psi), 1/8 in. NPT connection, ±3% accuracy

**305965** 1-1/2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy

**Replacement Parts:**

**14004203-001** Filter cartridge kit for PP902C and PP902D.

**14004205-002** Filter Station Assembly for PP901, PP902A or B

**14003121-002** Filter for PP902A or B

**316134B** PP901A & B Diaphragm Repair Kit

**316203A** Pressure Regulator Valve Assembly used with PP901A, PP902A, or PP902B.

**PP901B1002** Pressure Regulating Valve Assembly used to replace the PRV in PP901B, PP902B, or PP902D

Product Number	Inlet Pressure Range		Output Pressure Range		Description	Includes
	(kPa)	(psi)	(kPa)	(psi)		
PP901A1004	310 to 1034 kPa	45 to 150 psi	primary pressure: adj. 0 to 172 kPa.	primary pressure: adj. 0 to 25 psi.	High Pressure Diaphragm Operated Reducing Valve with Built-in Adjustable Relief Valve for Single Pressure Systems. Includes Mounting Bracket and Gage Taps But No Gages.	Gage tapping to measure the regulated pressure.
PP901B1002	310 to 1034 kPa	45 to 150 psi	primary pressure: adj. 0 to 172 kPa; secondary pressure: adj. 0 to 34kPa above primary setting.	primary pressure: adj. 0 to 25 psi; secondary pressure: adj. 0 to 5 psi above primary rating	High Pressure Diaphragm Operated Reducing Valve with Built-in Adjustable Relief Valve for Dual Pressure Systems. Includes Mounting Bracket and Gage Taps But No Gages.	Gage tapping to measure the regulated pressure.
PP902C1009	310 to 1034 kPa	45 to 150 psi	primary pressure: adj. 0 to 172 kPa.	primary pressure: adj. 0 to 25 psi	Pressure Reducing Valve for Single Pressure Systems, consists of a PP901A Valve, a sub-micron filter station, 2 psig gages, Interconnecting Pipe Fittings, and a Mounting Bracket	Submicron filter assembly and two psig gages.
PP902D1007	310 to 1034 kPa	45 to 150 psi	primary pressure: adj. 0 to 172 kPa; secondary pressure: adj. 0 to 34kPa above primary setting.	primary pressure: adj. 0 to 25 psi; secondary pressure: adj. 0 to 5 psi above primary rating	Pressure Reducing Valve for Dual Pressure Systems, consists of a PP901B Valve, a sub-micron filter station, 2 psig gages, Interconnecting Pipe Fittings, and a Mounting Bracket	Submicron filter assembly and two psig gages.

# Pneumatic Pressure Controllers

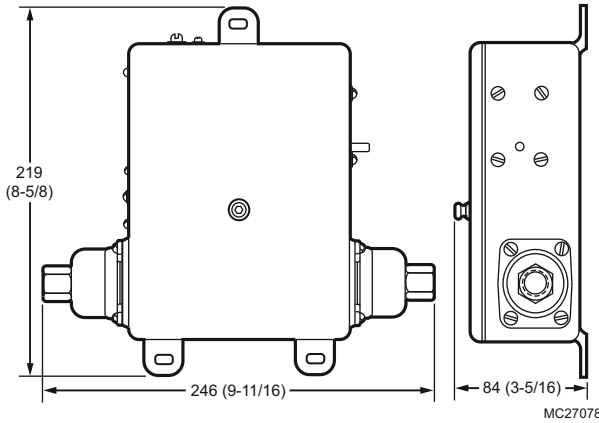
## PP903 Pneumatic Differential Pressuretrol



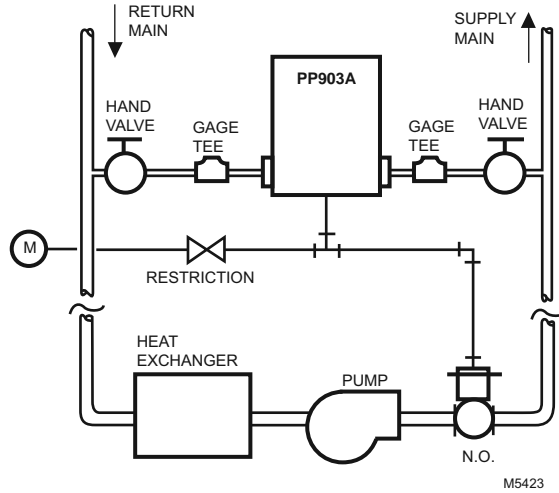
One-pipe, pressure operated device used to provide proportional control of pneumatic valve or damper actuators by varying the pressure to the actuators in relation to the pressure difference between two separate water pressures. Replacement devices are available for Johnson, Powers, Robertshaw, and older Honeywell pneumatic pressure controllers.

- Easily accessible adjustments.
- Direct Acting (DA) or Reverse Acting (RA) setting.
- Mounting lugs for quick mounting.

Dimensions in millimeters (inches)



PP903A Typical Piping



**Application Type:** Differential Pressure

**Action:** Reverse Acting, Direct Acting

**Dimensions, Approximate:** 219 mm high, 244 mm wide, 83 mm deep  
(8 5/8 in. high, 9 5/8 in. wide, 3 1/4 in. deep)

**Connection Size:** Input: 1/4 in. NPT; Branch Line: 1/8 in. NPT

**Pressure Range:** 0 to 2068 kPa (0 to 300 psi)

**Approximate Throttling Range, Midscale (max.):** 172 kPa (25 psi)

**Mounting:** Lugs for 3-point surface mounting

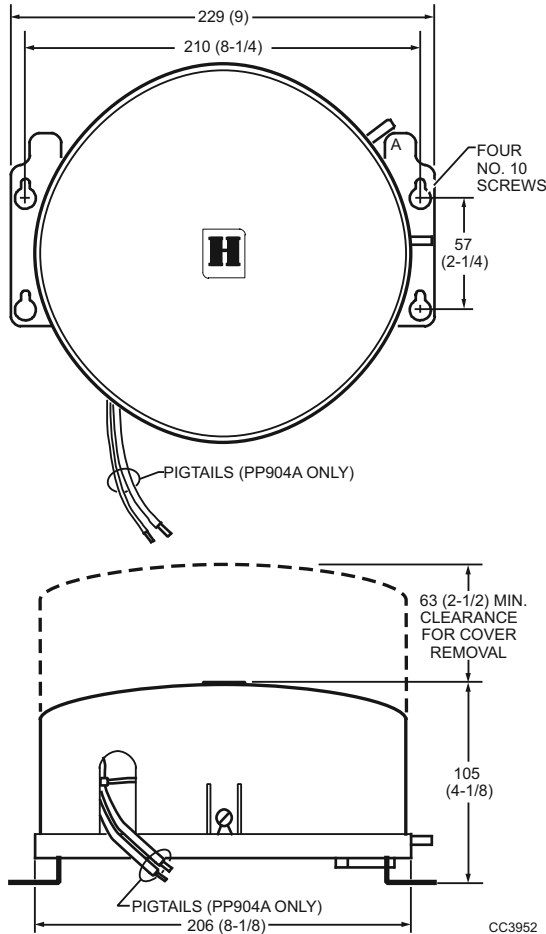
Product Number	Action	Actuator Force		Maximum Operating Pressure		Differential Pressure Range		Description
		(kPa)	(psi)	(kPa)	(psi)	(kPa)	(psi)	
PP903A1036	Reverse Acting, Direct Acting	52 kPa	7.5 psi	124 kPa	18 psi	34 to 448 kPa	5 to 65 psi	Pneumatic, Type of control: Pneumatic, Output

# Pneumatic Pressure Controllers

## PP904 Static Pressure Regulators



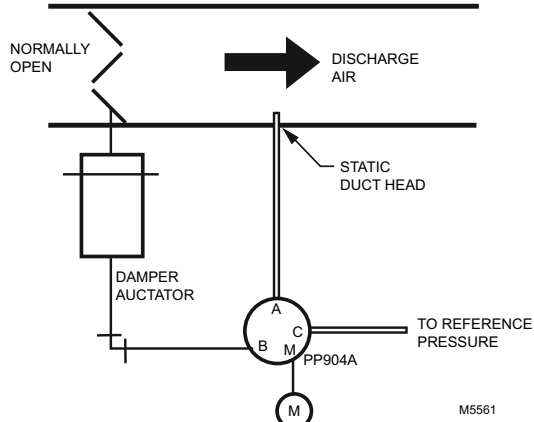
Dimensions in millimeters (inches)



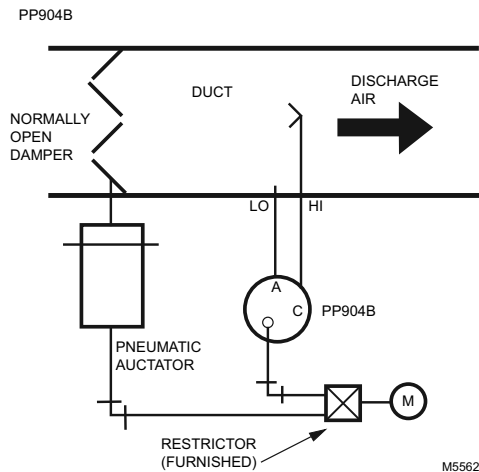
One- or two-pipe, direct- or reverse-acting, low- or high-capacity controller used with pneumatic actuators to regulate static or differential pressure in central fan installations. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Adjustable setpoint and throttling range (Zero and span).
- Direct Acting (DA) and Reverse Acting (RA).
- Sharp-barb, push-on connectors for plastic tubing.
- Field calibration possible.

PP904A Typical Piping



PP904B Typical Piping



**Application Type:** Static or Differential Pressure  
**Action:** Reverse Acting, Direct Acting  
**Airflow Usage:** 0.022 scfm (10.0 mL/s) at 18 psi (124 kPa)  
**Connections:** Main: Sharp-barbed fittings for 1/4 in. diameter tubing;  
 Branch: Sharp-barbed fittings for 5/32 in. diameter tubing  
**Mainline Air Pressure (min.):** 112 kPa (16 psi)  
**Mainline Air Pressure (max.):** 175 kPa (25 psi)  
**Approximate Throttling Range, Midscale (max.):** 0.03 to 0.5 in wc (adjustable)

**Maximum Safe Static Pressure:** 7 kPa (28 in. wc)  
**Mounting:** Duct mount  
**Temperature Range:** 5 C to 50 C (40 F to 120 F)

**Accessories:**  
**14004238-001** Static Pressure Duct Head for 1/4 in., 6 mm diameter Plastic Tubing  
**301298B** Outdoor Static Pressure Head

Product Number	Action	Number of Pipes	Maximum Operating Pressure		Setpoint Range		Throttling Range (in. wc)	Description	Comments
			(kPa)	(psi)	(kPa)	(in. wc)			
PP904A1035	Reverse Acting, Direct Acting	2	170 kPa	25 psi	0 to ±2 kPa (adjustable)	0 to ±8 in. wc (adjustable)	0.03 to 0.5 in wc (adjustable)	One pipe Pneumatic Static Pressure Regulator, static or differential pressure, direct or reverse action with high capacity BLP	High capacity branchline pressure
PP904B1009	Reverse Acting, Direct Acting	1	170 kPa	25 psi	0 to ±2 kPa (adjustable)	0 to ±8 in. wc (adjustable)	0.06 to 0.5 in. wc (adjustable)	Two pipe Pneumatic Static Pressure Regulator, static or differential pressure, direct or reverse action with low capacity BLP	Low capacity branchline pressure

# Pneumatic Pressure Controllers

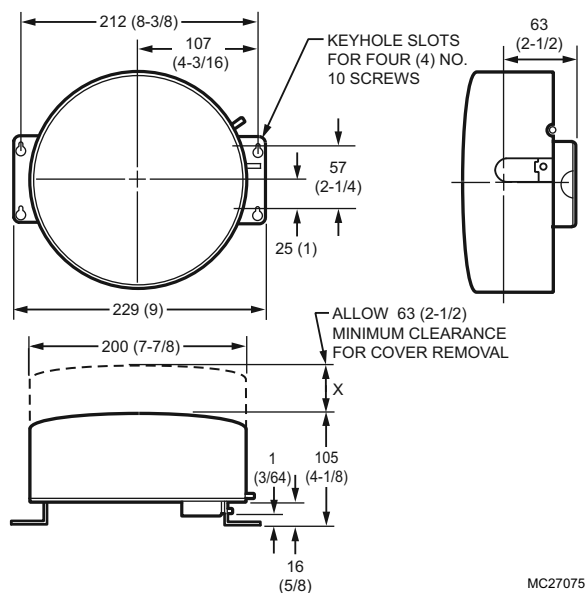
## PP905 Static Pressure Sensor



One-pipe, direct-or reverse-acting pressure sensor used with RP908/RP920 Controllers to provide control of duct static, velocity, or differential pressure in airflow applications. Replacement devices available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Three-diaphragm design minimizes calibration shift with static pressure changes in velocity pressure applications.
- Not sensitive to normal supply air variations.
- Continuous static, total, velocity, or differential pressure indication available by using differential pressure gage.

### Dimensions in millimeters (inches)



### Application Type: Static Pressure

**Action:** Can be set for Direct Acting or Reverse Acting

**Dimensions, Approximate:** 203 mm high, 228 mm wide, 105 mm deep (8 in high, 9 in wide, 4 1/8 in deep)

**Airflow Usage:** 0.021 cfm (9.9 ml/s)

**Connections:** Push-on barb for 1/4 in (6 mm) Diameter tubing

**Mainline Air Pressure (min.):** 112 kPa (16 psi)

**Mainline Air Pressure (max.):** 175 kPa (25 psi)

**Pressure Range:** 0.5 kPa (2 in. wc)

**Maximum Safe Static Pressure:** 7 kPa (28 in. wc)

**Mounting:** Duct mount

**Temperature Range:** 4 C to 50 C (40 F to 120 F)

### Accessories:

**14004238-001** Static Pressure Duct Head for 1/4 in., 6 mm diameter Plastic Tubing

Product Number	Action	Maximum Operating Pressure		Output Pressure Range		Setpoint Range		Span (Non-Adjustable)		Description	Comments
		(kPa)	(psi)	(kPa)	(psi)	(kPa)	(in. wc)	(kPa)	(in. wc)		
PP905B1008	Can be set for Direct Acting or Reverse Acting	172 kPa	25 psi	21 kPa to 103 kPa	3 psi to 15 psi	0 kPa to 1.7 kPa (Adjustable)	0 in. wc. to 7 in. wc. (Adjustable)	0.5 kPa	2 in. wc.	Static Pressure Sensor used with RP920/RP908	The setpoint determines the midpoint of the span.



# Pneumatic Pressure Controllers

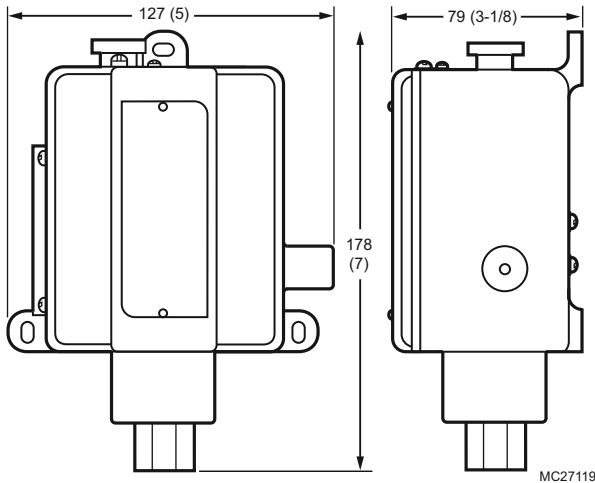
## PP97 Pneumatic Pressure Control



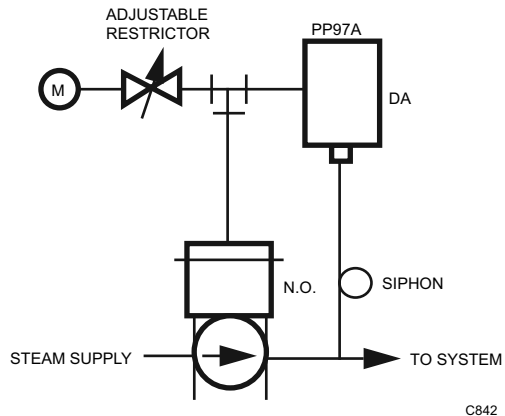
One-pipe, pressure operated device that provides proportional control of pneumatic valves to control steam, air, noncorrosive gas, or noncorrosive liquid pressure. Replacement devices are available for Johnson, Powers, Robertshaw, and older Honeywell pneumatic pressure controllers.

- Easily accessible adjustments.
- Direct Acting (DA) or Reverse Acting (RA) setting.

Dimensions in millimeters (inches)



PP97A Typical Piping



**Application Type:** Proportional Pressure

**Action:** Reverse Acting, Direct Acting

**Dimensions, Approximate:** 178 mm high x 127 mm wide x 79 mm deep (7 in. high x 5 in. wide x 3 1/8 in. deep)

**Connection Size:** Bellows: 1/4 in., NPT; Air: 1/8 in. NPT

**Approximate Throttling Range, Midscale (max.):** 10 kPa (1.5 psi)

**Mounting:** Lugs for 3-point surface mounting

Product Number	Action	Maximum Operating Pressure		Setpoint Range		Description
		(kPa)	(psi)	(kPa)	(psi)	
PP97A1035	Reverse Acting, Direct Acting	172 kPa	25 psi	0 to 103 kPa	0 to 15 psi	Pneumatic Pressure Controller, Proportional Pressure, Action: Direct or Reverse, Output: Proportional Pressure, 0 to 15 psi pressure range
PP97A1076	Reverse Acting, Direct Acting	2413 kPa	350 psi	69 to 2068 kPa	10 to 300 psi	Pneumatic Pressure Controller, Proportional Pressure, Action: Direct or Reverse, Output: Proportional Pressure, 10 to 300 psi pressure range

# Pneumatic Pressure Controllers

## UEC24014 Differential Pressure Switch



Differential pressure switches open or close a switch contact in response to a change in sensed differential pressure.

- NEMA Enclosures.
- UL and CSA Listed.
- Gold Clad Contacts.
- Brass Pipe Connection.
- Pipe or Surface Mount.

**Dimensions, Approximate:** 89 mm high x 58 mm wide  
(3 1/2 in. high x 2 3/8 in. wide)

**Connection Size:** Pipe connection: Brass, 1/4 in. NPT  
Electric connection: terminal strip, 16 AWG max.

**Pressure Range:** 1034 kPa at either port (150 psi at either port)

**Mounting:** Pipe or surface

**Temperature Range:** -1 C to +71 C (30 F to 160 F)

**Approvals:**

**Canadian Standards Association:** Approved

**Factory Mutual:** Approved

**NEMA Standard:** NEMA 1

**Underwriters Laboratories, Inc.** Certified

Product Number	Differential Pressure Range		Description
	(kPa)	(psi)	
UEC24014M262	28 to 310 kPa	4 to 45 psi	Pneumatic, Type of control: Pneumatic, NEMA 1, 150 psi at either end
UEC24014M262M900	28 to 310 kPa	4 to 45 psi	Pneumatic, Type of control: Pneumatic, NEMA 4, 150 psi at either end

## Pneumatic Pressure Controller Accessories and Replacement Parts

Product Number	Description	Used With
14003121-002	Filter for PP902A or B	PP902A,B
14004203-001	Filter cartridge kit for PP902C and PP902D.	PP902C,D
14004205-002	Filter Station Assembly for PP901, PP902A or B	PP901; PP902A,B
14004238-001	Static Pressure Duct Head for 1/4 in., 6 mm diameter Plastic Tubing	PP904
301298B	Outdoor Static Pressure Head	PP904

# Pneumatic Humidity Sensors

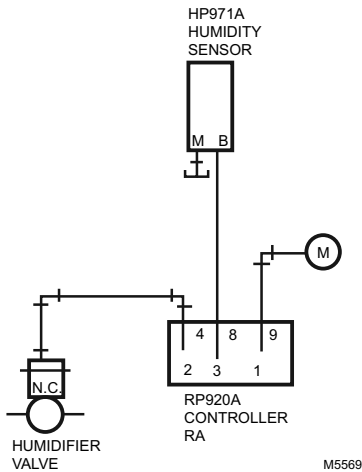
## HP971 Pneumatic Humidity Sensor



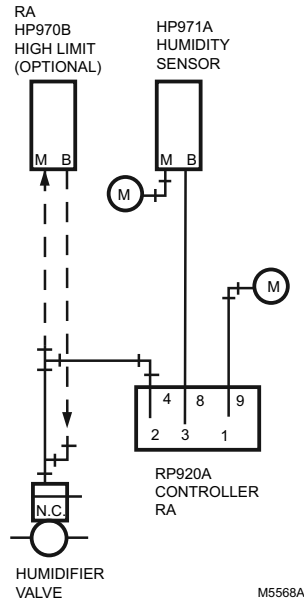
One- or two-pipe, direct-acting humidity sensor used with RP908/ RP920 Controllers to provide proportional control of pneumatic valve or damper actuators in systems requiring humidification or dehumidification control.

- Corrosion resistant materials.
- Simple plug-in air head connections.
- Factory calibrated.
- Continuous relative humidity indication available by using receiver gage.
- Integral or external restriction can be used.

### HP971A One-Pipe Application



### HP971A Two-Pipe Application



**Application Type:** Humidity Sensor  
**Dimensions, Approximate:** 88 mm high x 51 mm wide x 41 mm deep  
 (3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)  
**Action:** Direct Acting  
**Airflow Usage:** 0.022 scfm (10.4 mL/s)

**Connections:** Push-on barb for 5/32 in. (4 mm) O.D. tubing  
**Maximum Operating Temperature:** 52 C (125 F)  
**Maximum Operating Pressure:** 172 kPa (25 psi)  
**Output Pressure Range:** 21 kPa to 103 kPa (3 psi to 15 psi)  
**Supply Pressure:** 110-145 kPa (16-21 psi)

Product Number	Number of Pipes	Sensor Range	Mounting	Description	Comments
HP971A1008	1 or 2	15 to 75% RH	Vertical or Horizontal Wall Mounting or Mounted in Duct Sampling Chamber	Pneumatic Humidity Sensor, 15 to 75% RH range	Order Cover Separately
HP971A1024	1 or 2	15 to 85% RH	Vertical or Horizontal Wall Mounting or Mounted in Duct Sampling Chamber	Pneumatic Humidity Sensor, 15 to 85% RH range	Order Cover Separately

# Pneumatic Temperature Sensors

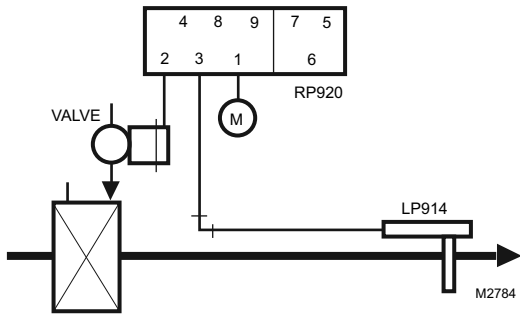
## LP914 Pneumatic Temperature Sensor



**One-pipe, direct-acting temperature sensor used with RP908/ RP920 Controllers to provide proportional control of pneumatic valve or damper actuators. Rod and tube insertion element for duct, well, or through-the-wall mounting.**

- Corrosion resistant.
- Continuous temperature indication available by using receiver gage.

### LP914 Typical Piping Duct-Mounted Applications



**Application Type:** Temperature Sensor  
**Dimensions, Approximate:** Body: 51 mm high x 64 mm wide  
 (Body: 2 in. high x 2 1/2 in. wide)

**Action:** Direct Acting

**Airflow Usage:** 0.019 scfm (540 sccm)

**Connections:** Push-on barb for 5/32 in. (4 mm) and 1/4 in. (6 mm) O.D. tubing

**Maximum Operating Temperature:** 129 C (265 F)

**Maximum Operating Pressure:** 172 kPa (25 psi)

**Output Pressure Range:** 21 kPa to 103 kPa (3 psi to 15 psi)

**Supply Pressure:** 124 kPa (18 psi)

#### Accessories:

**315046A** Well, 1/2 NPT Copper, 15 1/2 in. (392 mm) long

**315046B** Well, 1/2 NPT Copper, 7 1/2 in. (191 mm) long

**315904A** Well, 1/2 NPT Stainless Steel, 15 7/16 in., 394 mm

**315904B** 1/2 in. NPT Stainless Steel Well, 7 5/16 in. (186 mm) long

**311085/0107** Sunshield for LP914A1011

#### Replacement Parts:

**315602** Inner Filter

**14004664-001** 0.36 inch diameter Wool felt filter

Product Number	Number of Pipes	Sensor Element	Element Length		Temperature Sensing Range		Mounting	Description
			sq mm	sq in.	(C)	(F)		
LP914A1003	1	Rod and tube	381 mm	15 in.	-40 C to +71 C	-40 F to +160 F	Duct mount	Pneumatic Temperature Sensor, Rod and tube, 15 in., -40 to +160 F
LP914A1011	1	Rod and tube	686 mm	27 in.	-40 C to +71 C	-40 F to +160 F	Wall mount	Pneumatic Temperature Sensor, Rod and tube, 27 in., -40 to +160 F
LP914A1029	1	Rod and tube	381 mm	15 in.	5 C to 115 C	40 F to 240 F	Well mount	Pneumatic Temperature Sensor, Rod and tube, 15 in., 40 to 240 F
LP914A1045	1	Rod and tube	178 mm	7 in.	-40 C to +71 C	-40 F to +160 F	Duct mount	Pneumatic Temperature Sensor, Rod and tube, 7 in., -40 to +160 F
LP914A1052	1	Rod and tube	178 mm	7 in.	5 C to 115 C	40 F to 240 F	Well mount	Pneumatic Temperature Sensor, Rod and tube, 7 in., 40 to 240 F
LP914A1060	1	Rod and tube	178 mm	7 in.	-40 C to +71 C	-40 F to +160 F	Well mount	Pneumatic Temperature Sensor, Rod and tube, 7 in., -40 to +160 F
LP914A1144	1	Rod and tube	381 mm	15 in.	-4 C to +52 C	25 F to 125 F	Duct mount	Pneumatic Temperature Sensor, Rod and tube, 15 in., 25 to 125 F
LP914A1151	1	Rod and tube	381 mm	15 in.	-40 C to +71 C	-40 F to +160 F	Duct mount	Pneumatic Temperature Sensor, Rod and tube, 15 in., -40 to +160 F
LP914A1177	1	Rod and tube	381 mm	15 in.	5 C to 115 C	40 F to 240 F	Well mount	Pneumatic Temperature Sensor, Rod and tube, 15 in. 40 F to 240 F
LP914A1235	1	Rod and tube	381 mm	15 in.	-4 C to +52 C	25 F to 125 F	Duct mount	Pneumatic Temperature Sensor, Rod and tube, 15 in. 25 F to 125 F
LP914A1268	1	Rod and tube	381 mm	15 in.	5 C to 115 C	40 F to 240 F	Duct or Well mount	Pneumatic Temperature Sensor, Rod and tube, 15 in., 40 to 240 F

# Pneumatic Temperature Sensors

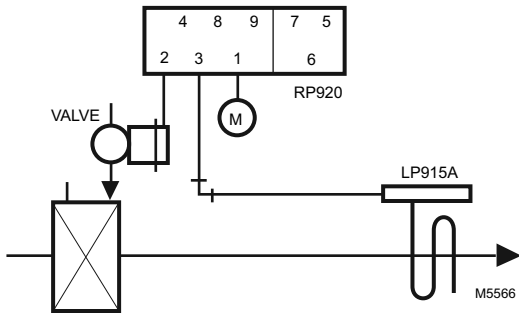
## LP915 Pneumatic Temperature Sensor



One-pipe, direct-acting temperature sensor used with RP908/ RP920 Controllers to provide proportional control of pneumatic valve or damper actuators. Averaging, liquid-filled element for duct mounting.

- Easily formed into variety of configurations to assure sensing of average temperatures.
- Continuous temperature indication available by using receiver gage.

### LP915A Typical Piping Duct-Mounted Application



**Application Type:** Temperature Sensor

**Dimensions, Approximate:** 76 mm high x 44 mm wide x 33 mm deep (3 in. high x 1 7/8 in. wide x 1 1/2 in. deep)

**Action:** Direct Acting

**Airflow Usage:** 0.019 scfm (540 sccm)

**Connections:** Push-on barb for 5/32 in. (4 mm) and 1/4 in. (6 mm) O.D. tubing

**Maximum Operating Temperature:** 118 C (225 F)

**Maximum Operating Pressure:** 172 kPa (25 psi)

**Output Pressure Range:** 21 kPa to 103 kPa (3 psi to 15 psi)

**Supply Pressure:** 124 kPa (18 psi)

Product Number	Number of Pipes	Sensor Element	Element Length		Temperature Sensing Range		Mounting	Description
			sq m	sq ft.	(C)	(F)		
LP915A1044	1	Liquid-filled	5.6m	18 1/2 ft	-18 C to +93 C	0 F to 200 F	Duct mount	Pneumatic Temperature Sensor, Liquid-filled, 18 1/2 ft., 0 to 200 F
LP915A1051	1	Liquid-filled	2.7m	8 7/8 ft	-18 C to +93 C	0 F to 200 F	Duct mount	Pneumatic Temperature Sensor, Liquid-filled, 8 7/8 ft., 0 to 200 F
LP915A1077	1	Liquid-filled	5.6m	18 1/2 ft	-4 C to +52 C	25 F to 125 F	Duct mount	Pneumatic Temperature Sensor, Liquid-filled, 18 1/2 ft., 25 to 125 F

# Pneumatic Temperature Sensors

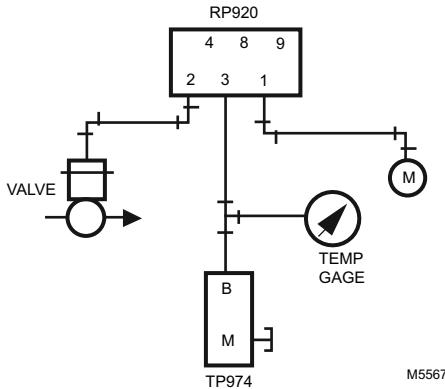
## TP974 Pneumatic Temperature Sensor



One- or two-pipe direct-acting temperature sensor used with RP908/RP920 Controllers to provide proportional control of pneumatic valve and damper actuators.

- Plug-in air connections.
- High efficiency air filter.
- Bimetal element.
- Continuous temperature indication available by using receiver gage.

### TP974A Typical Piping



**Application Type:** Temperature Sensor

**Dimensions, Approximate:** 83 mm high x 51 mm wide x 41 mm deep  
(3 1/4 in. high x 2 in. wide x 1 5/8 in. deep)

**Action:** Direct Acting

**Airflow Usage:** 0.019 scfm (9 mL/s)

**Maximum Operating Temperature:** 43 C (110 F)

**Maximum Operating Pressure:** 170 kPa (25 psi)

**Output Pressure Range:** 21 kPa to 103 kPa (3 psi to 15 psi)

**Supply Pressure:** 110 to 172 kPa (16 to 25 psi)

Product Number	Number of Pipes	Sensor Element	Temperature Sensing Range		Mounting	Description	Comments
			(C)	(F)			
TP974A2000	1 or 2	Bimetal	10 C to 38 C	50 F to 100 F	Vertical or Horizontal Wall Mounting	Pneumatic Temperature Sensor Direct Acting	Order Cover Separately

## Pneumatic Sensor Accessories

Product Number	Description	Used With
309379	Screen for LP914	LP914
311085/0107	Sunshield for LP914A1011	LP914A1011
314439	Duct Mounting Clip for Averaging capillary	LP915
315046A	Well, 1/2 NPT Copper, 392 mm (15 1/2 in.) long	LP914
315046B	Well, 1/2 NPT Copper, 191 mm (7 1/2 in.) long	LP914
315602	Inner Filter	LP914, LP915, LP907
315904A	Well, 1/2 NPT Stainless Steel, 394 mm (15 7/16 in.)	LP914
315904B	1/2 in. NPT stainless steel Well, 7 5/16 in. (186 mm) long	LP914

## Pneumatic Sensor Replacement Parts

Product Number	Description	Used With
14004664-001	0.36 inch diameter wool felt filter	LP915A

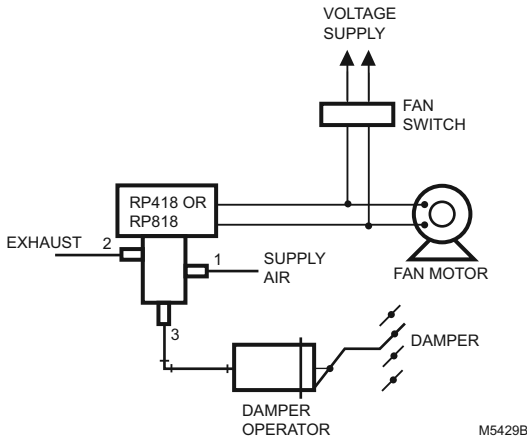
## RP418, RP818 Electric/Pneumatic Relay



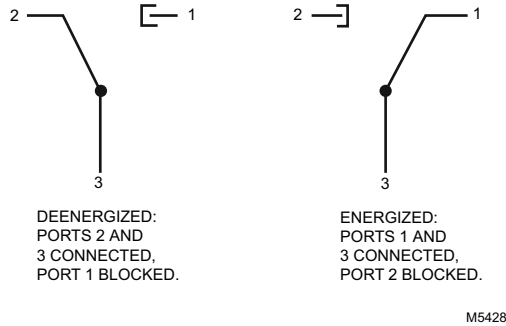
Electrically operated pneumatic switches used to interlock an electrical system and a pneumatic control system. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Usable as a diverting relay, a selector relay, or a stop and bleed relay.
- Mount and operate in any position.
- Available with lead wires or junction box.
- Line or low voltage models available.

### RP418 & RP818 Typical Piping and Wiring



### Internal Connections



**Type:** Electric / Pneumatic Relay

**Dimensions, Approximate:** 73 mm high x 97 mm wide x 32 mm deep  
(2 7/8 in. high x 3 13/16 in. wide x 1 1/4 in. deep)

**Airflow Usage:** 0.42 scfm (200 mL/s) at 138 kPa (20 psi) supply with 7 kPa (1 psi) pressure drop

**Air Connections:** Barbed fitting for 6 mm (1/4 in.) O.D. plastic tubing

**Capacity:** 0.075 Cv minimum

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +38 C (0 F to 100 F)

**Maximum Safe Operating Pressure:** 340 kPa (50 psi)

**Approvals:**

**Canadian Standards Association:** Canadian Standards Association  
Listed: File No. LR50900

**Canadian Underwriters Laboratories, Inc.:** Listed: File No. LR50900  
**Underwriters Laboratories, Inc.**

Component Recognized File: MP1502, Vol. 11, Sec. 1  
UL Listed: Guide Y10Z

Product Number	Operation	Electrical Connections	Mounting	Voltage rating at 50 Hz	Voltage rating at 60 Hz	Frequency	Description	Includes
RP418A1008	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	208 Vac	—	50 Hz	200/208 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP418A1057	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	120 Vac	—	50 Hz	120 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP418A1065	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	440 Vac	480 Vac	50 Hz; 60 Hz	440 to 480 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP418A1081	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	—	208 Vac	60 Hz	208 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP418A1099	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	220 Vac	240 Vac	50 Hz; 60 Hz	240 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP418A1107	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	110 Vac	120 Vac	50 Hz; 60 Hz	120 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP418B1030	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	15 in. (380 mm) leads	Panel mount	120 Vac	—	50 Hz	120 Vac Panel Mounted Electric / Pneumatic Relay	—
RP418B1048	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	15 in. (380 mm) leads	Panel mount	440 Vac	480 Vac	50 Hz; 60 Hz	440/480 Vac Panel Mounted Electric / Pneumatic Relay	—

# Pneumatic Relays

Product Number	Operation	Electrical Connections	Mounting	Voltage rating at 50 Hz	Voltage rating at 60 Hz	Frequency	Description	Includes
RP418B1055	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	15 in. (380 mm) leads	Panel mount	—	208 Vac	60 Hz	208 Vac Panel Mounted Electric / Pneumatic Relay	—
RP418B1071	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	15 in. (380 mm) leads	Panel mount	110 Vac	120 Vac	50 Hz; 60 Hz	120 Vac Panel Mounted Electric / Pneumatic Relay	—
RP818A1004	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	Junction Box and 15 in. (380 mm) leads	Surface	—	24 Vac	60 Hz	24 Vac Surface Mounted Electric / Pneumatic Relay	Junction Box
RP818B1002	De-energized: ports 2 and 3 connected, port 1 blocked; Energized: ports 1 and 3 connected, port 2 blocked	15 in. (380 mm) leads	Panel mount	—	24 Vac	60 Hz	24 Vac Panel Mounted Electric / Pneumatic Relay	—

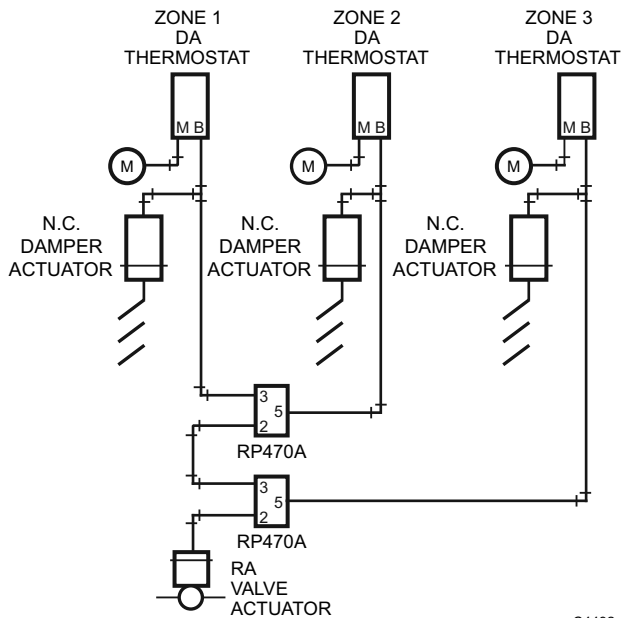
## RP470 Pneumatic Selector Relay



Three-port relays used in HVAC systems to perform a variety of relay functions; transmit the higher of two input signals, lock out one pressure signal when a second signal is higher, or transmit the lower of two pressure signals. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Uses diaphragm-logic technology.
- In-line, wall, or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

### RP470A Higher-of-Two Pressures Application



C4492

**Type:** Pneumatic Three-port Selector Relay

**Dimensions, Approximate:** 38 mm diameter x 25 mm deep (1 1/2 in. diameter x 1 in. deep)

**Air Connections:** Barb fittings 4 mm (5/32 in.) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

Product Number	Operation	Mounting	Normal Operating Input Pressure		Description	Includes
			(kPa)	(psi)		
RP470A1003	Higher-of-two-pressures selector relay	Wall or In-line or panel	0 to 138 kPa	0 to 20 psi	Pneumatic Selector Relay, transmits higher of two input pressures	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP470B1001	Repeater relay; Lower-of-two pressures; Lockout	Wall or In-line or panel	0 to 138 kPa	0 to 20 psi	Pneumatic Selector Relay, used in lockout, repeater and lower of two input pressure applications.	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel



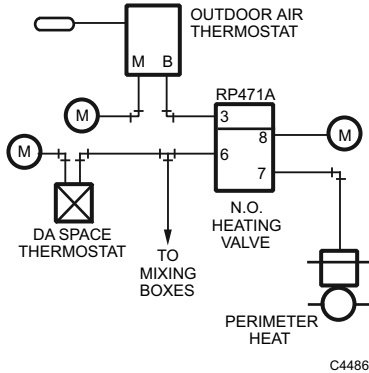
## RP471 Snap-Acting Pneumatic Relay



The four port, snap acting relay converts a proportional air pressure change from a controller to a positive (two-position) pressure change. It can also divert a supply line to one of two branches. Replacement device is available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Manually adjustable switching pressure.
- Sharp barb connections for 5/32 inch (4 mm) O.D. plastic tubing.
- Molded plastic construction with neoprene diaphragms and stainless steel lever.
- Mounts in any position with mounting clip.

### RP471A Typical Piping



**Type:** Pneumatic, four-port, snap acting relay

**Dimensions, Approximate:** 38 mm diameter x 70 mm deep  
(1 1/2 in. diameter x 2 3/4 in. deep)

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

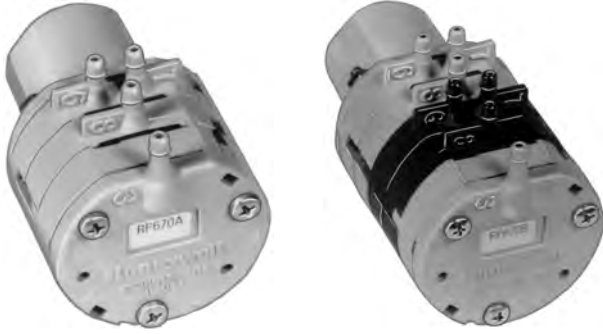
**Setpoint Range:** Adjustable between 21 to 103 kPa (Adjustable between 3 to 15 psi)

**Nominal Switch Differential:** 3 kPa (0.5 psi)

Product Number	Operation	Mounting	Differential Pressure Range		Description	Includes
			(kPa)	(psi)		
RP471A1002	Proportional to 2-position converter	Wall or Panel	7 kPa maximum	1 psi maximum	Wall or Panel Mounted Pneumatic, four-port, snap acting relay, SPDT	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

# Pneumatic Relays

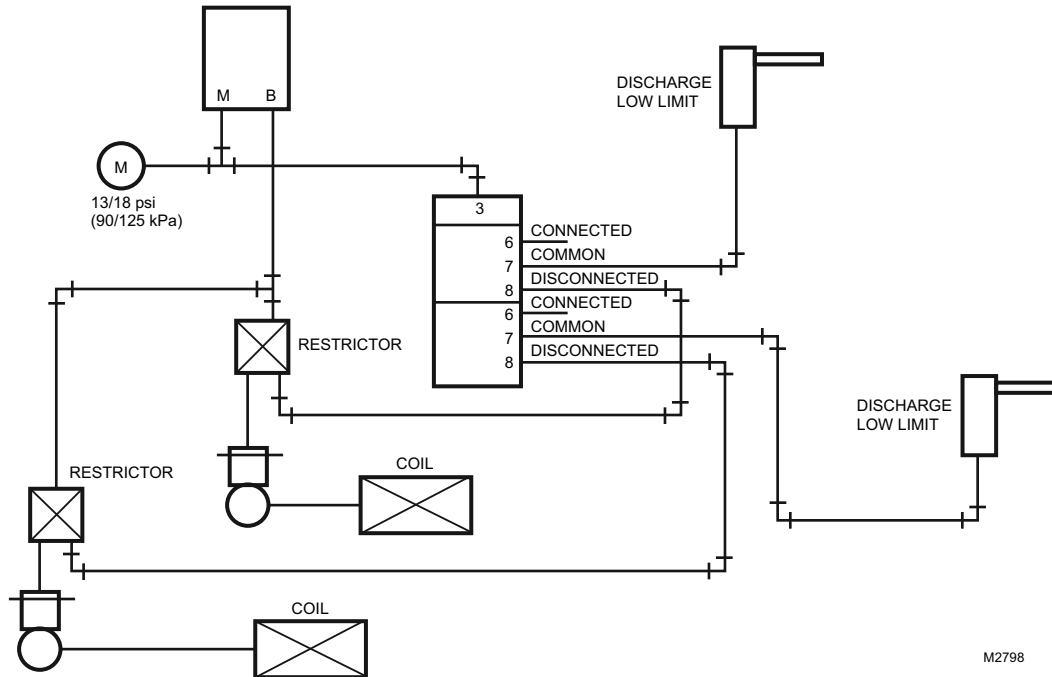
## RP670 Pneumatic Switching Relay



Pneumatic switching relays block, divert, or bleed pneumatic air lines when pilot pressure is changed from one specific value to another. Commonly applied in Day-Night, Summer-Winter, Start-Stop, On-Off-Auto and other multiple condition systems where control sequence is changed as conditions change. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available with either single-pole, double-throw (SPDT) or double-pole, double-throw (DPDT) switching action.
- Second switch on dpdt (RP670B) models molded in natural color for identification.
- Air connections for 5/32 in. (4 mm) O.D. plastic tubing.
- Molded plastic construction with neoprene diaphragms, stainless steel lever.
- In-line mounting, or wall or panel mounting with provided metal spring clip.

### RP670 Typical Piping



M2798

**Type:** Pneumatic Switching Relay

**Dimensions, Approximate:** 38 mm diameter x 56 mm deep  
(1 1/2 in. diameter x 2 1/4 in. deep)

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

Product Number	Operation	Switching Occurs Between Pressures		Description	Includes
		(kPa)	(psi)		
RP670A1001	SPDT relay	20 and 50 kPa	3 and 7 psi	Pneumatic Switching Relay with SPDT switching	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670A1019	SPDT relay	90 and 120 kPa	13 and 17 psi	Pneumatic Switching Relay with SPDT switching	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1009	DPDT relay	20 and 50 kPa	3 and 7 psi	Pneumatic Switching Relay with DPDT switching	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1017	DPDT relay	90 and 120 kPa	13 and 17 psi	Pneumatic Switching Relay with DPDT switching	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1066	DPDT relay	124 and 152 kPa	18 and 22 psi	Pneumatic Switching Relay with DPDT switching	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel
RP670B1074	DPDT relay	140 and 175 kPa	20 and 25 psi	Pneumatic Switching Relay with DPDT switching	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

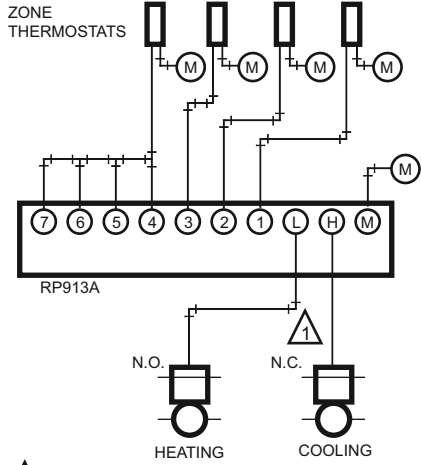
## RP913 Pneumatic Load Analyzer



A diaphragm logic pressure selector selects the highest and/or lowest branch pressure input from zone thermostats to operate final control elements in pneumatic control applications. Replacement devices are available for Johnson, Powers, Robertshaw, and Barber-Colman devices.

- Seven input manifold containing logic diaphragm, air filter, and restrictions.
- Ten sharp barb connectors for all piping requirements.
- Large integral filter assures clean air to the manifold.
- Requires no field adjustment, and plastic construction results in minimum maintenance.
- Two analyzers can be connected together to increase inputs to twelve.

### RP913A Typical Piping



⚠️ PLUG PORT H OR L WHEN NOT USED.

C4483

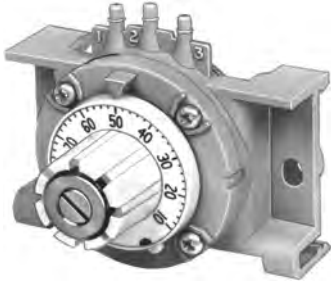
**Type:** Load Analyzer Relay, 7 input  
**Dimensions, Approximate:** 19 mm high x 165 mm long x 52 mm deep (3/4 in. high x 6 1/2 in. long x 2 1/16 in. deep)  
**Airflow Usage:** 0.04 scfm (0.019 mL/s)  
**Air Connections:** Barb fittings (10) for 1/4 in. (6 mm) O.D. plastic tubing  
**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)  
**Operating Humidity Range:** 5 to 95% RH  
**Temperature Range:** -18 C to +60 C (0 F to 140 F)  
**Maximum Safe Operating Pressure:** 172 kPa (25 psi)

**Replacement Parts:**  
**14001865-001** Filter Cartridge Assembly

Product Number	Operation	Mounting	Description
RP913A1008	Selects highest and/or lowest branch pressure input to operate final control elements	Wall or In-line or panel	Wall, In-Line or Panel Mounted Load Analyzer Relay, 7 input

# Pneumatic Relays

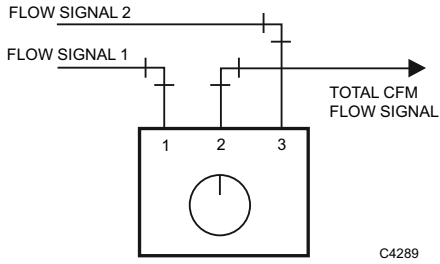
## RP922 Pneumatic Potentiometer



A three-port pneumatic potentiometer can sum two input pressures, average two input pressures, be an adjustable flow restriction, or be an adjustable pressure supply. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- High efficiency integral filters for all ports.
- High reliability, no internal moving parts.
- Compact size.
- High accuracy.

### Typical Wiring Diagram for RP922



**Type:** Pneumatic Averaging / Ratio Relay  
**Dimensions, Approximate:** 62 mm wide x 42 mm deep x 73 mm high (2 7/16 in. wide x 1 5/8 in. deep x 2 7/8 in. high)  
**Airflow Usage:** Average of two input pressures  
**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing  
**Operating Humidity Range:** 5 to 95% RH  
**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

Product Number	Operation	Mounting	Description
RP922A1007	Can sum two input pressures, average two input pressures, be adjustable flow restriction or be an adjustable pressure supply.	Wall or panel or Snap onto DIN rail	Wall, Snap onto DIN rail or panel mounted Pneumatic Averaging / Ratio Relay

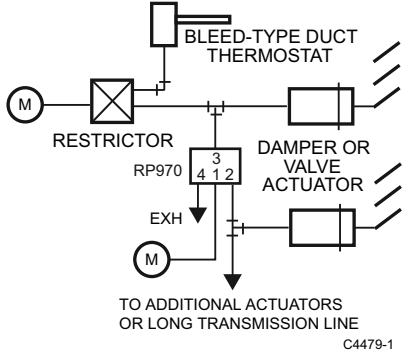
## RP970 Pneumatic Capacity Relay



Direct acting, modulating relay provides increased capacity of the branchline pressure to the final control device. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- In-line, wall, or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction with neoprene diaphragms.
- Mounting clip provided.

### RP970 Typical Piping



**Type:** Pneumatic Capacity Relay  
**Dimensions, Approximate:** 38 mm dia., 38 mm deep (1 1/2 in. diameter, 1 1/2 in. deep)  
**Airflow Usage:** 0.002 scfm (1.0 mL/s) maximum  
**Air Connections:** Barb fittings, Port 1: 1/4 in. (6 mm) O.D. plastic tubing; Other Ports: 5/32 in. (4 mm) O.D. plastic tubing  
**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)  
**Operation:** Provides increased capacity of branchline pressure to final control device  
**Operating Humidity Range:** 5 to 95% RH  
**Temperature Range:** -18 C to +60 C (0 F to 140 F)  
**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

**Accessories:**  
**14003203-003** Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Action	Mounting	Normal Operating Output Pressure		Includes
				(kPa)	(psi)	
RP970A1008	Provides increased capacity of branchline pressure to final control device	Direct Acting	Wall or In-line or panel	0 to 138 kPa	0 to 20 psi	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

# Pneumatic Relays

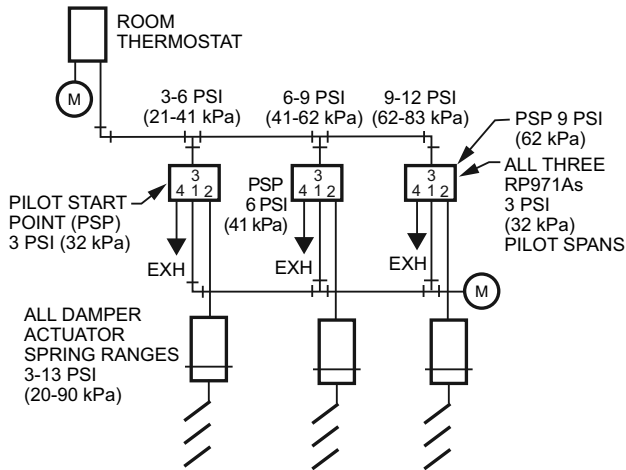
## RP971 Pneumatic Ratio Relay



A four port non-bleed pneumatic relay which produces a modulating pressure output, proportional in a fixed ratio to pilot input changes. It is used to control pneumatic valve or damper actuators in sequence from a single thermostat. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Adjustable pilot start point pressures.
- Two pilot pressure spans available.
- Four sharp-barb air connections.
- Molded plastic construction with neoprene.
- Mounting clip provided.

### RP971A Typical Piping



C4478-1

**Type:** Pneumatic, Four Port Ratio Relay

**Dimensions, Approximate:** 52 mm dia. x 67 mm deep (2 in. diameter x 2 5/8 in. deep)

**Airflow Usage:** 0.002 scfm (1.0 mL/s) maximum

**Air Connections:** Barb fittings, Port 1: 1/4 in. (6 mm) O.D. plastic tubing; Other Ports: 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operation:** Produces modulating pressure output proportional to pilot pressure input changes

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

**Pilot Start Pressure:** Adjustable 0 to 69 kPa (Adjustable 0 to 10 psi)

#### Accessories:

**14003203-003** Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

**801629T** Clip for surface mounting

Product Number	Operation	Action	Mounting	Pilot Input Span		Output Span		Description	Includes
				(kPa)	(psi)	(kPa)	(psi)		
RP971A1007	Produces modulating pressure output proportional to pilot pressure input changes	Direct Acting	Wall or In-line or panel	20 kPa input span for 20 kPa to 89 kPa output	3 psi input span for 3 to 13 psi output	21 to 90 kPa	3 to 13 psi	Wall, In-Line or panel mounted Pneumatic Four Port Ratio Relay	14003030-002 Mounting Clip and scaleplate with psi markings
RP971A1015	Produces modulating pressure output proportional to pilot pressure input changes	Direct Acting	Wall or In-line or panel	34 kPa input span for 20 kPa to 89 kPa output	5 psi input span for 3 to 13 psi output	21 to 90 kPa	3 to 13 psi	Wall, In-Line or panel mounted Pneumatic Four Port Ratio Relay	14003030-002 Mounting Clip and scaleplate with psi markings

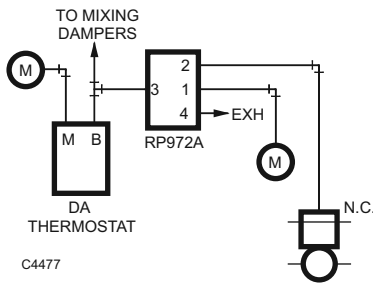
## RP972 Pneumatic Reversing Relay



A modulating relay suitable for all types of heating and air conditioning control systems to reverse and increase the capacity of the branchline pressure to the final control element. The output varies inversely with the input with an adjustable offset. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Reverse acting.
- In-line mounting or can be wall or panel mounted with mounting clip provided.
- Molded plastic construction with neoprene diaphragms.

### RP972A Typical Piping



**Type:** Pneumatic Reversing Relay

**Dimensions, Approximate:** 38 mm diameter x 57 mm deep  
(1 1/2 in. diameter x 2 1/4 in. deep)

**Airflow Usage:** 0.002 scfm (1.0 mL/s) maximum

**Air Connections:** Barb fittings for three 4 mm (5/32 in.) and one 6 mm (1/4 in.) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

**Accessories:**

**14003203-003** Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Action	Mounting	Description	Includes
RP972A1006	Output varies inversely with input with an adjustable offset	Reverse Acting	Wall or In-line or panel	Wall, In-line or panel mounted Pneumatic Reversing Relay	14003030-001, 1 1/2 in. Mounting Clip for Mounting relay to wall or panel

# Pneumatic Relays

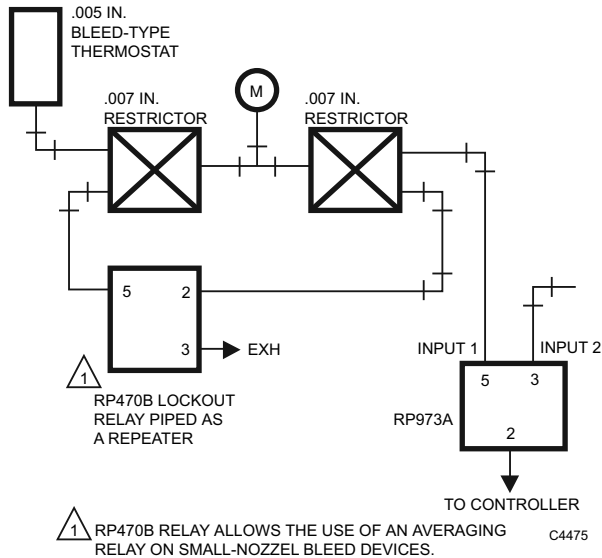
## RP973 Pneumatic Averaging Relay



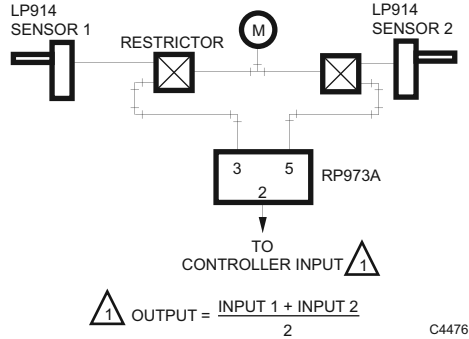
A three-port relay used in HVAC systems averages the signals from two thermostats to control a single device such as a heating coil valve for a multizone unit. The pneumatic averaging relay provides an output pressure equal to the average of two input pressures. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- In-line, wall or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

### RP973A Typical Piping



### Typical Averaging Application



**Type:** Pneumatic Three-Port Averaging Relay  
**Dimensions, Approximate:** 38 mm high x 22 mm wide x 24 mm deep  
 (1 1/2 in. high x 7/8 in. wide x 15/16 in. deep)  
**Airflow Usage:** 0.007 scfm (3.303 mL/s) maximum  
**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential)  
**Operating Humidity Range:** 5 to 95% RH  
**Temperature Range:** 0 C to 52 C (32 F to 125 F)  
**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

Product Number	Operation	Mounting	Normal Operating Output Pressure		Normal Operating Input Pressure		Description
			(kPa)	(psi)	(kPa)	(psi)	
RP973A1005	Output pressure equals average of two input pressures	Wall or In-line or panel	21 to 103 kPa	3 to 15 psi	21 to 103 kPa	3 to 15 psi	Output is the average of the two inputs. Pneumatic Three-Port Averaging Relay.



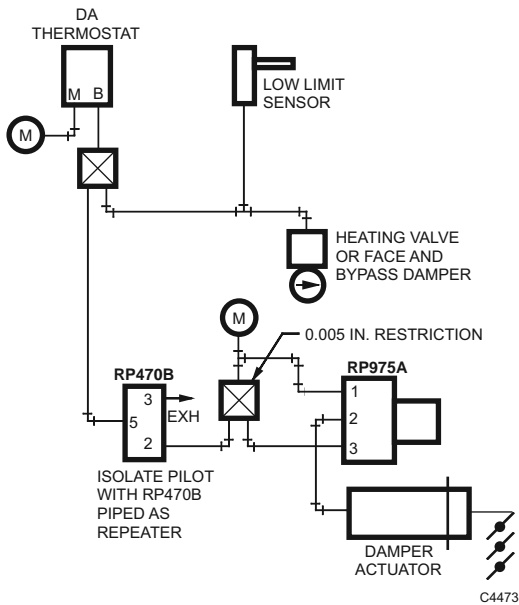
## RP975 Pneumatic Hesitation Relay



A three-port hesitation relay provides minimum outside air damper position plus controlled ventilation for large volume unit ventilators. Replacement devices are available for Johnson, Powers, and Barber-Colman devices.

- Manually adjustable minimum position. In-line, wall or panel mounted.
- Sharp-barb air connections.
- Molded plastic construction.

### Typical Piping With Isolation Circuit



**Type:** Pneumatic Three-Port Hesitation relay

**Dimensions, Approximate:** 57 mm high x 63 mm wide x 96 mm deep (2 1/4 in. high x 2 1/2 in. wide x 3 3/4 in. deep)

**Airflow Usage:** 0.022 scfm (10 mL/s)

**Air Connections:** Barb fittings 5/32 in. (4 mm) O.D. plastic tubing

**Capacity:** 0.003 scfm (1.65 mL/s)

**Knob Rotation:** Knob has two (2) internal breakaway stops that limit rotation to 188 degrees. Each stop, when removed, adds 56 degrees of rotation. Maximum rotation is 300 degrees.

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** 0 C to 52 C (32 F to 125 F)

**Maximum Safe Operating Pressure:** 205 kPa (30 psi)

### Replacement Parts:

**14003203-003** Conversion Kit to convert Johnson, Powers, Robertshaw, Barber Coleman and older Honeywell switches

Product Number	Operation	Mounting	Description	Includes
RP975A1003	Provides minimum outside air damper position	Wall or In-line or panel	Pneumatic Three-Port Hesitation Relay	14003030-001, 1 1/2 in. Mounting Clip for mounting relay to wall or panel. Also includes scaleplate and knob, factory mounted and calibrated. Use with MP909 or MP918 Damper Actuator having a 7 to 13 psi (50 to 90 kPa) spring range

## Pneumatic Relay Accessories and Replacement Parts

Product Number	Description	Used With
14003030-001	Mounting Clip	RP470, RP471, SP970
14003638-001	Bag Assembly, Mounting Hardware for RP418	RP418

# Pneumatic Switches

## CLEPAS Air Pressure Switch



Senses differential air pressure in HVAC systems and provides an on/off output. A typical application is sensing fan shutdown in a unit ventilator to close the outdoor air damper.

- Reliable pneumatic operation.
- Adjustable setpoint (switching pressure).
- Eliminates electrical interlock wiring.

**Dimensions, Approximate:** 156 mm high x 105 mm wide x 72 mm deep (6 1/8 in. high x 4 1/8 in. wide x 2 13/16 in. deep)

**Air Connections:** Sensing Inputs: 1/4 in. compression fittings; Control Air: Barb for 1/4 in. (6 mm) or 3/8 in. (10 mm) O.D. plastic tubing

**Temperature Range:** -18 C to +57 C (0 F to 135 F)

**Switch Type:** On/Off Pneumatic Airflow Switch

Product Number	Mounting	Switching Pressures		Switching Action	Description
		(kPa)	(psi)		
CLEPAS2100	Vertical Mount	0.037 to 0.50 kPa; 0.037 to 2.99 kPa	0.15 to 2.0 in. w.c.; 0.15 to 12.0 in w.c.	On/Off	Pneumatic Airflow Differential Pressure Switch, Low Setpoint Range
CLEPAS2200	Vertical Mount	0.037 to 2.99 kPa	0.15 to 12.0 in w.c.	On/Off	Pneumatic Airflow Differential Pressure Switch, High Setpoint Range

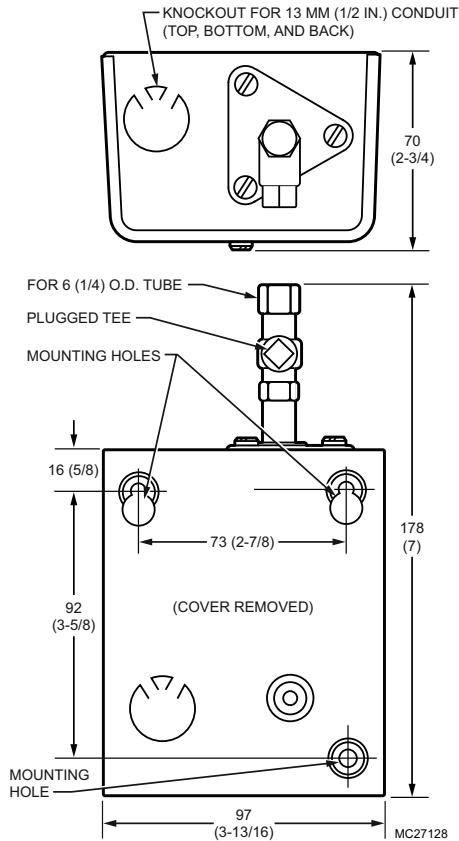
## P643 Pneumatic/Electric Switch



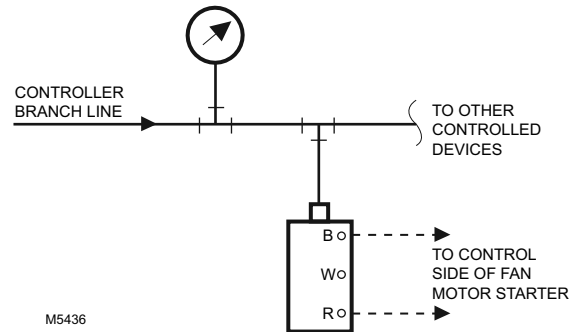
Used to convert a pneumatic signal from a controller to an electrical switching action to provide start and stop control of equipment such as fans and pumps. Replacement devices available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic/electric switches. Adjustable setpoint.

- Adjustable differential.
- Externally visible scales.
- Heavy-duty switch.
- Integral gage connection.

### Dimensions in millimeters (inches)



### P643A Typical Piping



**Dimensions, Approximate:** 179 mm high x 97 mm wide x 70 mm deep (7 1/32 in. high x 3 13/16 in. wide x 2 3/4 in. deep)

**Air Connections:** Compression fitting 1/4 in. (6 mm) O.D. tubing

**Current:** 120 Vac: 8.0 AFL, 48.0 LRA, 17.0 A resistive

208/240 Vac: 5.1 AFL, 30.6 ALR, 17.0 A resistive

270 Vac: 17.0 A resistive

480 Vac: 3.5 AFL, 21.0 ALR, 10.0 A resistive

**Frequency:** 50 Hz; 60 Hz

**Temperature Range:** -34 C to +52 C (-30 F to +125 F)

**Maximum Safe Operating Pressure:** 170 kPa (25 psi)

**Switch Operation:** Converts pneumatic signal to electrical switching action

**Switch Type:** Pneumatic/Electric Switch

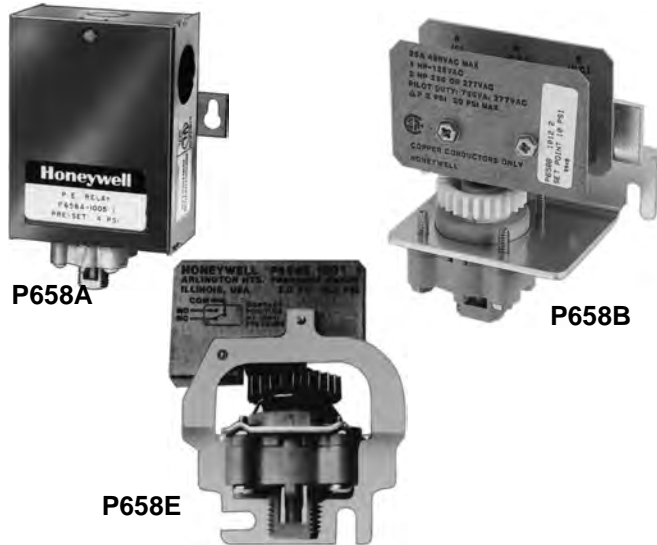
**Approvals:**

Underwriters Laboratories, Inc. Listed SDFY

Product Number	Mounting	Electrical Connections	Differential Pressure Range		Switching Pressures		Voltage	Description	Includes
			(kPa)	(kPa)	(kPa)	(psi)			
P643A1007	Holes in back of case	Knockouts (3) for 1/2 in. conduit	20 to 90 kPa adjustable	3 to 13 psi adjustable	0 to 155 kPa	0 to 22.5 psi	480 Vac; 277 Vac; 208 Vac; 240 Vac; 120 Vac	Pneumatic / Electric Switch including SPDT switch and adjustable differential	SPDT switch

# Pneumatic Switches

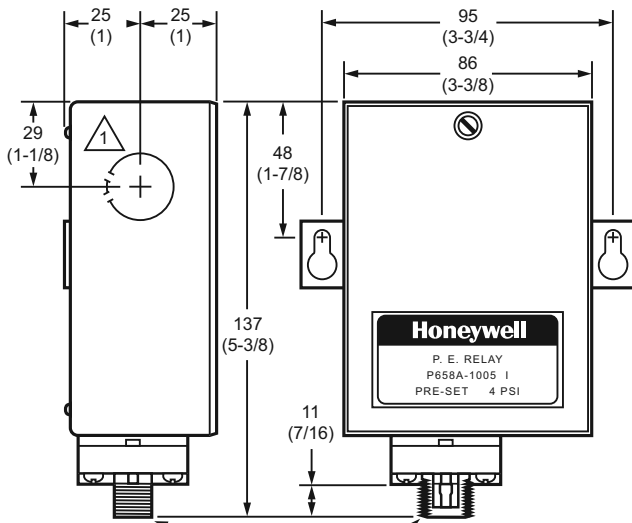
## P658 Pneumatic/Electric Switch



Pneumatic-electric switches (P658A,B,E and F) used to convert a pneumatic signal from a controller to an electrical switching action (SPDT) to provide start and stop control of equipment such as fans and pumps. Replacement devices available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell pneumatic/electric switches.

- Models available for surface or panel mounting.
- Barb protected by open cage.
- All ferrous parts plated to prevent corrosion.
- Factory calibrated setpoint field adjustable to meet job requirements.
- Neoprene diaphragm element.

P658A Dimensions in millimeters (inches)

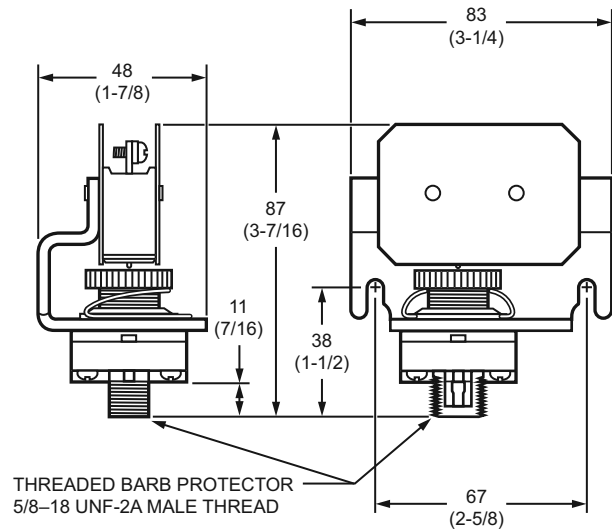


THREADED BARB PROTECTOR  
5/8-18 UNF-2A MALE THREAD

△ KNOCKOUT ON ONE SIDE FOR 3/4 INCH CONDUIT. KNOCKOUTS ON OPPOSITE SIDE, TOP, AND BACK FOR 1/2 INCH CONDUIT.

CC7435

P658B Dimensions in millimeters (inches)

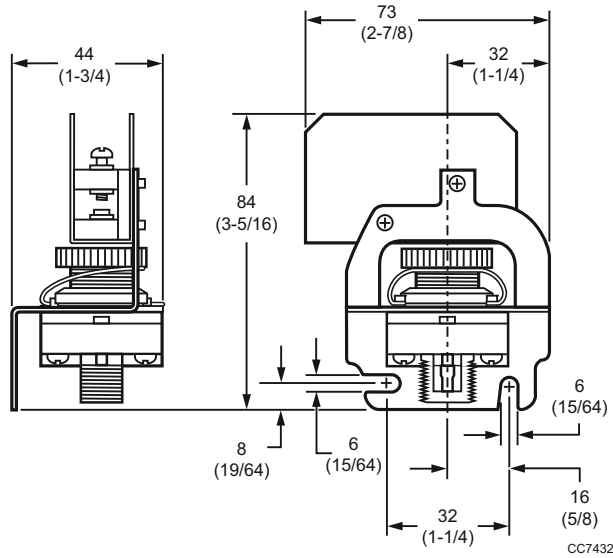


THREADED BARB PROTECTOR  
5/8-18 UNF-2A MALE THREAD

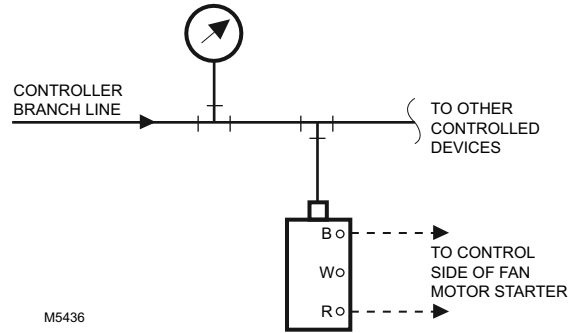
CC7431

# Pneumatic Switches

**P658E Dimensions in millimeters (inches)**



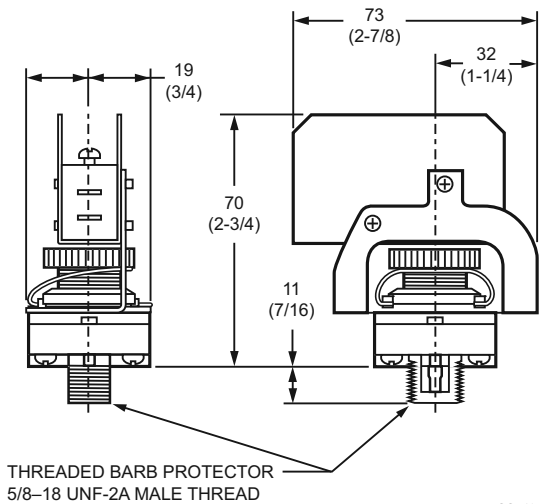
**P658 Typical Piping**



**Air Connections:** Barb fitting for 1/4 in. (6 mm) O.D. plastic tubing  
**Frequency:** 60 Hz  
**Operating Humidity Range:** 5 to 95% RH, 80 F (27C) max wet bulb  
**Temperature Range:** 4 C to 66 C (40 F to 140 F)  
**Maximum Safe Operating Pressure:** 207 kPa (30 psi)  
**Switch Operation:** Converts pneumatic signal to electrical switching action (spdt)  
**Switch Type:** Pneumatic/Electric Switch  
**Switching Action:** Make R-B on pressure fall to setpoint  
 Make R-W on pressure rise to setpoint plus differential  
**Pilot Duty Ratings:** 750 VA @ 125, 250 or 277 Vac

**Approvals:**  
**Underwriters Laboratories, Inc.** Category SDFY or SDFY2

**P658F Dimensions in millimeters (inches)**



THREADED BARB PROTECTOR  
 5/8-18 UNF-2A MALE THREAD

CC7434

Product Number	Mounting	Differential Pressure Range		Setpoint Range (Field Adjustable)		Motor Load	Resistive Load	Switching Action	Calibration
		(kPa)	(psi)	(kPa)	(psi)				
P658A1013	Surface (includes case)	14 kPa	2 psi	14 to 165 kPa	2 to 24 psi	1 hp @ 125 Vac, 2 hp @ 250 or 277 Vac	25A @ 125, 250 or 480 Vac	Make R-W on pressure rise to setpoint plus differential. Make R-B on pressure fall to setpoint.	Factory Calibrated at 10 psi
P658B1012	Panel mount	14 kPa	2 psi	14 to 165 kPa	2 to 24 psi	1 hp @ 125 Vac, 2 hp @ 250 or 277 Vac	25A @ 125, 250 or 480 Vac	Make R-W on pressure rise to setpoint plus differential. Make R-B on pressure fall to setpoint.	Factory Calibrated at 10 psi
P658E1001	Panel mount	7 kPa	1 psi	14 to 117 kPa	2 to 17 psi	3/4 hp @ 125, 250 or 277 Vac	25A @ 125, 250 or 277 Vac; 10A @ 480 Vac	Make COM-NC on pressure fall to setpoint. Make COM-NO on pressure rise to setpoint plus differential.	No Factory Calibration
P658E1167	Panel mount	7 kPa	1 psi	14 to 172 kPa	2 to 25 psi	3/4 hp @ 125, 250 or 277 Vac	25A @ 125, 250 or 277 Vac; 10A @ 480 Vac	Make COM-NC on pressure fall to setpoint. Make COM-NO on pressure rise to setpoint plus differential.	No Factory Calibration
P658F1000	Panel, through double D hole secured with hex nut	7 kPa	1 psi	14 to 117 kPa	2 to 17 psi	3/4 hp @ 125, 250 or 277 Vac	25A @ 125, 250 or 277 Vac; 10A @ 480 Vac	Make COM-NC on pressure fall to setpoint. Make COM-NO on pressure rise to setpoint plus differential.	No Factory Calibration

Pneumatic Controls

# Pneumatic Switches

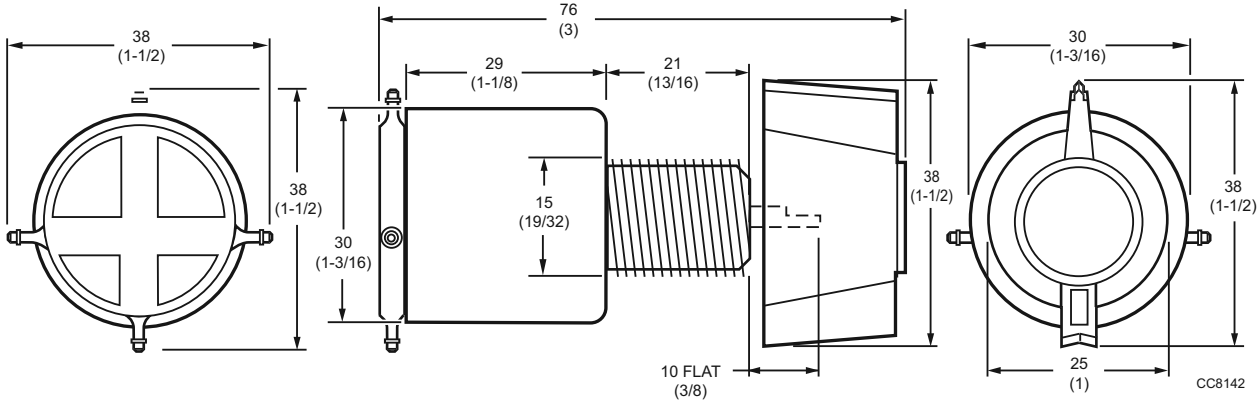
## SP470 Pneumatic Diverting Switches



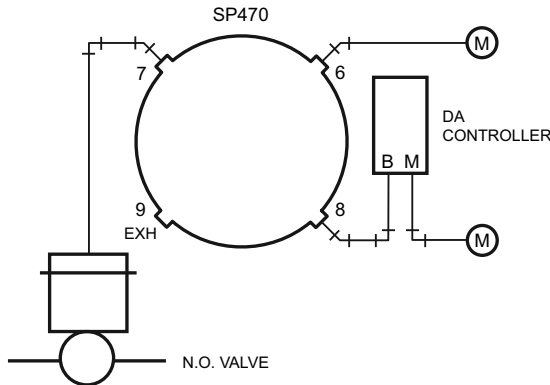
Pneumatic diverting switch used to manually divert, block, or bleed air in pneumatic air lines to revise control sequence with a change in conditions. Commonly applied on Day-Night, Summer-Winter, On-Off-Auto, or Start-Stop functions. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell switches.

- Available in two-position or three-position devices.
- Mountable on a panel up to 11 mm (7/16 in.) thick.
- Complete with knob and scaleplate.

### Dimensions in millimeters (inches)



### SP470A Typical three-position application

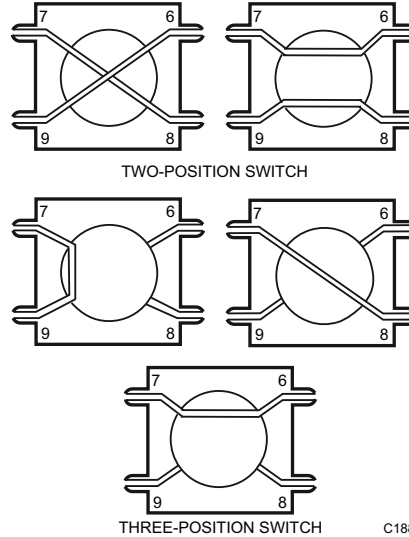


#### NOTES:

- POSITION 1, VALVES OPEN: PORTS 7 AND 9 CONNECTED, PORTS 6 AND 8 BLOCKED
- POSITION 2, VALVE AUTO: PORTS 7 AND 8 CONNECTED, PORTS 6 AND 9 BLOCKED
- POSITION 3, VALVE CLOSED: PORTS 7 AND 6 CONNECTED, PORTS 8 AND 9 BLOCKED

C4290

### SP470A Switches



**Dimensions, Approximate:** 41 mm high x 40 mm wide x 76 mm deep (1 5/8 in. high x 1 9/16 in. wide x 3 in. deep)

**Air Connections:** Barb fitting for 5/32 in. (4 mm) O.D. plastic tubing

**Airflow Usage:** 0.175 scfm (82.6 mL/s) minimum at 1 psi pressure drop

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -7 C to +60 C (20 F to 140 F)

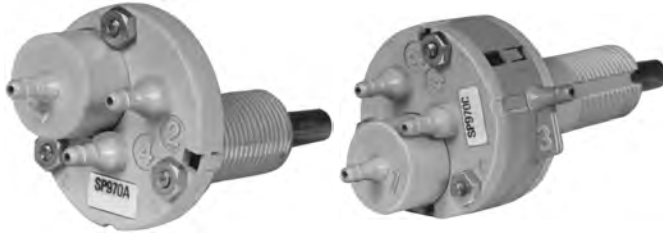
**Maximum Safe Operating Pressure:** 207 kPa (30 psi)

**Switch Operation:** Used to manually divert, block or bleed pneumatic air lines

**Switch Type:** Two or Three Position Pneumatic Diverting Switch

Product Number	Mounting	Description	Includes
SP470A1000	Panel mount	Pneumatic Manual Switch, 4 port, 2-position interchange	Mounting nuts, knob, and two-position scaleplate
SP470A1018	Panel mount	Pneumatic Manual Switch, 4 port, 3-position, Port 7 is common	Mounting nuts, knob, and three-position scaleplate

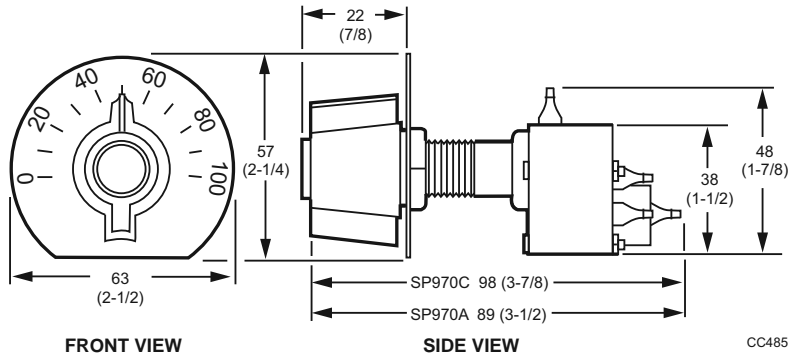
## SP970 Pneumatic Manual or Minimum Position Switches



Used to manually position a remote damper actuator or to reset the setpoint of a pneumatic controller. They can also provide minimum damper position by setting a minimum pressure limit in the branch line to the damper actuator. Replacement kits are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell switches.

- Two spans available as shipped. Six spans with breakaway stops on knob.
- Pilot bleed and isolated pilot models available.
- Wall or panel mounting.

### Dimensions in millimeters (inches)



**Dimensions, Approximate:** 38 mm diameter x 76 mm deep  
(1 1/2 in. diameter x 3 in. deep)

**Air Connections:** Barb fitting for 5/32 in. (4 mm) O.D. plastic tubing

**Airflow Usage:** 0.022 scfm (9.8 mL/s)

**Capacity:** 0.021 scfm (9.4 mL/s) below minimum position. Above minimum position, device feeding pilot determines capacity

**Operating Humidity Range:** 5 to 95% RH

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Safe Operating Pressure:** 207 kPa (30 psi)

**Switch Operation:** Used to manually position a remote damper actuator or reset setpoint of pneumatic controller

**Switch Type:** Three-port pneumatic manual or minimum position switch

**Mounting:** Panel or Wall

**Comments:** The setpoint knob normally rotates 188 degrees. Two breakaway stops on the knob allow rotation of 244 degrees and 300 degrees.

Product Number	Output Span		Description	Includes
	(kPa)	(psi)		
SP970A1005	69 kPa (with 188 degree knob rotation) 110 kPa (with 300 degree knob rotation) 90 kPa (with 244 degree knob rotation)	10 psi (with 188 degree knob rotation) 16 psi (with 300 degree knob rotation) 13 psi (with 244 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a high capacity device (like a RP920).	Knob, 0 to 100% scale plate and locknuts
SP970A1013	34 kPa (with 188 degree knob rotation) 56 kPa (with 300 degree knob rotation) 45 kPa (with 244 degree knob rotation)	5 psi (with 188 degree knob rotation) 8 psi (with 300 degree knob rotation) 6.5 psi (with 244 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a high capacity device.	Knob, 0 to 100% scale plate and locknuts
SP970C1001	69 kPa (with 188 degree knob rotation) 110 kPa (with 300 degree knob rotation) 90 kPa (with 244 degree knob rotation)	10 psi (with 188 degree knob rotation) 16 psi (with 300 degree knob rotation) 13 psi (with 244 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a low capacity device.	Knob, 0 to 100% scale plate and locknuts
SP970C1043	34 kPa (with 188 degree knob rotation) 56 kPa (with 300 degree knob rotation) 45 kPa (with 244 degree knob rotation)	5 psi (with 188 degree knob rotation) 8 psi (with 300 degree knob rotation) 6.5 psi (with 244 degree knob rotation)	Manual Pressure Regulator or Provides minimum branch line pressure when used with a low capacity device.	Knob, 0 to 100% scale plate and locknuts

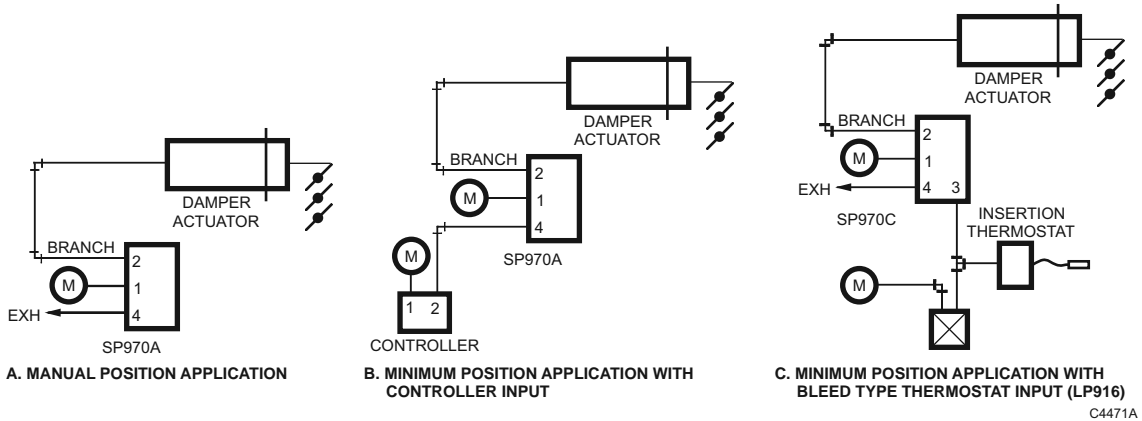
## Pneumatic Switch Replacement Parts

Product Number	Description	Used With
SP970A1005	Final Assembly, maunal and minimum position switch, 10 psi span	SP970A
SP970A1013	Pneumatic 2-Position Switch	SP470A
SP970C1001	Bag assembly with two scale plates, knob assembly and nuts for SP470A	SP470A

# Pneumatic Switches

## SP970 Operation

### SP970 Typical Piping



## Operation

### SP970A Three Port Switches

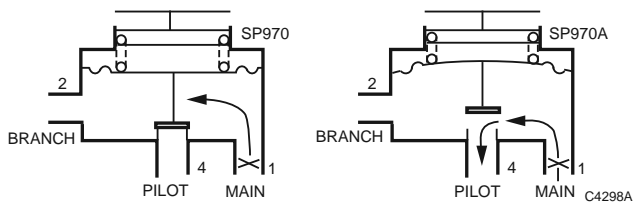
#### PRESSURE REGULATOR OPERATION

Main line air flows through the restriction into the branchline chamber and out the nozzle. Branchline pressure increases until it is strong enough to compress the spring and lift the diaphragm off the nozzle. Air flow out the nozzle is controlled by the balance between the branchline pressure and spring force. See Typical Piping Diagram A Above.

#### MINIMUM POSITION OPERATION

See Typical Piping Diagram B above. An external signal is connected to Port 4 (Exhaust Port). When the external signal is greater than the spring load, the nozzle opens and branchline pressure is the same as the external signal. When the external signal is less than the spring load, branchline pressure is controlled as described above. See Operation Diagram below.

#### SP970A Operation

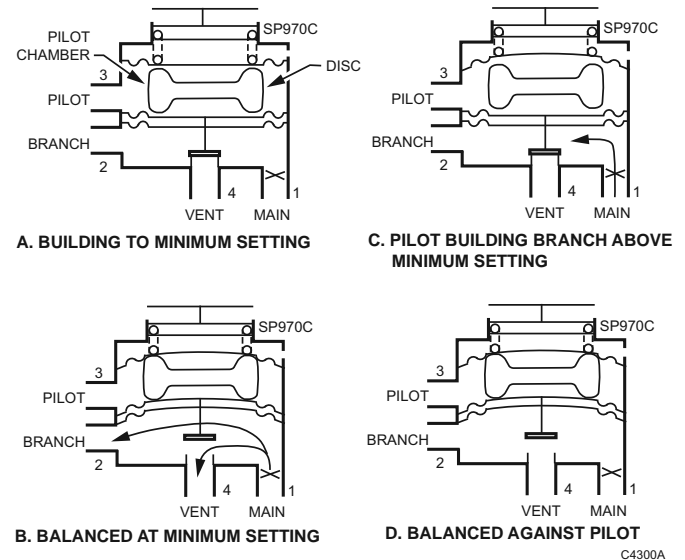


### SP970C Four Port Switches

These minimum position devices have a separate dead-ended chamber connected to Port 3 to receive an external signal. When the external signal is less than the spring load, the signal has no effect and functions similar to the SP970A as a pressure regulator. When the external signal is greater than the spring load, the spring load is isolated and the device duplicates the input signal. See Operation Diagram below.

Piping Diagram C above shows a typical four-port SP970C application. The minimum-position switch keeps the pneumatic actuator at a minimum position until the thermostat pressure is greater than the minimum position valves. The thermostat then controls the actuator.

#### SP970C Operation





# Pneumatic Damper Actuators

## Pneumatic Damper Actuator Torque Ratings

TORQUE (LB-IN.) DELIVERED TO A 90-DEGREE STROKE DAMPER SHAFT:

Actuator	Spring Range Psi (kPa)	Stroke in. (mm)	Delivered Torque lb-in. (N•m)				
			Shaft Retracted	Midstroke <sup>a</sup>	Shaft Extended		
					13 psi (90 kPa) main	18 psi (129 kPa) main	20 psi (138 kPa) main
MP913	10-15 (69-103)	1 (25)	11 (1.243)	2 (0.226)	0 (0)	3 (3.339)	5 (0.565)
	5-10 (34-69)	1 (25)	6 (0.678)	2 (0.226)	3 (0.339)	9 (1.017)	13 (1.469)
MP916	3-12 (21-83)	2-1/4 (57)	41 (4.632)	26 (2.937)	14 (1.582)	138 (15.6)	109 (12.315)
	4-8 (27-55)	2-1/4 (57)	51 (6.214)	26 (2.937)	69 (7.796)	138 (15.6)	166 (18.755)
	5-12 (34-83)	2-1/4 (57)	69 (7.796)	26 (2.937)	14 (1.582)	82 (9.264)	109 (12.315)
MP909D	3-8 (21-55)	2-3/8 (60)	10.7 (1.209)	7.6 (0.859)	17.9 (2.023)	35.7 (4.034)	42.8 (4.836)
	5-10 (34-70)	2-3/8 (60)	17.9 (1.98)	7.6 (0.859)	10.7 (1.209)	28.6 (3.232)	35.7 (4.034)
	8-13 (55-90)	2-3/8 (60)	28.6 (3.232)	7.6 (0.859)	0 (0)	17.9 (2.023)	25.0 (2.825)
	5-10 (34-70)	3 (76)	22.5 (2.543)	9.5 (1.974)	13.5 (1.526)	36 (4.008)	45 (5.085)
MP909E	2.5-6.5 (17-45)	3.1 (79)	25.6 (2.893)	22 (2.486)	66.5 (7.515)	118 (13.33)	138 (15.59)
	3-13 (21-90)	4 (101)	39.6 (4.475)	28 (3.164)	0 (0)	66 (7.058)	92.4 (10.44)
	5-10 (34-70)	4 (101)	66 (7.458)	28 (3.164)	39.6 (4.475)	105.6 (11.93)	132 (14.92)
	5-10 (34-70)	3.1 (79)	51.2 (5.786)	22 (2.486)	30.7 (3.469)	81.8 (9.243)	102 (11.53)
	9-13 (62-90)	3.1 (79)	92.1 (10.41)	22 (2.486)	0 (0)	51.2 (5.786)	71.7 (8.102)
MP909H	9-13 (62-90) plus positioner	3.1 (79)	92.1 (10.41)	b	0 (0)	66 (7.1)	92.4 (10.44)
MP918A	8-13 (55-90) plus positioner	3-1/2 (89)	333 (37.63)	b	0 (0)	208 (23.5)	292 (33)
MP918B	3-7 (21-49)	3-1/2 (89)	125 (14.3)	88 (9.944)	250 (28.25)	458 (51.53)	541 (61.3)
	3-13 (21-90)	3-1/2 (89)	125 (14.3)	88 (9.944)	0 (0)	208 (23.5)	292 (33)
	5-10 (34-70)	3-1/2 (89)	208 (23.5)	88 (9.944)	125 (14.3)	333 (37.63)	416 (47.01)
	8-13 (55-90)	3-1/2 (89)	333 (37.63)	88 (9.944)	0 (0)	208 (23.5)	292 (33)
MP920	7-13 (34-90)	6 (152)	520 (58.75)	158 (17.85)	0 (0)	372 (42.03)	521 (58.86)

<sup>a</sup> Torque in this column is for modulating service only.

<sup>b</sup> The lesser of retracted or extended shaft torque.

The following reference formulas are valid for actuators mounted on fixed brackets only.

Most dampers operate through a 90-degree arc. The amount of torque that a pneumatic actuator can deliver to the damper shaft may be calculated from the net force delivered and the length of stroke of the actuator using the following equations:

$$T_R = \frac{F_R \times S}{2}$$

$$T_E = \frac{F_E \times S}{2}$$

$$T_M = 1.5 \times A \times 0.707S$$

$T_R$  = Torque with actuator shaft retracted.

$T_E$  = Torque with actuator shaft extended.

$T_M$  = Midstroke torque.

$F_R$  = Force exerted by actuator with shaft retracted.

$F_E$  = Force exerted by actuator with shaft extended.

$A$  = Effective area of actuator diaphragm.

$S$  = Actuator stroke.

The midstroke is significant only for modulating service and is based on the premise that an input pressure change no greater than 1.5 psi (10 kPa) should cause the actuator to reposition the damper.

# Pneumatic Damper Actuators

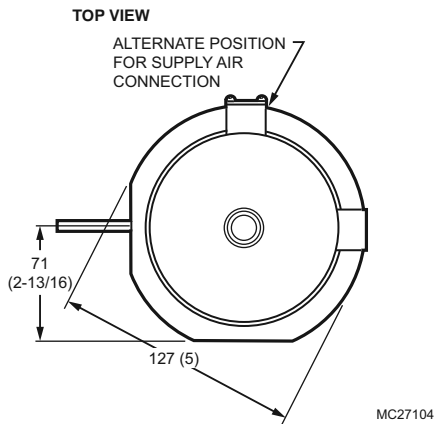
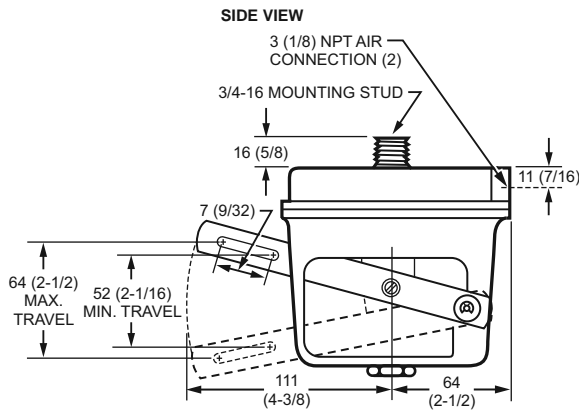
## MP516 Pneumatic Unit Ventilator Damper Actuator



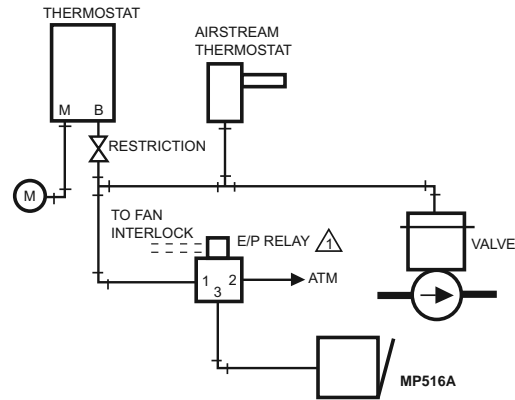
Used to control the damper on unit ventilators. Can be adapted to various unit ventilator control cycles. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell unit ventilator damper actuators.

- Constructed of strong zinc die castings.
- Hesitation feature available for unit ventilator cycles requiring a minimum percentage of outdoor air.

### Dimensions in millimeters (inches)



### MP516A Typical Piping



△ MAY BE SURFACE MOUNTED OR ATTACHED TO MP516A.

M5440A

**Actuator Type:** Damper  
**Fail Safe Mode:** Spring Return  
**Air Connections:** 1/8 in. NPT  
**Stroke:** 54 mm to 63 mm (2-1/8 in. to 2-1/2 in.)  
**Diaphragm Effective Area:** 71 sq cm (11 sq in.)  
**Temperature Range:** -29 C to +71 C (-20 F to +160 F)  
**Maximum Operating Pressure:** 172 kPa (25 psi)  
**Humidity Range:** 5 to 95% RH

### Accessories:

- 26025B** Damper crank arm for 3/8 in. (9.5 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.
- 27174B** Damper crank arm for 7/16 in. (11.1 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.
- 27520C** Push Rod (5/16 in. dia., 12 in. length)
- 27520G** Push Rod (5/16 in. dia., 24 in. length)
- 27520K** Push Rod (5/16 in. dia., 36 in. length)
- 27520L** Push Rod (5/16 in. dia., 48 in. length)
- 309389J** Mounting Bracket and Linkage
- 312867C** Damper Crank Arm for 1/2 in. (12.7mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees
- 315321** Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod

Product Number	Actuator Force	Spring Range		Comments
		(kPa)	(psi)	
MP516A1087	Medium	21 kPa to 83 kPa	3 psi to 12 psi	The lever arm moves to the desired minimum position as air pressure increases from 0 to 3 psi, hesitates from 3 to 8 psi, and completes its stroke from 8-12 psi.
MP516A1095	Medium	28 kPa to 55 kPa	4 psi to 8 psi	No hesitation.
MP516A1103	Medium	34 kPa to 83 kPa	5 psi to 12 psi	No hesitation.

# Pneumatic Damper Actuators

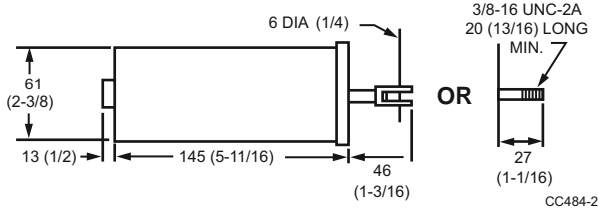
## MP909D Pneumatic Damper Actuator



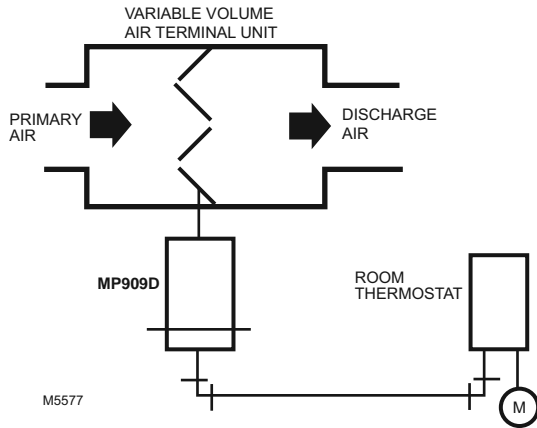
Used for pneumatic proportional control of variable volume terminal units and small damper. Available in various operating ranges for either individual or sequence operation with other actuators. Replacement devices are available for Johnson, Powers, Robertshaw, and older Honeywell actuator models.

- Rugged ribbed aluminum body.
- Low-friction shaft bearing.
- Close tolerance on operating range and stroke.
- Protected barb connector.
- Versatile mounting and connecting hardware options.
- Positive leakproof seal.

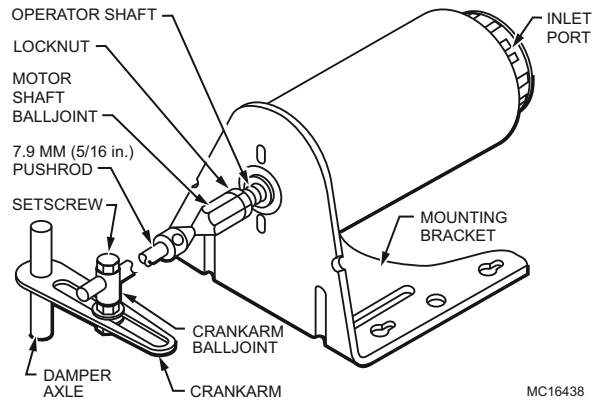
### Dimensions in millimeters (inches)



### MP909D Piping Diagram



### MP909D Ball Joint Linkage



**Actuator Type:** Damper

**Actuator Force:** Low

**Fail Safe Mode:** Spring Return

**Diaphragm Effective Area:** 19.4 sq cm (3 sq in.)

**Temperature Range:** 10 C to 60 C (50 F to 140 F)

**Maximum Operating Pressure:** 207 kPa (30 psi)

**Humidity Range:** 5 to 95% RH

### Approvals:

Underwriters Laboratories, Inc. Components Recognized: Report R18118

### Accessories:

**14002850-001** Angle Bracket 137 mm (5 3/8 in) long, 127 mm (5 in) wide

**14003640-001** Angle Bracket 76 mm (3 in.) long, 95 mm (3 3/4 in.) wide, 70 mm (2 3/4 in.) high

**26025B** Damper crank arm for 9.5 mm (3/8 in.) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.

**27174B** Damper crank arm for 11.1 mm (7/16 in.) diameter axle.

Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.

**27520C** Push Rod [7 mm dia., 304 mm length (5/16 in. dia., 12 in. length)]

**27520G** Push Rod [7 mm dia., 609 mm length (5/16 in. dia., 24 in. length)]

**27520K** Push Rod [7 mm dia., 914 mm length (5/16 in. dia., 36 in. length)]

**27520L** Push Rod [7 mm dia., 1219 mm length (5/16 in. dia., 48 in. length)]

**312867C** Damper Crank Arm for 12.7 mm (1/2 in.) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees

**315321** Crankarm Balljoint (with 6 mm (1/4 in male threads)), fits 7 mm (5/16 in.) diameter pushrod

**315781** Motor shaft balljoint with 9 mm (3/8 in.), - 16 UNC female threads, fits 7 mm (5/16 inch) diameter pushrods.

Product Number	Air Connections	Spring Range		Stroke		Includes
		(kPa)	(psi)	(mm)	(inch)	
MP909D1201	Barbed fitting for 3/32 in. O.D. tubing	21 kPa to 55 kPa	3 psi to 8 psi	61 mm	2.4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1219	Barbed fitting for 3/32 in. O.D. tubing	55 kPa to 90 kPa	8 psi to 13 psi	61 mm	2.4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint

# Pneumatic Damper Actuators

Product Number	Air Connections	Spring Range		Stroke		Includes
		(kPa)	(psi)	(mm)	(inch)	
MP909D1227	Barbed fitting for 3/32 in. O.D. tubing	34 kPa to 69 kPa	5 psi to 10 psi	61 mm	2.4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1318	Barbed fitting for 3/32 in. O.D. tubing	55 kPa to 90 kPa	8 psi to 13 psi	61 mm	2.4 in.	14002850-001 - External Mounting Bracket with Balljoint
MP909D1334	Barbed fitting for 3/32 in. O.D. tubing	34 kPa to 69 kPa	5 psi to 10 psi	61 mm	2.4 in.	14003640-001 - 90 degree Angled Mounting Bracket with Ball Joint
MP909D1367	Barbed fitting for 3/32 in. O.D. tubing	34 kPa to 69 kPa	5 psi to 10 psi	76 mm	3 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1441	Barbed fitting for 3/32 in. O.D. tubing	34 kPa to 69 kPa	5 psi to 10 psi	76 mm	3 in.	Small clevis on shaft. No mounting bracket or ball joint
MP909D1474	Barbed fitting for 1/4 in. O.D. tubing	34 kPa to 69 kPa	5 psi to 10 psi	61 mm	2.4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1508	Barbed fitting for 1/4 in. O.D. tubing	55 kPa to 90 kPa	8 psi to 13 psi	61 mm	2.4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint
MP909D1516	Barbed fitting for 1/4 in. O.D. tubing	34 kPa to 69 kPa	5 psi to 10 psi	61 mm	2.4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or Ball Joint

# Pneumatic Damper Actuators

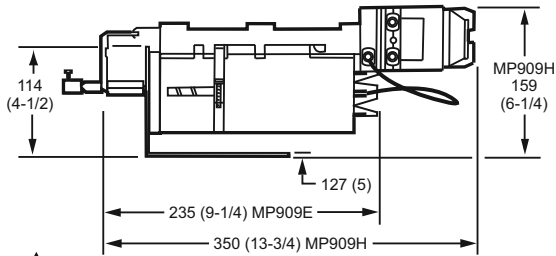
## MP909E,H Pneumatic Damper Actuators



These actuators are used for proportional control of variable volume terminal units, mixing boxes, and small to medium sized dampers. They are available in various operating ranges for either independent operation or sequence operation with other actuators. The MP909E has an optional adjustable stroke feature. The MP909H includes a positive positioner. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell actuator models.

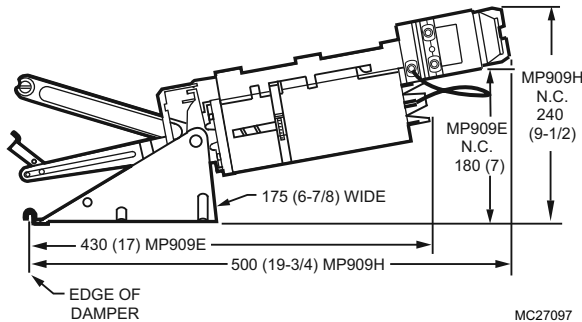
- Rolling diaphragm operated.
- Low friction shaft bearing.
- Close tolerance on operating range and stroke.
- Non-overlapping spring ranges for sequencing.
- Corrosion resistant materials.
- Reliable long life.

**Dimensions in millimeters (inches)**  
Actuator with Fixed External Mounting Bracket



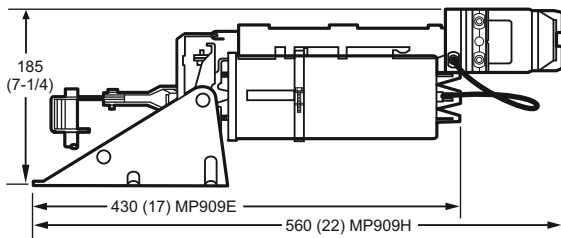
▲ ANGLE BRACKET IS 14002851-001 FOR MP909E1067 AND IS 14002850-001 FOR OTHERS. MC27095

**Dimensions in millimeters (inches)**  
Actuator with Internal N.C. Trunnion Mounting Bracket



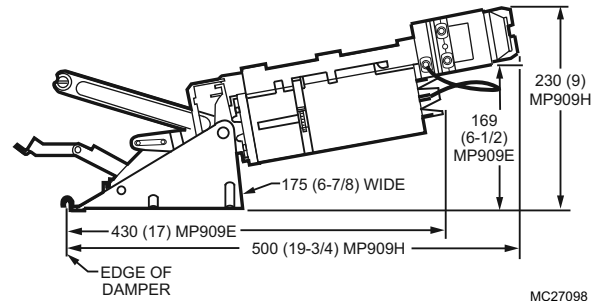
MC27097

**Dimensions in millimeters (inches)**  
Actuator with External Trunnion Mounting Bracket



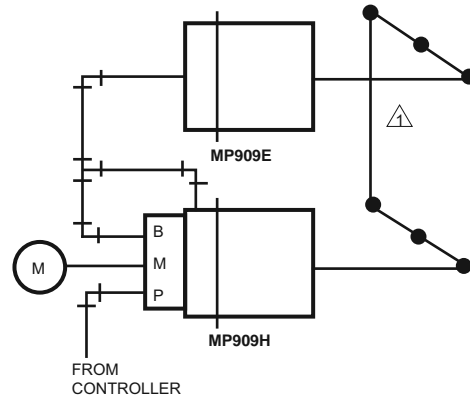
MC27096

**Dimensions in millimeters (inches)**  
Actuator with Internal N.O. Trunnion Mounting Bracket



MC27098

**MP909E,H Piping Diagram**



▲ SECTIONS OF LARGE DAMPER REQUIRING MORE THAN ONE OPERATOR MUST BE LINKED

M5575

**Actuator Type:** Damper  
**Actuator Force:** Medium  
**Fail Safe Mode:** Spring Return  
**Diaphragm Effective Area:** 43 sq cm (6.6 sq in.)  
**Maximum Operating Pressure:** 200 kPa (29 psi)  
**Humidity Range:** 5 to 95% RH

**Approvals:**  
 Underwriters Laboratories, Inc. Components Recognized: Report R18118

# Pneumatic Damper Actuators

## Accessories:

- 14002850-001** Angle Bracket 5 3/8 in, 137 mm, long, 5 in, 127 mm, wide
- 14003640-001** Angle Bracket 3 in. (76 mm) long, 3 3/4 in. (95 mm) wide, 2 3/4 in. (70 mm) high
- 14004062-001** External Trunnion Mounting Bracket
- 14004062-002** Internal N.C. Trunnion Mounting Bracket
- 14004062-003** Internal N.O. Trunnion Mounting Bracket
- 14004106-001** Actuator pushrod for conversion of internal N.C. to external
- 14004107-001** Crankarm Assembly for conversion from internal N.C. to external Trunnion mounting
- 14004210-001** Feedback Spring Kit includes orange spring (3 psi [21kPa]), yellow spring (5 psi [34 kPa]), and blue spring (10 psi [69 kPa]).
- 14004236-001** Coupler, actuator shaft to 5/16 in, 8 mm, pushrod
- 14004241-002** Hitch Pin (Six Sets) Accessories:
- 14004242-001** MP918 Top Mount Operator Assembly
- 14004667-001** Offset Crank arm assembly with 2 screws (304725-062), nuts (14004102-001), crank arm (14004655-001) for 1/2 in. Drive Axle

- 26025B** Damper crank arm for 3/8 in. (9.5 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.
- 27518** Crankarm balljoint with 1/4 - 28 UNF male threads, fits 5-16 inch diameter push rods
- 27520C** Push Rod (5/16 in. dia., 12 in. length)
- 27520G** Push Rod (5/16 in. dia., 24 in. length)
- 27520K** Push Rod (5/16 in. dia., 36 in. length)
- 27520L** Push Rod (5/16 in. dia., 48 in. length)
- 312867C** Damper Crank Arm for 1/2 in. (12.7mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees
- 312867H** Externally mounted Linkage Kit
- 314440A** MP909 - Clevis, Clevis Pin and Cotter Pin Assembly
- 315321** Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod
- 315718** Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.

## Replacement Parts:

- 14004137-001** Retrofit Kit for adding positive positioner to MP909E or repair of MP909H

Product Number	Air Connections	Temperature Range		Maximum Operating Pressure		Spring Range		Stroke		Includes
		(C)	(F)	(kPa)	(psi)	(kPa)	(psi)	(mm)	(inch)	
MP909E1018	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	21 kPa to 90 kPa	3 psi to 13 psi	102 mm	4 in.	315781 Balljoint, Linkage Kit 14002061-006 and 14002850-001 Fixed External Mounting Bracket with Balljoint
MP909E1026	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	21 kPa to 90 kPa	3 psi to 13 psi	102 mm	4 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket or linkage
MP909E1034	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	102 mm	4 in.	315781 Balljoint, Linkage Kit 14002061-006 and 14002850-001 Fixed External Mounting Bracket with Balljoint
MP909E1059	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	70 mm	2 3/4 in.	Actuator only. 3/8 in.-16 Threaded Shaft with stroke stops. No Mounting Bracket
MP909E1067	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	79 mm	3 in.	Fixed external unitary mounting bracket and clevis shaft with stroke stops
MP909E1083	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	17 kPa to 45 kPa	2.5 psi to 6.5 psi	79 mm	3 in.	315781 Balljoint, Linkage Kit 14002061-006 and 14002850-001 Fixed External Mounting Bracket with Balljoint
MP909E1158	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	62 kPa to 90 kPa	9 psi to 13 psi	79 mm	3 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket
MP909E1174	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	62 kPa to 90 kPa	9 psi to 13 psi	70 mm	3 in.	14002850-001 - Fixed External Mounting Bracket with 315781 Balljoint
MP909E1240	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	79 mm	3 in.	Actuator only. 3/8 in.-16 Threaded Shaft. No Mounting Bracket
MP909E1349	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	21 kPa to 90 kPa	3 psi to 13 psi	102 mm	4 in.	Internal N.C. trunnion mounting bracket
MP909E1356	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	21 kPa to 90 kPa	3 psi to 13 psi	102 mm	4 in.	External trunnion mounting bracket
MP909E1364	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	102 mm	4 in.	External trunnion mounting bracket

# Pneumatic Damper Actuators

Product Number	Air Connections	Temperature Range		Maximum Operating Pressure		Spring Range		Stroke		Includes
		(C)	(F)	(kPa)	(psi)	(kPa)	(psi)	(mm)	(inch)	
MP909E1372	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	17 kPa to 45 kPa	2.5 psi to 6.5 psi	70 mm	3 in.	External trunnion mounting bracket
MP909E1380	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	62 kPa to 90 kPa	9 psi to 13 psi	79 mm	3 in.	External trunnion mounting bracket
MP909E1398	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	62 kPa to 90 kPa	9 psi to 13 psi	79 mm	3 in.	Internal N.C. trunnion mounting bracket
MP909E1422	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	102 mm	4 in.	14004062-003 Internal N.O. Mounting Bracket with crankarm and pushrod assembly
MP909E1463	Dual Barbed fitting for 5/32 in. or 1/4 in. O.D. tubing	-33 C to +71 C	-28 F to +160 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	102 mm	4 in.	14002850-001 - Fixed External Mounting Bracket
MP909H1331	Positioner: Pilot 5/32 in. barb, Main 1/4 in. barb, Branch 1/4 in. barb. Actuator: combination 5/32 in. and 1/4 in. barb	-29 C to +71 C	-20 F to +160 F	172 kPa	25 psi	Positive positioner 69 kPa span (34 kPa spring included)	Positive positioner 10 psi span (5 psi spring included)	102 mm	4 in.	315781 Balljoint, Positive Positioner, and 14002850-001 - Fixed External Mounting Bracket with Balljoint
MP909H1368	Positioner: Pilot 5/32 in. barb, Main 1/4 in. barb, Branch 1/4 in. barb. Actuator: combination 5/32 in. and 1/4 in. barb	-29 C to +71 C	-20 F to +160 F	172 kPa	25 psi	Positive positioner 69 kPa span (34 kPa spring included)	Positive positioner 10 psi span (5 psi spring included)	102 mm	4 in.	External Trunnion Bracket, Positive Positioner
MP909H1392	Positioner: Pilot 5/32 in. barb, Main 1/4 in. barb, Branch 1/4 in. barb. Actuator: combination 5/32 in. and 1/4 in. barb	-29 C to +71 C	-20 F to +160 F	172 kPa	25 psi	Positive positioner 69 kPa span (34 kPa spring included)	Positive positioner 10 psi span (5 psi spring included)	102 mm	4 in.	Mounting bracket for internal N.C. Trunnion mounting, positive positioner

# Pneumatic Damper Actuators

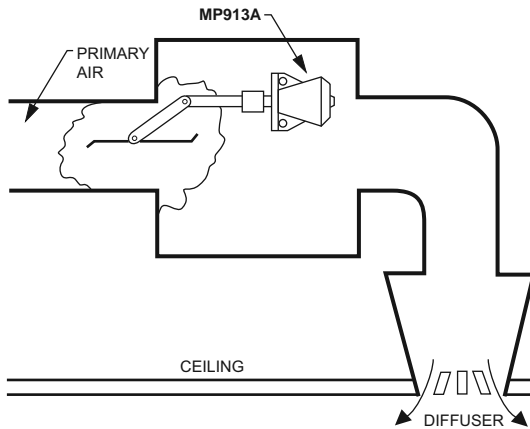
## MP913 Pneumatic Variable Volume Damper Actuator



Provides proportional control of variable volume dampers in small high velocity mixing boxes. Replacement devices are available for Johnson and Robertshaw devices. Suitable for direct replacement only, do not attempt to replace larger damper actuators with this unit.

- Compact in size.
- Neoprene rolling diaphragm.
- The MP913 Operator can be used with or without a crankarm.

### MP913A Typical Piping



M5438

### Actuator Type: Damper

**Dimensions, Approximate:** 67 mm high (add 19 mm for shaft) x 57 mm diameter [2 5/8 in. high (add 3/4 in. for shaft) x 2 1/4 in. diameter]

**Actuator Force:** Low

**Fail Safe Mode:** Spring Return

**Stroke:** 25 mm (1 in.)

**Temperature Range:** 10 C to 60 C (50 F to 140 F)

**Maximum Operating Pressure:** 207 kPa (30 psi)

**Humidity Range:** 5 to 95% RH

### Accessories:

**315321** Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod

**315781** Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.

**27520C** Push Rod (5/16 in. dia., 12 in. length)

**27520G** Push Rod (5/16 in. dia., 24 in. length)

**27520K** Push Rod (5/16 in. dia., 36 in. length)

**27520L** Push Rod (5/16 in. dia., 48 in. length)

Product Number	Air Connections	Diaphragm Effective Area		Spring Range		Includes
		sq cm	sq in.	(kPa)	(psi)	
MP913A1003	Barbed fitting for 1/4 in. O.D. plastic tubing	14 sq cm	2.2 sq in.	69 kPa to 103 kPa	10 psi to 15 psi	14002808-001 - Flat Mounting Bracket. Shaft has 1/8 in. diameter hole for a roll pin.
MP913A1011	Barbed fitting for 1/4 in. O.D. plastic tubing	14 sq cm	2.2 sq in.	69 kPa to 103 kPa	10 psi to 15 psi	14003640-001 - 90 degree Angled Mounting Bracket and 3/8 in.-16 Threaded Shaft
MP913A1029	Barbed fitting for 1/4 in. O.D. plastic tubing	14 sq cm	2.2 sq in.	34 kPa to 69 kPa	5 psi to 10 psi	14003640-001 - 90 degree Angled Mounting Bracket and 3/8 in.-16 Threaded Shaft
MP913A1037	Barbed fitting for 1/4 in. O.D. plastic tubing	14 sq cm	2.2 sq in.	34 kPa to 69 kPa	5 psi to 10 psi	14003640-001 - 90 degree Angled Mounting Bracket. Shaft has 1/8 in. diameter hole for a roll pin.
MP913A1177	Barbed fitting for 1/4 in. O.D. plastic tubing	14 sq cm	2.2 sq in.	21 kPa to 90 kPa	3 psi to 13 psi	14002809-001 - 90 degree Angled Mounting Bracket (3-point attachment) and 3/8 inch - 16 threaded shaft



# Pneumatic Damper Actuators

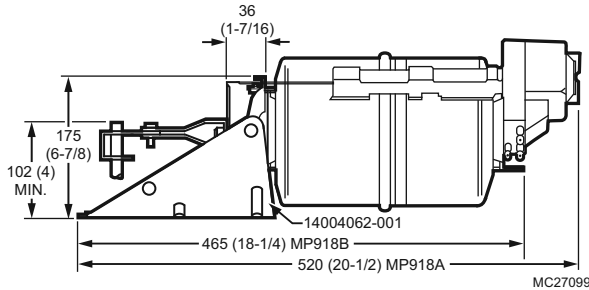
## MP918A,B Pneumatic Damper Actuators



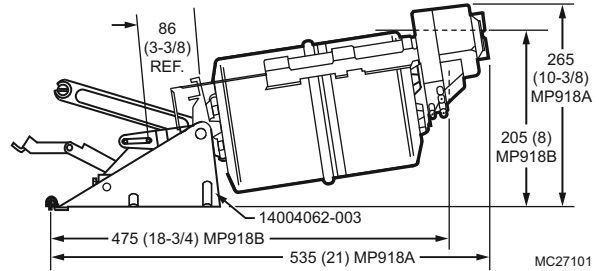
Used for proportional control of medium- to large-size dampers in HVAC systems. The MP918A,B are rolling diaphragm, piston-type actuators. The MP918A has a positive positioner. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell actuator models.

- Rolling diaphragm operated.
- Low friction shaft bearing.
- Close tolerance on operating range and stroke.
- Versatile mounting and connecting hardware.
- Non-overlapping spring ranges for sequencing.
- Reliable-long life.

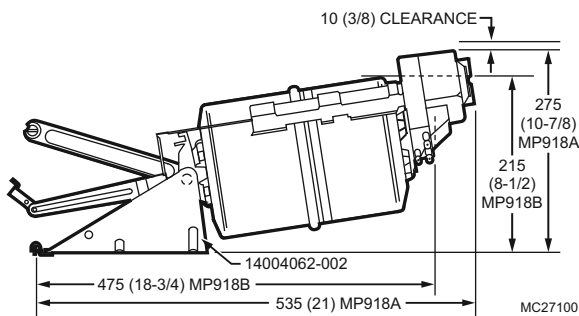
**Dimensions in millimeters (inches)**  
Actuator with External Trunnion Mounting Bracket



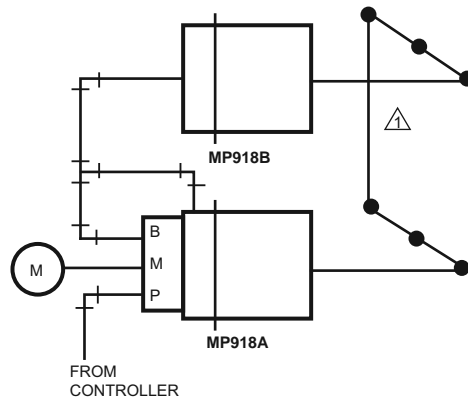
**Dimensions in millimeters (inches)**  
Actuator with Internal N.O. Trunnion Mounting Bracket



**Dimensions in millimeters (inches)**  
Actuator with Internal N.C. Trunnion Mounting Bracket



**MP918A and B Typical Piping**



△ SECTIONS OF LARGE DAMPER REQUIRING MORE THAN ONE OPERATOR MUST BE LINKED

M5576

**Actuator Type:** Damper  
**Actuator Force:** High  
**Fail Safe Mode:** Spring Return  
**Stroke:** 90 mm (3 1/2 in.)  
**Diaphragm Effective Area:** 23.8 sq in. (154 sq cm)  
**Humidity Range:** 5 to 95% RH

**Approvals:**  
**Underwriters Laboratories, Inc.** Components Recognized: Report R18118

**Accessories:**

- 14004062-001 External Trunnion Mounting Bracket
- 14004062-002 Internal N.C. Trunnion Mounting Bracket
- 14004062-003 Internal N.O. Trunnion Mounting Bracket
- 14004106-001 Actuator pushrod for conversion of internal N.C. to external

- 14004107-001 Crankarm Assembly for conversion from internal N.C. to external Trunnion mounting
- 14004210-001 Feedback Spring Kit includes orange spring [3 psi (21kPa)], yellow spring [5 psi (34 kPa)], and blue spring [10 psi (69 kPa)].
- 14004236-001 Coupler, actuator shaft to 5/16 in, 8 mm, pushrod
- 14004241-002 Hitch Pin (Six Sets)
- 14004242-001 MP918 Top Mount Operator Assembly
- 14004667-001 Offset Crank arm assembly with 2 screws (304725-062), nuts (14004102-001), crank arm (14004655-001) for 1/2 in. Drive Axle
- CCT2718 Threaded rod for shaft extension
- CCT2725 Rod coupling for shaft extension

**Replacement Parts:**

- 14004264-001 MP918 Repair kit including Positive Positioner, bracket assembly and fittings
- 14004264-002 MP918 Positive Positioner Retrofit Kit - includes 10 psi feedback spring

Pneumatic Controls

# Pneumatic Damper Actuators

Product Number	Air Connections	Temperature Range		Maximum Operating Pressure		Spring Range		Includes
		(C)	(F)	(kPa)	(psi)	(kPa)	(psi)	
MP918A1024	5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)	-29 C to +70 C	-20 F to +158 F	172 kPa	25 psi	Positive positioner 69 kPa span (34 kPa spring included)	Positive positioner 10 psi span (5 psi spring included)	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly. Positive Positioner
MP918A1057	5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)	-29 C to +70 C	-20 F to +158 F	172 kPa	25 psi	Positive positioner 69 kPa span (34 kPa spring included)	Positive positioner 10 psi span (5 psi spring included)	14004062-002 - Internal N.C. Trunnion Mounting Bracket with pushrod assembly. Positive Positioner
MP918A1081	5/32 in. push-on barb (Pilot), 1/4 in. push-on barb (main.)	-29 C to +70 C	-20 F to +158 F	172 kPa	25 psi	Positive positioner 69 kPa span (34 kPa spring included)	Positive positioner 10 psi span (5 psi spring included)	14004062-003 - Internal N.O. Trunnion Mounting Bracket with pushrod assembly. Positive Positioner
MP918B1006	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	20 kPa to 90 kPa	3 psi to 13 psi	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1014	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	20 kPa to 90 kPa	3 psi to 13 psi	14004062-001 - Internal N.C. Trunnion Mounting Bracket with pushrod assembly
MP918B1022	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	20 kPa to 90 kPa	3 psi to 13 psi	14004062-003 Internal N.O. Trunnion Mounting Bracket with pushrod assembly
MP918B1030	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	20 kPa to 90 kPa	3 psi to 13 psi	Actuator only. No Mounting Bracket
MP918B1048	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	34 kPa to 69 kPa	5 psi to 10 psi	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1063	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	20 kPa to 48 kPa	3 psi to 7 psi	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1071	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	20 kPa to 48 kPa	3 psi to 7 psi	14004062-002 Internal N.C. Trunnion Mounting Bracket with pushrod assembly
MP918B1089	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	55 kPa to 90 kPa	8 psi to 13 psi	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly
MP918B1097	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	55 kPa to 90 kPa	8 psi to 13 psi	14004062-002 Internal N.C. Trunnion Mounting Bracket with pushrod assembly
MP918B1105	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	55 kPa to 90 kPa	8 psi to 13 psi	14004062-003 Internal N.O. Trunnion Mounting Bracket with pushrod assembly
MP918B1113	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	55 kPa to 90 kPa	8 psi to 13 psi	Actuator only. No Mounting Bracket
MP918B1196	Barbed fitting for 1/4 in. O.D. plastic tubing	-40 C to +70 C	-40 F to +158 F	200 kPa	29 psi	55 kPa to 90 kPa	8 psi to 13 psi	14004062-001 - External Trunnion Mounting Bracket with crankarm assembly.

# Pneumatic Damper Actuators

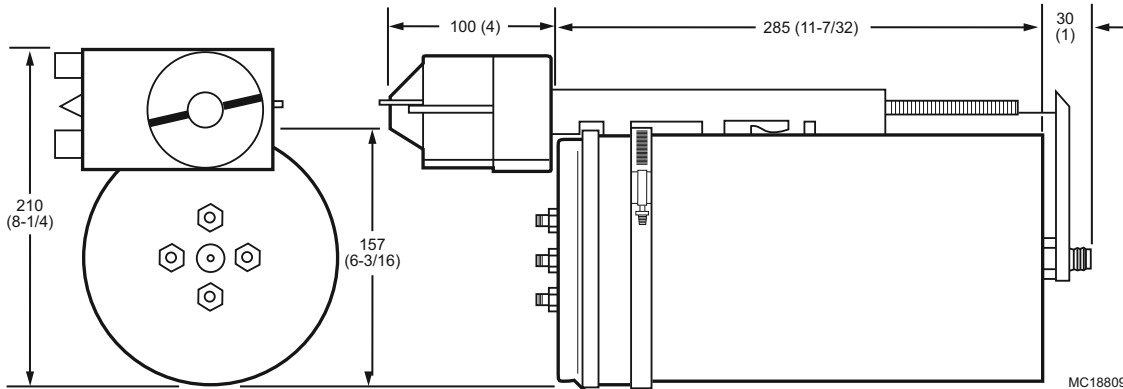
## MP920 Pneumatic Damper Actuator



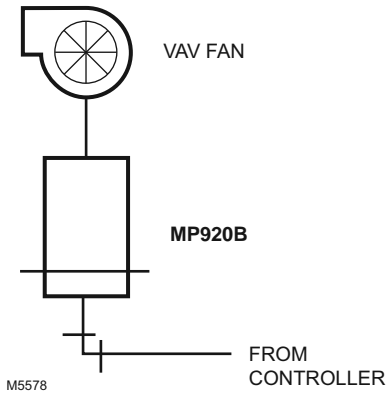
Provides proportional control of large dampers in HVAC systems or inlet vanes on a VAV fan. Positive positioner available separately. Replacement devices are available for Robertshaw actuator models.

- Rolling diaphragm operated.
- Fail safe on over pressure.
- Actuator can be swivel mounted from either end to pipe, floor, or wall surface.
- Optional positive positioner provides accurate positioning under varying load conditions.

Dimensions in millimeters (inches)



MP920B Typical Piping



**Actuator Type:** Damper

**Actuator Force:** High

**Fail Safe Mode:** Spring Return

**Air Connections:** Barbed fitting for 1/4 in. O.D. plastic tubing

**Temperature Range:** -30 C to +70 C (-20 F to +158 F)

**Maximum Operating Pressure:** 200 kPa (29 psi)

**Humidity Range:** 5 to 95% RH

**Accessories:**

**14004062-001** External Trunnion Mounting Bracket

**14004241-002** Hitch Pin (Six Sets)

**14004345-001** Positive Positioner Kit, 10 psi feedback spring

**AK3556** Pipe Mounting Assembly for 1-1/4 in. pipe

**AK3557** Short Clevis Bag Assembly for 3/8-16 threaded rod

**AK3558** Swivel Bracket Bag Assembly

**AK3559** Long Clevis Bag Assembly with actuator shaft coupling for 5/8-11 threaded rod

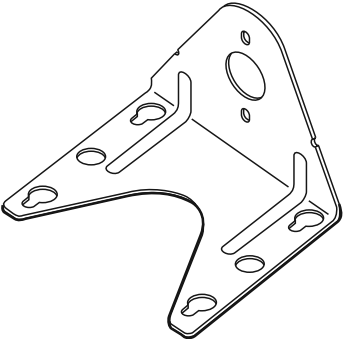
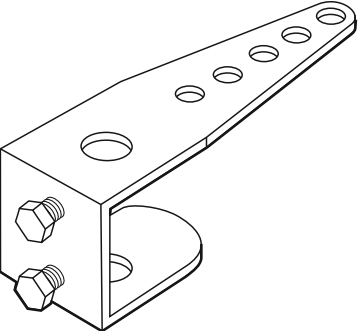
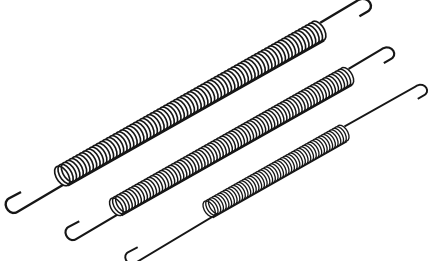
**AK3560** Balljoint, 3/8-24 threaded stud with couplings for 5/8-11 threaded rod and actuator shaft

**AK3561** Balljoint, 3/8-24 threaded stud with couplings for 3/8-16 threaded rod

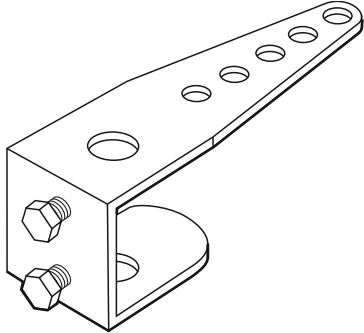
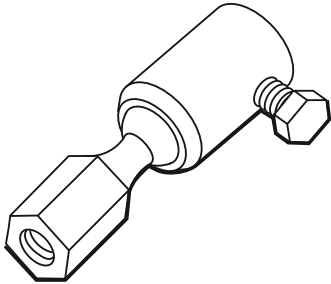
Product Number	Diaphragm Effective Area		Spring Range		Stroke		Includes
	sq cm	sq in.	(kPa)	(psi)	(mm)	(inch)	
MP920B1002	160 sq cm	24.8 sq in.	50 kPa to 90 kPa	7.25 psi to 13 psi	150 mm	6 in.	Actuator only. No Bracket. Order positive positioner, mounting and connecting hardware separately. See Installation Instructions form no. 95-6053

# Pneumatic Damper Actuators

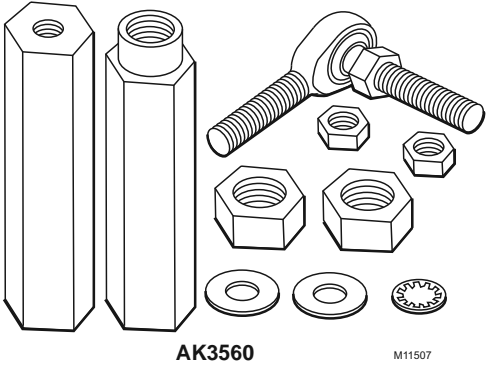
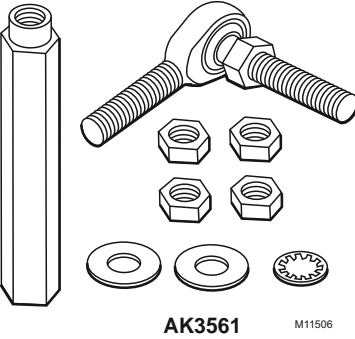
## Pneumatic Damper Actuator Parts and Accessories

Product Number	Description	Used With	
14001213-001	MP904A and B Diaphragm	MP904A,B	—
14002061-001	Damper Linkage Kit w/ Template	MP909E,F	—
14002850-001	Angle Bracket 5 3/8 in, 137 mm, long, 5 in, 127 mm, wide	MP909D,E	—
14003640-001	Angle Bracket 3 in. (76 mm) long, 3 3/4 in. (95 mm) wide, 2 3/4 in. (70 mm) high	MP913; MP909D	 <p>14003640 M11504</p>
14004062-001	External Trunnion Mounting Bracket	MP918A,B; MP909E,H	—
14004062-002	Internal N.C. Trunnion Mounting Bracket	MP918A,B; MP909E,H	—
14004062-003	Internal N.O. Trunnion Mounting Bracket	MP918A,B; MP909E,H	—
14004106-001	Actuator pushrod for conversion of internal N.C. to external	MP918A,B; MP909E,H	—
14004106-002	Push rod assembly for internal N.C.	MP918A,B; MP909E,H	—
14004107-001	Crankarm Assembly for conversion from internal N.C. to external Trunnion mounting	MP918A,B; MP909E,H	 <p>14004107 M11530</p>
14004136-001	MP904 Positive Positioner Retrofit Kit	MP904A	—
14004137-001	Retrofit Kit for adding positive positioner to MP909E or repair of MP909H	MP909E; MP909H	—
14004210-001	Feedback Spring Kit includes orange spring [3 psi (21kPa)], yellow spring [5 psi (34 kPa)], and blue spring [10 psi (69 kPa)].	MP909H; MP918A	 <p>14004210 M11532</p>
14004236-001	Coupler, actuator shaft to 5/16 in, 8 mm, pushrod	MP918	—
14004241-002	Hitch Pin (Six Sets)	MP918A,B; MP909E,H	—
14004242-001	MP918 Top Mount Operator Assembly	MP918A,B	—
14004264-001	MP918 Repair kit including Positive Positioner, bracket assembly and fittings	MP918A	—

# Pneumatic Damper Actuators

Product Number	Description	Used With	
14004264-002	MP918 Positive Positioner Retrofit Kit - includes 10 psi feedback spring	MP918B	—
14004324-001	Kit for Alternate External Top-Mount, MP909E,H MP918A,B	MP918A,B; MP909E,H	—
14004345-001	Positive Positioner Kit, 10 psi feedback spring	MP920B	 <p>14004107 M11530</p>
14004577-001	MP953 A, C, and E (Direct Acting, 5 in. diameter) Yoke/Base Assembly	MP953A,C,E	—
15753692-001	Modular Kit for Jack Shaft Installation of MP909E and MP918B Actuators	MP909E; MP918B	—
15753693-001	End kit for Jack Shaft Installation of MP909E and MP918B Actuators	MP909E; MP918B	—
15753694-001	Operator kit for Jack Shaft Installation of MP909E and MP918B Actuators	MP909E; MP918B	—
26025B	Damper crank arm for 3/8 in. (9.5 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.	MP516; MP909D; MP909E, H	—
27174B	Damper crank arm for 7/16 in. (11.1 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 40-50-60-75-90 degrees.	MP516; MP513	—
309292	MP516A Diaphragm	MP516	—
312809C	MP904A and B Tube and Diaphragm Assembly	MP904A,B	—
312817	MP953C (5 in. diameter) Cover	MP953C (5 in.)	—
312867C	Damper Crank Arm for 1/2 in. (12.7 mm) diameter axle. Elongated slot for linkage connection. Slot scaled for 45-60-75-90 degrees	MP516; MP909D; MP909E; MP909H	—
312867H	Externally mounted Linkage Kit	MP516; MP909D,E,H	—
314100	MP909A Replacement Diaphragm	MP909A	—
314231	MP909B Replacement Diaphragm	MP909B	—
314440A	MP909 - Clevis, Clevis Pin and Cotter Pin Assembly	MP909	—
314503	MP909C Replacement Diaphragm	MP909C	—
315321	Crankarm Balljoint (with 1/4 in male threads), fits 5/16 in. diameter pushrod	MP516; MP909D,E,H; MP913	—
315321G	Crankarm and Linkage	MP909A,D	—
315439/0062	Clevis	MP909D	—
315781	Motor shaft balljoint with 3/8 - 16 UNC female threads, fits 5/16 inch diameter pushrods.	MP909D,E,H; MP913	 <p>315781 M11503</p>

# Pneumatic Damper Actuators

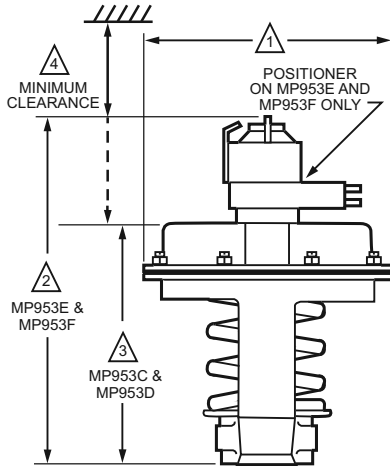
Product Number	Description	Used With	
315782	Balljoint (9/16 in.-18 UNC) accepts 5/16 in. Pushrod	MP920B	—
AK3558	Swivel Bracket Bag Assembly	MP920B	—
AK3560	Balljoint, 3/8-24 threaded stud with couplings for 5/8-11 threaded rod and actuator shaft	MP920B	 <p>AK3560 M11507</p>
AK3561	Balljoint, 3/8-24 threaded stud with couplings for 3/8-16 threaded rod	MP920B	 <p>AK3561 M11506</p>
CCT2718	Threaded rod for shaft extension	MP918	—
CCT2725	Rod coupling for shaft extension	MP918	—

# Pneumatic Valve Actuators

## MP953C,D Pneumatic Coil Valve Actuators



Dimensions in millimeters (inches)



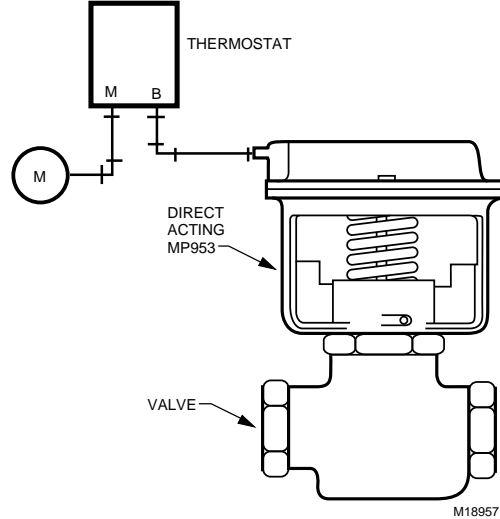
OPERATION SIZE NOMINAL DIA.	1	2	3	4
5 INCH	130 (5-1/8)	235 (9-1/4)	117 (4-5/8)	4-3/8 (111)
7-1/8 INCH	181 (7-1/8)	267 (10-1/2)	143 (5-5/8)	111 (4-3/8)
8 INCH	210 (8-1/4)	283 (11-1/8)	165 (6-1/2)	137 (5-3/8)
13 INCH	343 (13-1/2)	460 (18-1/8)	254 (10)	195 (7-11/16)

MC13903

Pneumatic actuators provide proportional control of steam or hot or cold liquids in HVAC systems by operating V5011, V5013, and VGF valve assemblies. Replacement devices are available for older Honeywell actuators.

- Rolling diaphragm for long life and low hysteresis.
- Easily attached to valve.
- Can be installed after piping valve.
- Slide lock feature permits simple engagement to valve stem.
- Direct- or reverse-action control.
- Does not include positive positioner.

### Typical MP953C,D Operation



**Actuator Type:** Valve

**Fail Safe Mode:** Spring Return

**Air Connections:** Dual barbed fitting for 5/32 in. O.D. and 1/4 in. O.D. plastic tubing

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Operating Pressure:** 172 kPa (25 psi)

**Humidity Range:** 5 to 95% RH

Product Number	Action	Actuator Force	Spring Range		Diameter (in.)	Stroke		For Valves with Bonnet Size		Includes
			(kPa)	(psi)		(mm)	(inch)	(mm)	(inch)	
MP953C1000	Direct Acting	Low	14 kPa to 48 kPa	2 psi to 7 psi	5 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	—
MP953C1018	Direct Acting	Low	55 kPa to 83 kPa	8 psi to 12 psi	5 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	—
MP953C1026	Direct Acting	Low	28 kPa to 76 kPa	4 psi to 11 psi	5 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	—
MP953C1067	Direct Acting	Medium	14 kPa to 48 kPa	2 psi to 7 psi	8 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	311851-062 Stem Extension Assembly
MP953C1075	Direct Acting	Medium	55 kPa to 83 kPa	8 psi to 12 psi	8 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	311851-062 Stem Extension Assembly
MP953C1083	Direct Acting	Medium	28 kPa to 76 kPa	4 psi to 11 psi	8 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	311851-062 Stem Extension Assembly
MP953C1471	Direct Acting	High	14 kPa to 48 kPa	2 psi to 7 psi	13 in.	38 mm	1 1/2 in.	47.6 mm	1 7/8 in.	312466-605 Stem Extension Assembly
MP953C1489	Direct Acting	High	28 kPa to 76 kPa	4 psi to 11 psi	13 in.	38 mm	1 1/2 in.	47.6 mm	1 7/8 in.	312466-605 Stem Extension Assembly
MP953C1547	Direct Acting	Medium	21 kPa to 104 kPa	3 psi to 15 psi	8 in.	38 mm	1 1/2 in.	35 mm	1 3/8 in.	—
MP953C1554	Direct Acting	High	14 kPa to 48 kPa	2 psi to 7 psi	13 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	14004697-001 Stem Extension Assembly
MP953C1562	Direct Acting	High	28 kPa to 76 kPa	4 psi to 11 psi	13 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	14004697-001 Stem Extension Assembly
MP953D1107	Reverse Acting	Medium	55 kPa to 90 kPa	8 psi to 13 psi	7 1/8 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	—
MP953D1131	Reverse Acting	Medium	28 kPa to 76 kPa	4 psi to 11 psi	7 1/8 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	—
MP953D1172	Reverse Acting	Medium	21 kPa to 48 kPa	3 psi to 7 psi	7 1/8 in.	19 mm	3/4 in.	35 mm	1 3/8 in.	—

# Pneumatic Valve Actuators

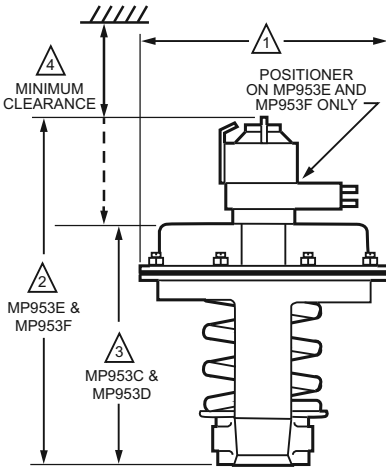
## MP953E, F Pneumatic Coil Valve Actuators



Pneumatic actuators provide proportional control of steam or hot or cold liquids in HVAC systems by operating V5011, V5013, and VGF valve assemblies. Replacement devices are available for older Honeywell actuators.

- Rolling diaphragm for long life and low hysteresis.
- Easily attached to valve.
- Can be installed after piping valve.
- Slide lock feature permits simple engagement to valve stem.
- Direct- or reverse-action control.
- Integral positive positioner relay provides positive positioning under varying load conditions.

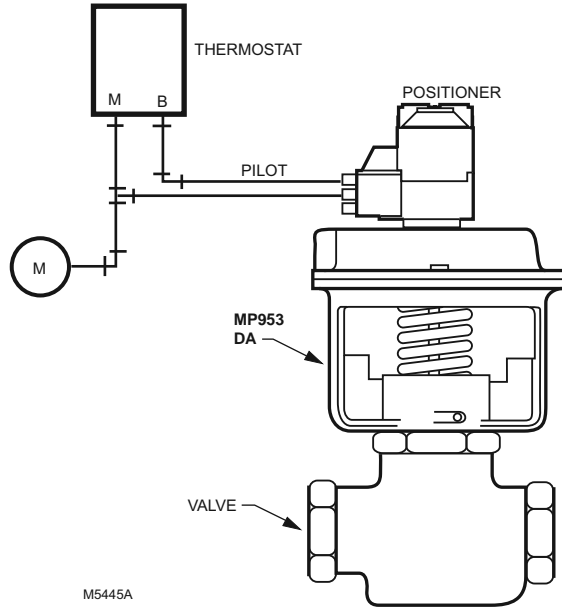
### Dimensions in millimeters (inches)



OPERATION SIZE NOMINAL DIA.	1	2	3	4
5 INCH	130 (5-1/8)	235 (9-1/4)	117 (4-5/8)	4-3/8 (111)
7-1/8 INCH	181 (7-1/8)	267 (10-1/2)	143 (5-5/8)	111 (4-3/8)
8 INCH	210 (8-1/4)	283 (11-1/8)	165 (6-1/2)	137 (5-3/8)
13 INCH	343 (13-1/2)	460 (18-1/8)	254 (10)	195 (7-11/16)

MC13903

### Typical Piping for MP953E,F Pneumatic Valve Actuator Wiring



M5445A

**Actuator Type:** Valve

**Fail Safe Mode:** Spring Return

**Air Connections:** Pilot: Barbed fitting for 5/32 in. O.D. plastic tubing

Main: Barbed fitting for 1/4 in. O.D. plastic tubing

**Temperature Range:** -18 C to +60 C (0 F to 140 F)

**Maximum Operating Pressure:** 172 kPa (25 psi)

**Humidity Range:** 5 to 95% RH

Product Number	Action	Actuator Force	Spring Range		Diameter (in.)	Stroke		Includes
			(kPa)	(psi)		(mm)	(inch)	
MP953E1285	Direct Acting	Medium	28 kPa to 76 kPa	4 psi to 11 psi	8 in.	38 mm	1 1/2 in.	Positive Positioner with 5 psi (35 kPa) range
MP953E1301	Direct Acting	Low	28 kPa to 76 kPa	4 psi to 11 psi	5 in.	19 mm	3/4 in.	Positive Positioner with 3 psi range (21kPa)
MP953E1319	Direct Acting	Low	28 kPa to 76 kPa	4 psi to 11 psi	5 in.	19 mm	3/4 in.	Positive Positioner with 5 psi range (35 kPa)
MP953E1327	Direct Acting	Low	28 kPa to 76 kPa	4 psi to 11 psi	5 in.	19 mm	3/4 in.	Positive Positioner with 10 psi range (70 kPa)
MP953E1368	Direct Acting	Medium	28 kPa to 76 kPa	4 psi to 11 psi	8 in.	19 mm	3/4 in.	311851-062 Stem Extension Assembly and Positive Positioner with 3 psi range
MP953E1376	Direct Acting	Medium	28 kPa to 76 kPa	4 psi to 11 psi	8 in.	19 mm	3/4 in.	311851-062 Stem Extension Assembly and Positive Positioner with 5 psi range
MP953E1384	Direct Acting	Medium	28 kPa to 76 kPa	4 psi to 11 psi	8 in.	19 mm	3/4 in.	311851-062 Stem Extension Assembly and Positive Positioner with 10 psi range
MP953E1400	Direct Acting	High	28 kPa to 76 kPa	4 psi to 11 psi	13 in.	38 mm	1 1/2 in.	312466-605 Stem Extension Assembly and Positive Positioner with 5 psi range



# Pneumatic Valve Actuators

Product Number	Action	Actuator Force	Spring Range		Diameter (in.)	Stroke		Includes
			(kPa)	(psi)		(mm)	(inch)	
MP953E1418	Direct Acting	High	28 kPa to 76 kPa	4 psi to 11 psi	13 in.	38 mm	1 1/2 in.	312466-605 Stem Extension Assembly and Positive Positioner with 10 psi range
MP953E1435	Direct Acting	High	28 kPa to 76 kPa	4 psi to 11 psi	13 in.	19 mm	3/4 in.	14004697-001 Stem Extension Assembly and Positive Positioner with 5 psi range (35 kPa)
MP953E1443	Direct Acting	High	28 kPa to 76 kPa	4 psi to 11 psi	13 in.	19 mm	3/4 in.	Positive Positioner with 10 psi range and 14004697-001 Stem Extension Assembly
MP953F1093	Reverse Acting	Medium	55 kPa to 90 kPa	8 psi to 13 psi	7 1/8 in.	19 mm	3/4 in.	Positive Positioner with 3 psi range and EPDM diaphragm
MP953F1101	Reverse Acting	Medium	55 kPa to 90 kPa	8 psi to 13 psi	7 1/8 in.	19 mm	3/4 in.	Positive Positioner with 5 psi range and EPDM diaphragm
MP953F1119	Reverse Acting	Medium	55 kPa to 90 kPa	8 psi to 13 psi	7 1/8 in.	19 mm	3/4 in.	Positive Positioner with 10 psi range and EPDM diaphragm

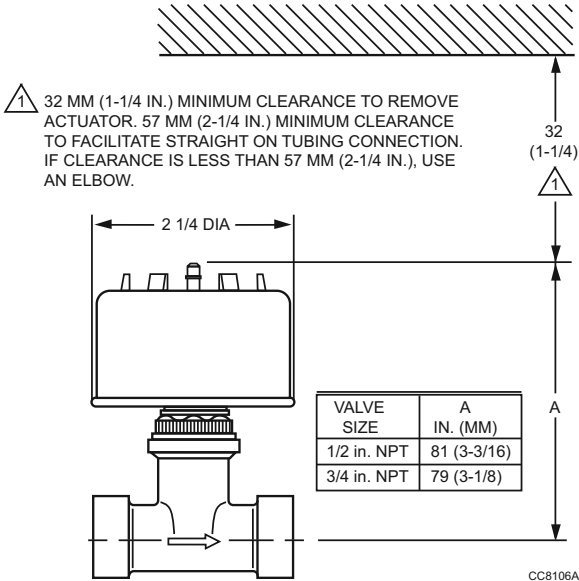
# Pneumatic Valve Actuators

## MP958 Pneumatic Valve Actuators

The MP958 Pneumatic Valve Actuator is direct-acting and used only with Honeywell V5852A2xx, V5862A2xx, V5853A2xx, and V5863A2xx Terminal Unit Valves to control hot and/or chilled water.



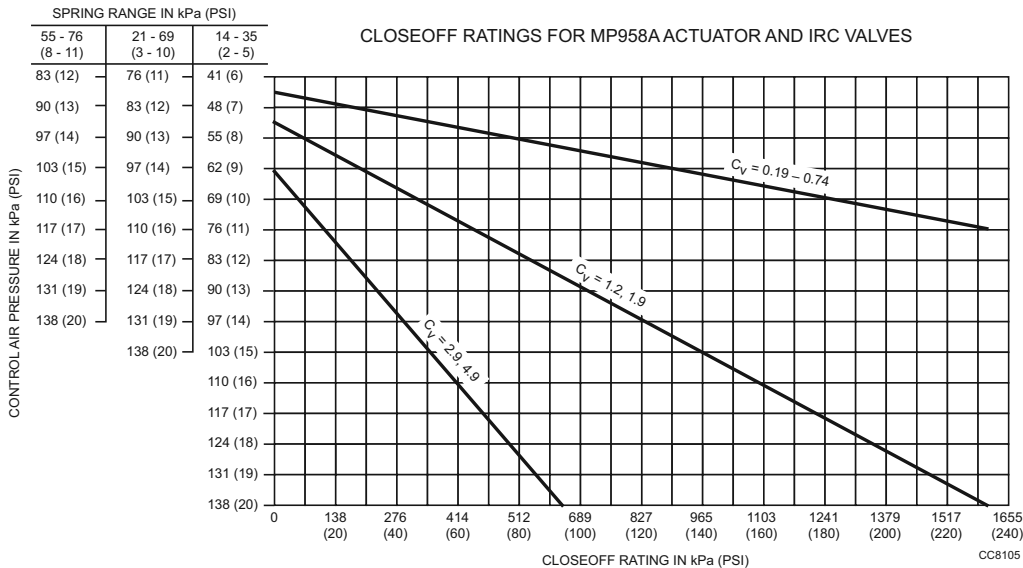
### Dimensions in millimeters (inches)



**Actuator Type:** Valve  
**Action:** Direct Acting  
**Actuator Force:** Low  
**Fail Safe Mode:** Spring Return  
**Air Connections:** Barbed fitting for 1/4 in. O.D. plastic tubing  
**Maximum Operating Pressure:** 30 psi

Product Number	Spring Range		Comments
	(kPa)	(psi)	
MP958A1009	14 kPa to 35 kPa	2 psi to 5 psi	Only works with V5852A2xx, V5862A2xx, V5853A2xx, V5863A2xx
MP958A1017	21 kPa to 69 kPa	3 psi to 10 psi	Only works with V5852A2xx, V5862A2xx, V5853A2xx, V5863A2xx
MP958A1025	55 kPa to 76 kPa	8 psi to 11 psi	Only works with V5852A2xx, V5862A2xx, V5853A2xx, V5863A2xx

### Close-off ratings



# Pneumatic Valve Actuators

## Pneumatic Valve Actuator Parts and Accessories

Product Number	Description	Used With
14002039-001	MP953D Diaphragm Sleeve	MP953B,D,F
14002040-002	MP953D Diaphragm	MP953B,D,F
14003124-002	MP953B,D,F Diaphragm Repair Kit (includes 14002039-001 and 14002040-002)	MP953B,D,F
14004138-001	MP953B,F (Reverse Acting) Positive Positioner Retrofit Kit	MP953B,F
14004139-001	MP953A,E (Direct Acting, 8 in. and 13 in. diameter, 3/4 in. stroke) Positive Positioner Retrofit Kit	MP953A,E
14004140-001	MP953A,E (Direct Acting, 8 in. and 13 in. diameter, 1-1/2 in. stroke) Positive Positioner Retrofit Kit	MP953A,E
14004211-001	MP953E (8 in. and 13 in. diameter, 3/4 in. stroke) Feedback Spring Kit	MP953E
14004212-001	MP953E (8 in. and 13 in. diameter, 1-1/2 in. stroke) Feedback Spring Kit	MP953E
14004213-001	MP953F (Reverse Acting) Feedback Spring Kit	MP953F
14004214-001	MP953A,E (5 in. diameter) 3/4 inch stroke Positive Positioner Retrofit Kit	MP953A,E
14004578-001	MP953 B, D, and F (Reverse Acting, 7-1/8 in. diameter) Yoke/Base Assembly	MP953B,D,F
14004697-001	Stem extension for 13 in. MP953C,E with 3/4 in. Stroke	MP953C,E
310664	MP953A, C and E (5 in. and 8 in. models only) Tension Spring	MP953A,C,E
310665/0062	Spring Support for MP953	MP953A,C,E (5 in.)
310668	MP953A, C and E (5 in. diameter) High Temperature Silicone Diaphragm - Old Style	MP953A,C,E
311393	White Spring, 4-11 psi	MP953C,E
311616	MP953A, C and E (5 in. diameter) Main Spring (2-7 psi spring range - Brown)	MP953A,C,E (5 in.)
311618	MP953A, C and E (5 in. diameter) Main Spring (8-12 psi spring range - Gray)	MP953A,C,E (5 in.)
311749/0605	Cup diaphragm, 8 in. for MP953A, C, E	MP953A,C,E (8 in.)
311750	MP953A, C and E (8 in. diameter) Regular Temperature Neoprene Diaphragm - New Style	MP953A,C,E
311851/0062	Stem extension for 8 in. dia. 3/4 in. stroke MP953A,C,E	MP953A,C,E (8 in.)
311852	Brown Spring for MP953A,C 3/4 inch stroke (8 inch diameter), 2-7 psi range	MP953A,C (8 in., 2-7 psi)
311855	Gray spring for MP953C (8 inch diameter), 8-12 psi range	MP953C
311863	Stem Retainer for the MP953C,E (8 in. diameter)	MP953C,E
312099	1-1/2 in. stroke Spider for 13 in. MP953C and E	MP953C,E
312203	Black Spring for MP953D,F for 8-13 psi range	MP953D,F
312466/0605	Stem Extension for MP953C1489, MP953C1471, MP953E1392, MP953E1400, and MP953E1418	MP953C,E
312471	White Spring for MP953C,E (13 in. dia. 1/2 in. stroke)	MP953C,E (13 in.)
312505	MP953A,C,E (13 in. diameter) regular temperature Neoprene diaphragm - new style	MP953A,C,E
312760	MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style	MP953A,C,E
313745	MP953A, C and E (5 in. diameter) High Temperature Silicone Diaphragm - New Style	MP953A,C,E
314153	MP953A, C and E (8 in. diameter) High Temperature Silicone Diaphragm - New Style	MP953A,C,E
314646A/0062	Plate, Spring for 13 in. diameter MP953A,C,E	MP953A,C,E
314650A	MP953B, D and F (Reverse Acting) Support Assembly (for Series-2 actuators only, use this Support Assembly and 316059A Yoke Assembly to Convert Series-1 MO/MP953)	MP953B,D,F
314651A	MP953B,D,F (Reverse Acting) yoke assembly for support assembly- with nylon insert for use with old style actuators not made with a Helicoil insert in yoke	MP953B,D,F
314652	Spring for MP953D,F (used in yoke assembly)	MP953D,F
314683/0062	Stem Retainer for 13 in. diameter MP953A,C,E (Latches on Stem Button)	MP953A,C,E (13 in.)
315020	Cup for MP953C,E (13 inch diameter)	MP953C,E (13 in.)
316059A	MP953B, D and F (Reverse Acting) Yoke Assembly for Support Assembly- with helicoil insert	MP953B,D,F

# Pneumatic Valves

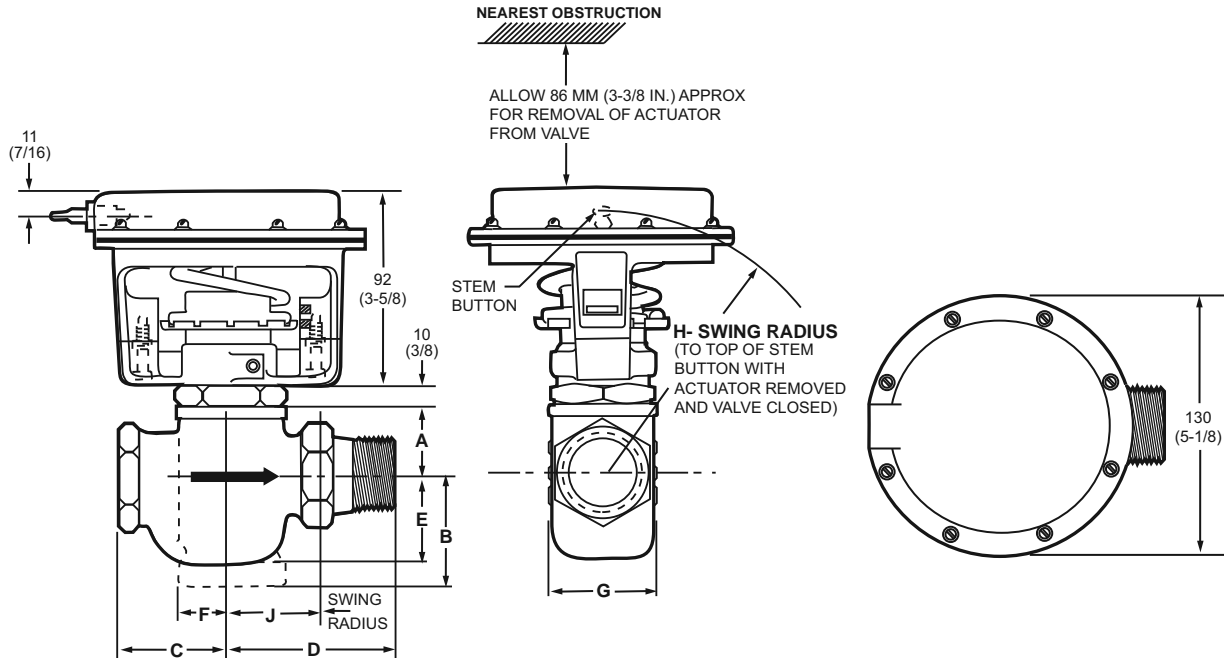
## VP512 Unit Vent Pneumatic Control Valve



A normally open, single seated, straight-through or angle globe valve used for proportional control of steam or hot water in unit ventilator applications. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Equal percentage, high lift throttling guide provides accurate control over wide load variations.
- Molded replaceable composition disc for tight shut-off.
- Replaceable brass seat.
- Self-adjusting, spring-loaded Teflon® packing.
- Back-seating allows repacking without shutting down or draining system.
- Rotatable actuator for aligning air connection with control air piping.
- Integral union connection to simplify installation and service.

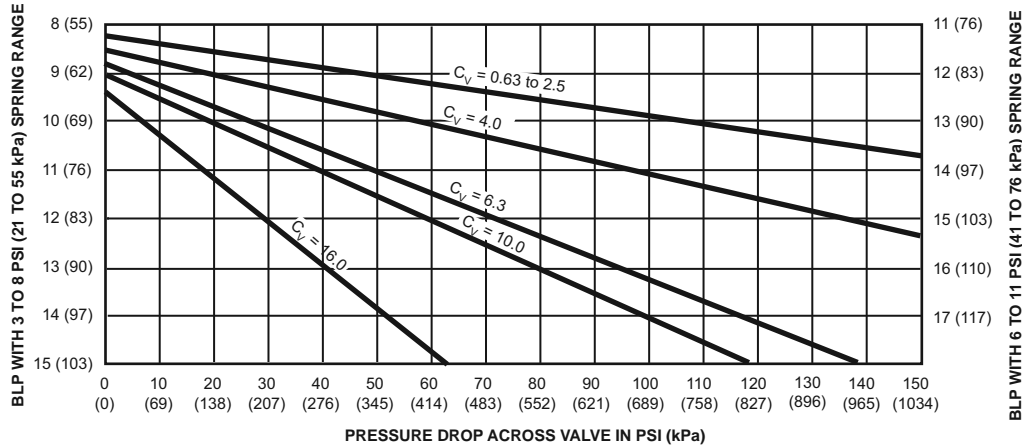
Dimensions in millimeters (inches)



VALVE SIZE	BODY TYPE	A	B	C	D	E	F	G	H	J
1	STRAIGHT	35 (1-3/8)	---	57 (2-1/4)	76 (3)	41 (1-5/8)	---	50 (1-31/32)	114 (4-1/2)	---
	ANGLE	35 (1-3/8)	54 (2-1/8)	---	76 (3)	---	27 (1-1/16)	50 (1-31/32)	---	48 (1-29/32)
1-1/4	STRAIGHT	40 (1-9/16)	---	64 (2-1/2)	95 (3-3/4)	38 (1-1/2)	---	65 (2-9/16)	122 (4-13/16)	---
	ANGLE	40 (1-9/16)	54 (2-1/8)	---	95 (3-3/4)	---	30 (1-3/16)	65 (2-9/16)	---	63 (2-15/32)
1-1/2	STRAIGHT	43 (1-11/16)	---	73 (2-7/8)	108 (4-1/4)	35 (1-3/8)	---	83 (3-9/32)	131 (5-5/32)	---
	ANGLE	43 (1-11/16)	54 (2-1/8)	---	108 (4-1/4)	---	35 (1-3/8)	83 (3-9/32)	---	75 (2-15/16)

MC18805A

## Close-off Ratings at various Branchline Pressures



CLOSE-OFF RATINGS AT VARIOUS BRANCH LINE PRESSURES

M18956B

**Valve Type:** Globe Valve

**Dimensions, Approximate:** 127 mm diameter x 190 mm high  
(5 1/8 in. diameter x 7 15/32 high)

**Body Pressure:** 1034 kPa (150 psi)

**Air Connections:** Dual barbed for 5/32 in. or 1/4 in. plastic tubing

**Valve Action:** Proportional Normally Open

**Controlled Medium:** Steam; Water

**Type of End Connection:** Outlet - External NPT Union; Inlet - Internal NPT

**Operating Humidity Range (% RH):** 5 to 95% RH

**Temperature Range:** For Water: 46C to 115C; For Steam: 100C to 135C  
(For Water: 115 F to 240 F; For Steam: 212 F to 275 F)

**Maximum Temperature Differential:** 60C (For Water: 140 F)

**Maximum Actuator Temperature:** 71C; 160 F

**Maximum Diaphragm Pressure:** 172 kPa (25 psi)

### Replacement Parts:

**14002863-001** Valve rebuild kit for 3/4 to 1 1/4 in valves with Cv of 6.3 or 10

### Accessories:

**312817AA** Actuator Assembly, 3 to 8 psi, 21 to 55 kPa, and 1/2 in. stroke.

**312817AB** Actuator Assembly, 6 to 11 psi, 41 to 76 kPa and 1/2 in. stroke.

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range		Body Pattern
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)	
VP512A1726	25 mm	1 in.	Inlet - Internal NPT; Outlet - External NPT Union	8.57 Kv	10 Cv	537 kPa at 89 kPa (78 psi at 13 psi)	Proportional Normally Open	21 kPa to 55 kPa	3 psi to 8 psi	Two-way, Straight-through
VP512A1742	25 mm	1 in.	Inlet - Internal NPT; Outlet - External NPT Union	8.57 Kv	10 Cv	537 kPa at 89 kPa (78 psi at 13 psi)	Proportional Normally Open	21 kPa to 55 kPa	3 psi to 8 psi	Two-way, Right Angle
VP512A1767	32 mm	1 1/4 in.	Inlet - Internal NPT; Outlet - External NPT Union	13.7 Kv	16 Cv	275 kPa at 89 kPa (40 psi at 13 psi)	Proportional Normally Open	21 kPa to 55 kPa	3 psi to 8 psi	Two-way, Straight-through
VP512A1783	32 mm	1 1/4 in.	Inlet - Internal NPT; Outlet - External NPT Union	13.7 Kv	16 Cv	275 kPa at 89 kPa (40 psi at 13 psi)	Proportional Normally Open	21 kPa to 55 kPa	3 psi to 8 psi	Two-way, Right Angle

# Pneumatic Valves

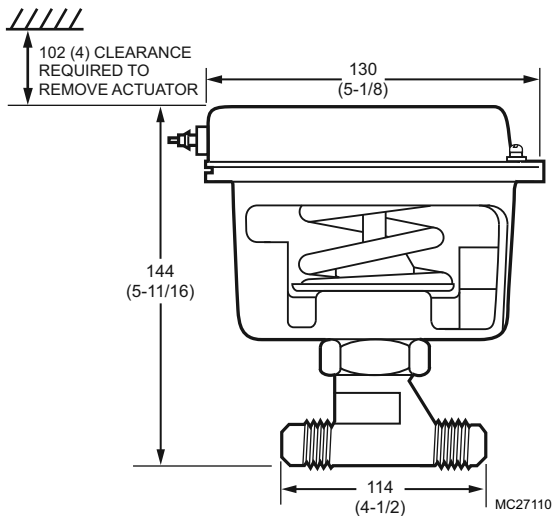
## VP513 Pneumatic Water Valve



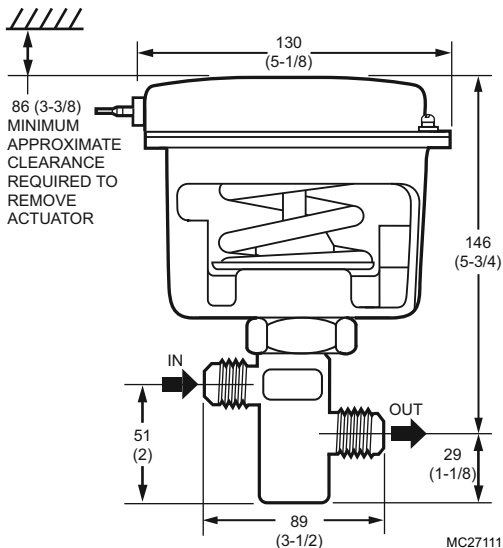
Single-seated, straight-through, pneumatic valves used for proportional control of unit air conditioners using hot and/or chilled water. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available in normally-open (A models) or normally-closed models (B models).
- Straight-through pattern.
- Rotating actuator for aligning air connection with control air piping.
- Molded replaceable composition disc for tight shut-off.
- Flare tube connections.
- Small physical size.

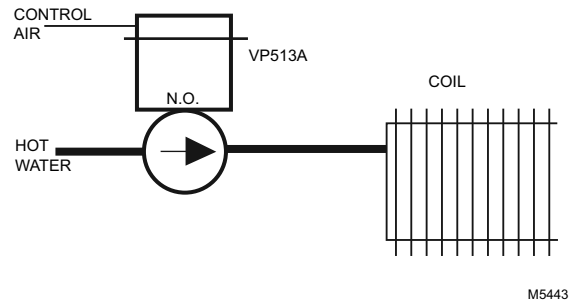
### VP513A dimensions in millimeters (inches)



### VP513B dimensions in millimeters (inches)



### VP513 Typical Piping Diagram



**Valve Type:** Unitary

**Body Pattern:** Two-way, Straight-through

**Body Pressure:** 1724 kPa (250 psi)

**Air Connections:** 1/8 in. NPT

**Valve Action:** Proportional Normally Open

**Controlled Medium:** Water

**Type of End Connection:** 45 deg. SAE flare

**Operating Humidity Range (% RH):** 5 to 95% RH

**Temperature Range:** 2 C to 121 C (35 F to 250 F)

**Maximum Actuator Temperature:** 71 C (160 F)

**Maximum Diaphragm Pressure:** 172 kPa (25 psi)

#### Accessories:

**312817T** Actuator assembly, 3 to 10 psi, 21 to 69 kPa, and 1/2 in. stroke.

**312817U** Actuator Assembly, 3 to 7 psi, 21 to 48 kPa, and 1/2 in. stroke.

**312817V** Actuator Assembly, 8 to 12 psi, 55 to 83 kPa, and 1/2 in. stroke.

#### Replacement Parts:

**310143** Black Packing, 3 required

**310135** Packing Spring, 1 Required

**312760** MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style

**14002734-002** Lubricant, packing, AMOCO H-100

# Pneumatic Valves

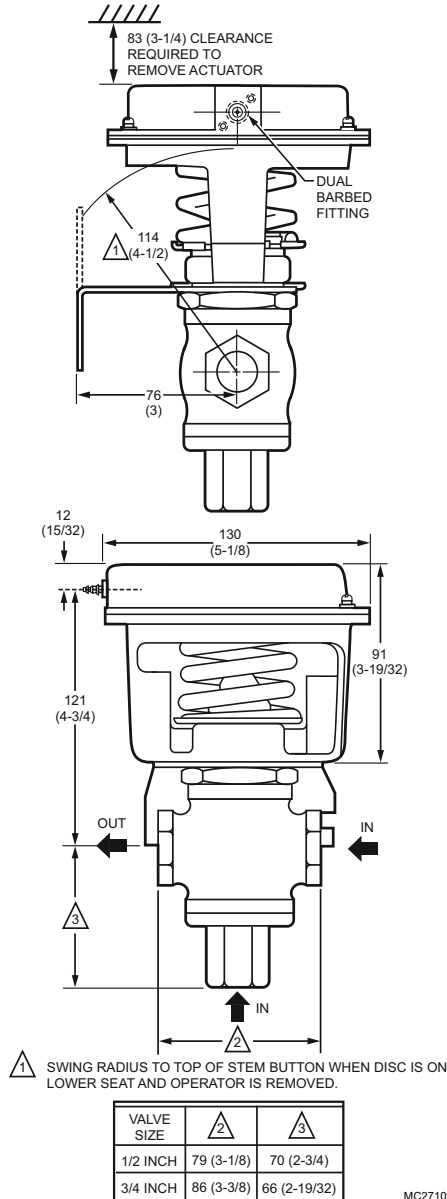
Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range		Body Pattern
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)	
VP513A1048	O.D.: 22.2 mm; Nominal: 19.1 mm	O.D.: 7/8 in.; Nominal: 3/4 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	79 psid (545 kPa) at 13 psi (90 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Two-way, Straight- through
VP513A1055	O.D.: 22.2 mm; Nominal: 19.1 mm	O.D.: 7/8 in.; Nominal: 3/4 in.	45 deg. SAE flare	3.46 Kv	4 Cv	79 psid (545 kPa) at 13 psi (90 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Two-way, Straight- through
VP513A1188	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	79 psid (545 kPa) at 13 psi (90 kPa)	Proportional Normally Open	21 kPa to 48 kPa	3 psi to 7 psi	Two-way, Straight- through
VP513A1204	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	79 psid (545 kPa) at 13 psi (90 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Two-way, Straight- through
VP513B1012	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	0.86 Kv	1.0 Cv	50 psid (345 kPa) at 7 psi (48 kPa)	Proportional Normally Closed	62 kPa to 90 kPa	9 psi to 13 psi	Two-way, Straight- through, Offset
VP513B1038	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	50 psid (345 kPa) at 7 psi (48 kPa)	Proportional Normally Closed	62 kPa to 90 kPa	9 psi to 13 psi	Two-way, Straight- through, Offset
VP513B1053	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	50 psid (345 kPa) at 7 psi (48 kPa)	Proportional Normally Closed	62 kPa to 90 kPa	9 psi to 13 psi	Two-way, Straight- through, Offset

# Pneumatic Valves

## VP519 Two-Position Three-Way Air Valve



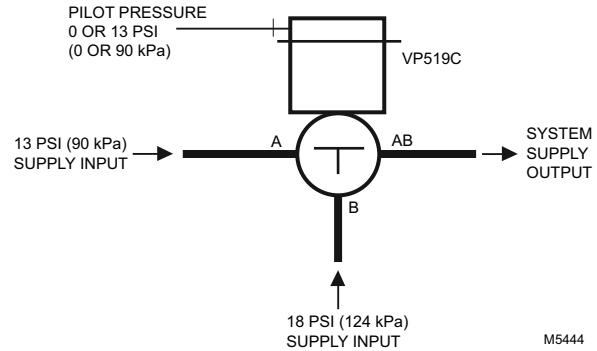
Dimensions in millimeters (inches)



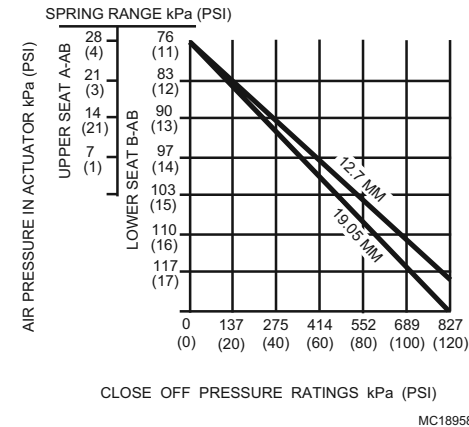
Two-position, three-way, pneumatic air valve used to control main airflow in large Day-Nite or Summer-Winter pneumatic control systems. Replacement device is available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Spring-loaded, self-adjusting Teflon® cone packing.
- Removable composition upper and lower discs.
- Actuator can be rotated on valve bonnet for alignment with air piping.
- Right-angle mounting bracket permits mounting on a wall or panel.
- Cast bronze body, 1/4 in. stroke.

VP519 Typical Piping Diagram



Close-off Ratings for the VP519



**Valve Type:** Globe Valve  
**Body Pattern:** Three-way  
**Dimensions, Approximate:** 200 mm high x 130 mm diameter (7 7/8 in. high x 5 1/8 in. diameter)  
**Body Pressure:** 1034 kPa (150 psi)  
**Air Connections:** Dual barbed for 5/32 in. or 1/4 in. plastic tubing  
**Valve Action:** Two Position  
**Type of End Connection:** NPT  
**Operating Humidity Range (% RH):** 5 to 95% RH  
**Temperature Range:** 2 C to 46 C (35 F to 115 F)  
**Maximum Actuator Temperature:** 71 C (60 F)  
**Maximum Diaphragm Pressure:** 172 kPa (25 psi)

**Replacement Parts:**  
**312760** MP953A, C, E (5 in. diameter) regular temperature Neoprene diaphragm - new style  
**313744A** Actuator Replacement Assembly for the VP519 Valve  
**14003294-002** Valve Repack Kit, Steam or water application

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range	
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)
VP519C1006	12.7 mm	1/2 in.	NPT	4.75 Kv	5.5 Cv	120 psid at 18 psi	Two Position	41 kPa to 62 kPa	6 psi to 9 psi



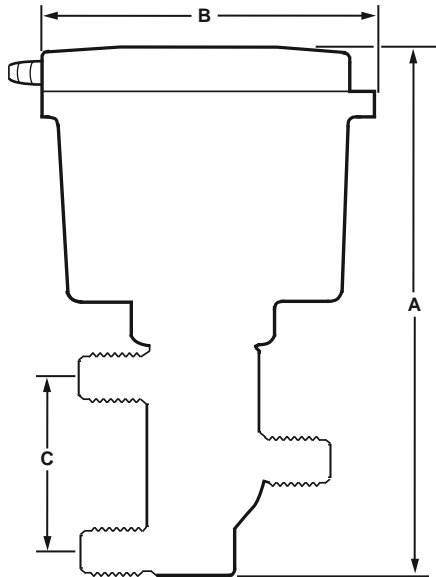
## VP522 Pneumatic Sequencing Water Valve



Three-pipe, sequencing, pneumatically operated water valve for controlling both hot and cold water flow in fan-coil and induction units. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Corrosion resistant.
- Molded-in composition discs for tight shutoff.
- Flare connections for easy installation.
- Operator rotates 360 degrees for convenient air piping alignment.

Dimensions in millimeters (inches)



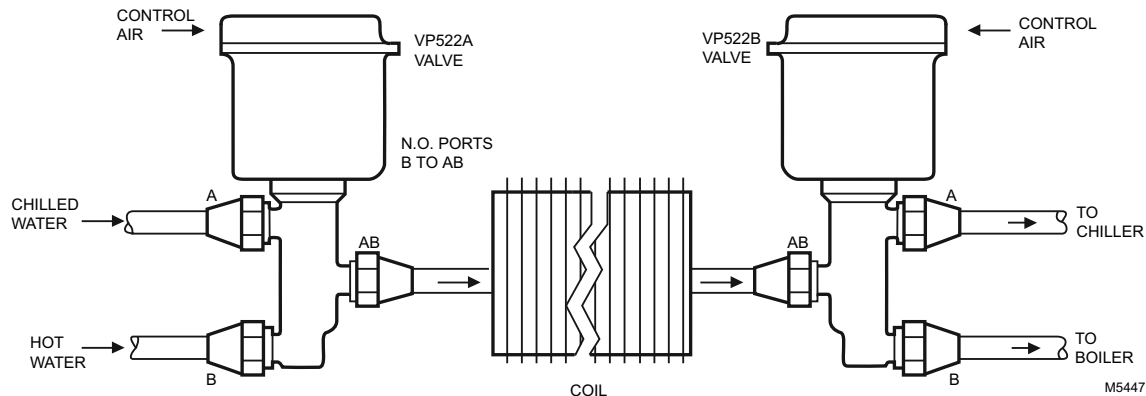
VALVE SIZE	A MM (IN.)	B MM (IN.)	C MM (IN.)
3/8 IN.	249 (9-13/16)	130 (5-1/8)	92 (3-5/8)
1/2 IN.	252 (9-15/16)	130 (5-1/8)	80 (3-5/32)
3/4 IN.	252 (9-15/16)	130 (5-1/8)	80 (3-5/32)

CC4671A

Operating Sequence on Control Air Pressure Increase

VP522A		AIR PRESSURE psi (kPa)	VP522B
3/8 IN.	1/2 IN. & 3/4 IN.		ALL SIZES
HOT PORT OPEN 100%	HOT PORT OPEN 100%	0 (0)	HOT PORT OPEN 100%
		1 (7)	
		2 (14)	
HOT PORT CLOSES	HOT PORT CLOSES	3 (21)	HOT PORT CLOSES
		4 (28)	
		5 (34)	
BOTH PORTS CLOSED	BOTH PORTS CLOSED	6 (41)	BOTH PORTS CLOSED
		7 (48)	
		8 (55)	
COLD PORT OPENS	COLD PORT OPENS	9 (62)	COLD PORT OPENS
		10 (69)	
		11 (76)	
COLD PORT OPEN 100%	COLD PORT OPEN 100%	12 (83)	COLD PORT OPEN 100%
		13 (90)	
		14 (97)	
		15 (103)	

Typical VP522 Operation Diagram



**Valve Type:** Unitary  
**Body Pressure:** 1724 kPa (250 psi)  
**Air Connections:** 1/8 in. NPT  
**Controlled Medium:** Water  
**Type of End Connection:** 45 deg. SAE flare

**Operating Humidity Range (% RH):** 5 to 95% RH  
**Temperature Range:** 2 C to 121 C (35 F to 250 F)  
**Maximum Actuator Temperature:** 71 C (160 F)  
**Maximum Diaphragm Pressure:** 172 kPa (25 psi)

# Pneumatic Valves

## Replacement Parts:

**312817Y** Actuator assembly for VP522B1011 and VP522B1029

**313824A** Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1005

**314459A** Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1039

**314459B** Rebuild kit, includes stem and disc holder, Button with screw, packing and instructions, VP522A1047

**315407A** Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction for the VP522B1003

**312760** MP953A,C,E (5 in. diameter) regular temperature Neoprene diaphragm - new style

**312817S** Actuator for VP522A1039, VP522A1047, VP522A1237

**312817W** Actuator for VP522B1003

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range		Body Pattern
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)	
<b>VP522A1005</b>	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	Port A: 1.3 Kv, Port B: 1.3 Kv	Port A: 1.5 Cv, Port B: 1.5 Cv	50 psid at 13 psi	Proportional/ Sequencing	21 kPa to 79 kPa	3 psi to 11.5 psi	Three-way Mixing
<b>VP522A1039</b>	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	Port A: 2.2 Kv, Port B: 1.4 Kv	Port A: 2.5 Cv, Port B: 1.6 Cv	50 psid at 13 psi	Proportional/ Sequencing	14 kPa to 90 kPa	2 psi to 13 psi	Three-way Mixing
<b>VP522A1047</b>	OD.: 22 mm; Nominal: 19 mm	O.D.: 7/8 in.; Nominal: 3/4 in.	45 deg. SAE flare	Port A: 3.5 Kv, Port B: 2.2 Kv	Port A: 4 Cv, Port B: 2.5 Cv	45 psid at 13 psi	Proportional/ Sequencing	14 kPa to 90 kPa	2 psi to 13 psi	Three-way Mixing
<b>VP522B1003</b>	O.D.: 12 mm; Nominal: 9mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	Port A: 1.3 Kv, Port B: 1.3 Kv	Port A: 1.5 Cv, Port B: 1.5 Cv	15 psid at 13 psi	Diverting/ Sequencing	Adjustable		Three-way Diverting, Sequencing
<b>VP522B1011</b>	O.D.: 15 mm; Nominal: 12 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	Port A: 2.2 Kv, Port B: 2.2 Kv	Port A: 2.5 Cv, Port B: 2.5 Cv	15 psid at 13 psi	Diverting/ Sequencing	Adjustable		Three-way Diverting, Sequencing
<b>VP522B1029</b>	OD.: 22 mm; Nominal: 19 mm	O.D.: 7/8 in.; Nominal: 3/4 in.	45 deg. SAE flare	Port A: 3.5 Kv, Port B: 3.0 Kv	Port A: 4 Cv, Port B: 3.5 Cv	15 psid at 13 psi	Diverting/ Sequencing	Adjustable		Three-way Diverting, Sequencing

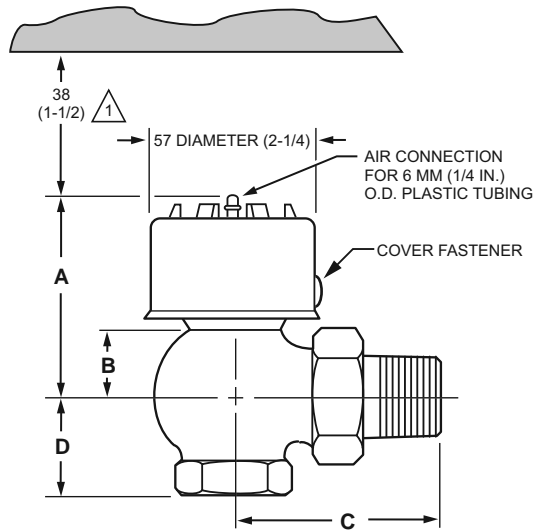
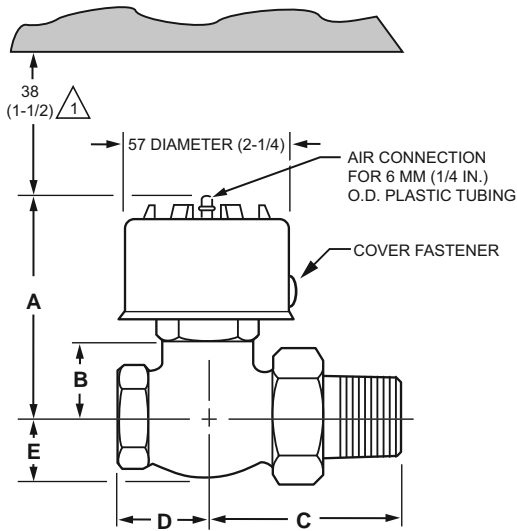
## VP525C Pneumatic Radiator Valve



Normally-open, single-seated pneumatic radiator valve with straight through or angle body construction provides proportional control of two-pipe, hot water or steam systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available in several capacities and spring ranges for various application requirements.
- Easily replaceable actuator assembly for convenience of service.
- Compact size for installation where space is limited.
- Can be repacked without shutting down system.

### Dimensions in millimeters (inches)

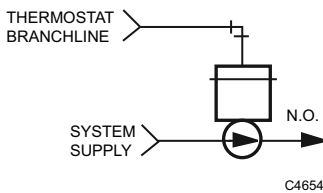


$\triangle 1$  38 mm (1-1/2 IN.) MINIMUM CLEARANCE TO REMOVE ACTUATOR. 63 mm (2-1/2 IN.) MINIMUM CLEARANCE TO FACILITATE STRAIGHT ON TUBING CONNECTION. IF CLEARANCE IS LESS THAN 63 mm (2-1/2 IN.) USE AN ELBOW.

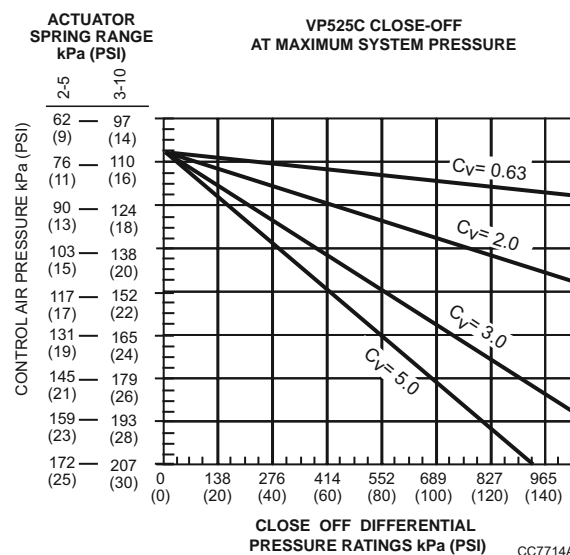
MC16449A

BODY STYLE	SIZE NPT	A	B	C	D	E
STRAIGHT THRU – MALE UNION OUTLET	1/2	90 (3-1/2)	35 (1-3/8)	63 (2-1/2)	35 (1-3/8)	19 (3/4)
	3/4	90 (3-1/2)	35 (1-3/8)	76 (3)	41 (1-5/8)	29 (1-1/8)
ANGLE – MALE UNION OUTLET	1/2	83 (3-1/4)	25 (1)	66 (2-5/8)	29 (1-1/8)	
	3/4	80 (3-1/8)	25 (1)	76 (3)	32 (1-1/4)	

### VP525C Typical Piping Diagram



### Close-off Ratings at various Control Air Pressures



# Pneumatic Valves

**Valve Type:** Unitary

**Body Pattern:** Two-way

**Dimensions, Approximate:** 124 mm high x 92 mm wide (4 7/8 in. high x 3 3/4 in. wide)

**Body Pressure:** 1034 kPa (150 psi)

**Air Connections:** Push on for 1/4 in. O.D. plastic tubing

**Valve Action:** Proportional Normally Open

**Controlled Medium:** Steam; Water

**Type of End Connection:** NPT- Straight Male Union

**Operating Humidity Range (% RH):** 5 to 95% RH

**Temperature Range:** 4 C to 116 C (40 F to 240 F)

**Maximum Safe Actuator Diaphragm Temperature:** 110 C (230 F)

**Maximum Diaphragm Pressure:** 205 kPa (30 psi)

## Replacement Parts:

**316027/0042** Green Spring, 2 to 5 psi

**14003300-001** Repair Top & Insert for 7/8 in. OD, 2.5 Cv VP525A solder body

**310208** White Packing

**14002560-013** Repair stem assembly for 1/2 inch, 0.63 Cv VP525C or to Upgrade, 0.63 Cv VP525A

**14002560-007** Repair stem assembly for 1/2 inch, 2.0 Cv VP525C or to Upgrade, 2.0 Cv VP525A

**14002560-009** Repair stem assembly for 3/4 inch, 5.0 Cv VP525C or to Upgrade, 5.0 Cv VP525A

**14003299-001** Repair Top & Insert for 5/8 in. OD, 1.6 Cv VP525A solder body

**14004897-001** Repair Top & Insert for 1/2 inch NPT, 0.63 Cv VP525C or to upgrade 1/2 NPT, 0.63 Cv VP525A

**14004897-002** Repair Top & Insert for 1/2 inch NPT, 2.0 Cv VP525C or to upgrade 1/2 NPT, 2.0 Cv VP525A

**14004897-003** Repair Top & Insert for 3/4 inch NPT, 3.0 Cv VP525C or to upgrade 3/4 NPT, 3.0 Cv VP525A

**14004897-004** Repair Top & Insert for 3/4 inch NPT, 5.0 Cv VP525C or to upgrade 3/4 NPT, 5.0 Cv VP525A

## Accessories:

**14003648-001** Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover

**14004932-001** Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range		Comments	Includes
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)		
VP525C1008	12.7 mm	1/2 in.	NPT- Straight Male Union	0.54 Kv	0.63 Cv	150 psid (1034 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1408	13-34 kPa (2-5 psi) spring is packed in box
VP525C1016	12.7 mm	1/2 in.	NPT- Straight Male Union	1.73 Kv	2 Cv	110 psid (759 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1077 and VP525A1416	13-34 kPa (2-5 psi) spring is packed in box
VP525C1024	19.1 mm	3/4 in.	NPT- Straight Male Union	2.59 Kv	3 Cv	55 psid (379 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1150	13-34 kPa (2-5 psi) spring is packed in box
VP525C1032	19.1 mm	3/4 in.	NPT- Straight Male Union	4.32 Kv	5 Cv	42 psid (290 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1192 and VP525A1200	13-34 kPa (2-5 psi) spring is packed in box
VP525C1040	12.7 mm	1/2 in.	NPT- Angle Male union	1.73 Kv	2 Cv	110 psid (759kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1085	13-34 kPa (2-5 psi) spring is packed in box
VP525C1057	19.1 mm	3/4 in.	NPT- Angle Male union	2.59 Kv	3 Cv	55 psid (379 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1168	13-34 kPa (2-5 psi) spring is packed in box
VP525C1065	19.1 mm	3/4 in.	NPT- Angle Male union	4.32 Kv	5 Cv	42 psid (290 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1218 and VP525A1226	13-34 kPa (2-5 psi) spring is packed in box
VP525C1073	12.7 mm	1/2 in.	NPT- Straight Male Union	2.59 Kv	3 Cv	55 psid (379 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1101 and VP525A1119	13-34 kPa (2-5 psi) spring is packed in box
VP525C1081	12.7 mm	1/2 in.	NPT- Angle Male union	2.59 Kv	3 Cv	55 psid (379 kPa) at 20 psi (138 kPa)	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi	Replacement for VP525A1127 and VP525A1135	13-34 kPa (2-5 psi) spring is packed in box

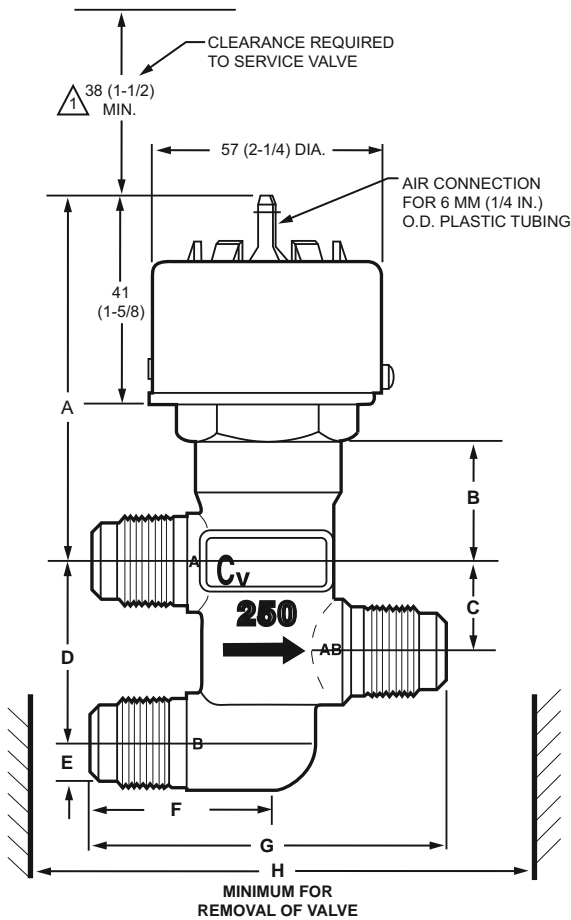
## VP526 Three-Way High Pressure Water Valve



Three-way pneumatic mixing valve provides proportional control of hot and/or cold water in unit air conditioners and fan coil systems. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Small size permits installation where space is limited.
- Direct-acting, rolling diaphragm actuator with integral high temperature plastic air connector for 1/4 in. (6-mm) O.D. plastic tubing.
- Spring loaded, self-adjusting Buna-N "V"-ring packing replaceable.
- Brass seats (integral lower, removable upper) and contoured plug provide metal-to-metal seating.
- Stainless steel stem.
- Linear and constant total flow throughout full plug travel.

### Dimensions in millimeters (inches)

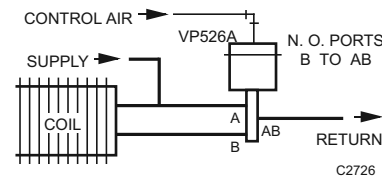


VALVE SIZE	COPPER TUBING (O.D.)	MM (IN.)							
		A	B	C	D	E	F	G	H
3/8	1/2	78 (3-1/16)	22 (7/8)	20 (13/16)	38 (1-1/2)	10 (3/8)	38 (1-1/2)	76 (3)	146 (5-3/4)
1/2	5/8	85 (3-3/8)	30 (1-3/16)	22 (7/8)	44 (1-3/4)	11 (7/16)	43 (1-11/16)	87 (3-7/16)	159 (6-1/4)

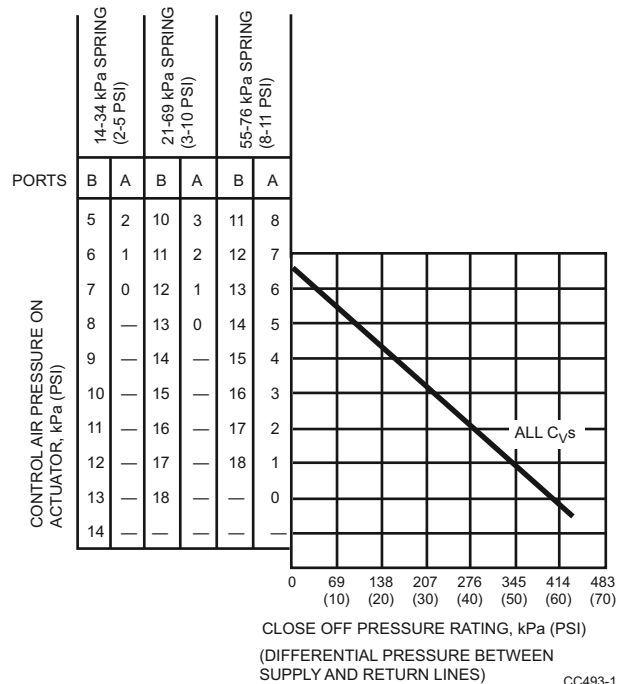
1 ALLOW 38 MM (1-1/2 IN.) MINIMUM CLEARANCE FOR REMOVING ACTUATOR. ALLOW 63 MM (2-1/2 IN.) TO FACILITATE STRAIGHT ON TUBING. IF CLEARANCE IS LESS THAN 63 MM (2-1/2 IN.), USE AN ELBOW.

MC18807A

### VP526 Typical Piping Diagram



### Close-off Ratings for the VP526



# Pneumatic Valves

**Valve Type:** Unitary  
**Body Pattern:** Three-way Mixing  
**Body Pressure:** 1724 kPa (250 psi)  
**Air Connections:** Push on for 1/4 in. O.D. plastic tubing  
**Controlled Medium:** Water  
**Type of End Connection:** 45 deg. SAE flare  
**Operating Humidity Range (% RH):** 5 to 95% RH  
**Temperature Range:** 2 C to 121 C (35 F to 250 F)  
**Maximum Safe Actuator Diaphragm Temperature:** 110 C (230 F)  
**Maximum Diaphragm Pressure:** 200 kPa (29 psi)

## Replacement Parts:

**14003102-001** Replacement top assembly  
**315917** Diaphragm  
**14003297-001** Valve repack kit for VP526A, VP527A, or VP531A valves with 3/16 inch stem

## Accessories:

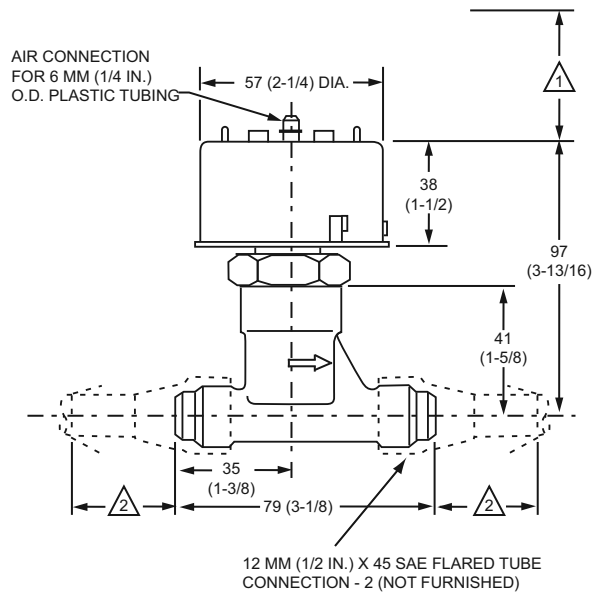
**14003648-001** Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure for Port A	Close-off Ratings at Branch Line Pressure for Port B	Valve Action	Spring Range	
	(mm)	(inch)		(Kv)	(Cv)				(kPa)	(psi)
VP526A1001	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	14 psid at 0 psi	50 psid at 17 psi	Proportional Normally Open Ports B to AB	21 kPa to 69 kPa	3 psi to 10 psi
VP526A1019	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	14 psid at 0 psi	50 psid at 17 psi	Proportional Normally Open Ports B to AB	21 kPa to 69 kPa	3 psi to 10 psi
VP526A1027	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	5 psid at 0 psi	50 psid at 12 psi	Proportional Normally Open Ports B to AB	14 kPa to 34 kPa	2 psi to 5 psi
VP526A1035	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	5 psid at 0 psi	50 psid at 12 psi	Proportional Normally Open Ports B to AB	14 kPa to 34 kPa	2 psi to 5 psi
VP526A1043	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	58 psid at 0 psi	50 psid at 18 psi	Proportional Normally Open Ports B to AB	55 kPa to 76 kPa	8 psi to 11 psi
VP526A1050	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	45 deg. SAE flare	2.16 Kv	2.5 Cv	58 psid at 0 psi	50 psid at 18 psi	Proportional Normally Open Ports B to AB	55 kPa to 76 kPa	8 psi to 11 psi
VP526A1068	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.86 Kv	1.0 Cv	14 psid at 0 psi	50 psid at 17 psi	Proportional Normally Open Ports B to AB	21 kPa to 69 kPa	3 psi to 10 psi
VP526A1076	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	14 psid at 0 psi	50 psid at 17 psi	Proportional Normally Open Ports B to AB	21 kPa to 69 kPa	3 psi to 10 psi
VP526A1084	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.86 Kv	1.0 Cv	5 psid at 0 psi	50 psid at 12 psi	Proportional Normally Open Ports B to AB	14 kPa to 34 kPa	2 psi to 5 psi
VP526A1092	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	5 psid at 0 psi	50 psid at 12 psi	Proportional Normally Open Ports B to AB	14 kPa to 34 kPa	2 psi to 5 psi
VP526A1100	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.86 Kv	1.0 Cv	58 psid at 0 psi	50 psid at 18 psi	Proportional Normally Open Ports B to AB	55 kPa to 76 kPa	8 psi to 11 psi
VP526A1118	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	58 psid at 0 psi	50 psid at 18 psi	Proportional Normally Open Ports B to AB	55 kPa to 76 kPa	8 psi to 11 psi

## VP527 Pneumatic Water Valve



### Dimensions in millimeters (inches)



△1 ALLOW 38 MM (1-1/2 IN.) MINIMUM CLEARANCE TO SERVICE VALVE, 63 MM (2-1/2 IN.) CLEARANCE TO CONNECT TUBING STRAIGHT TO CONNECTOR. IF CLEARANCE IS LESS THAN 63 MM (2-1/2 IN.), USE AN ELBOW CONNECTOR.

△2 ALLOW 35 MM (1-3/8 IN.) MINIMUM CLEARANCE TO REMOVE VALVE.

MC18348A

**Valve Type:** Unitary  
**Body Pattern:** Two-way  
**Body Pressure:** 1724 kPa (250 psi)  
**Air Connections:** Push on for 1/4 in. O.D. plastic tubing  
**Valve Action:** Proportional Normally Open  
**Controlled Medium:** Water  
**Type of End Connection:** 45 deg. SAE flare  
**Operating Humidity Range (% RH):** 5 to 95% RH  
**Temperature Range:** 2 C to 121 C (35 F to 250 F)  
**Maximum Safe Actuator Diaphragm Temperature:** 110 C (230 F)  
**Maximum Diaphragm Pressure:** 205 kPa (30 psi)

### Replacement Parts:

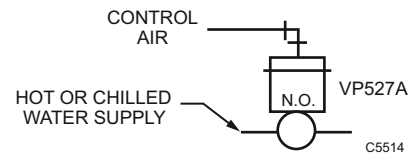
14003102-001 Replacement top assembly

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range	
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)
VP527A1018	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.54 Kv	0.63 Cv	130 psid at 13 psi	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi
VP527A1026	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.86 Kv	1.0 Cv	45 psid at 13 psi	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi

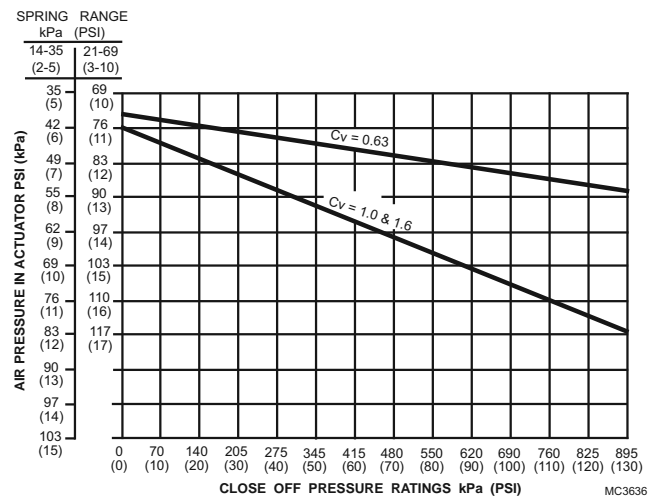
Normally open, single-seated, high pressure valve provides proportional control of hot and/or cold water in unit air conditioners and fan coil units. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Small size permits installation where space is limited.
- Forged brass, straight-through body with end connections threaded for 45 degrees SAE flare fitting nuts.
- Spring-loaded, self-adjusting, Buna-N "V"-ring packing is replaceable without shutting system down.
- High-temperature rolling diaphragm actuator (aluminum cover) and high-temperature plastic diaphragm retaining cup with integral air connection for 1/4 in. (6 mm) O.D. plastic tubing.
- Integral seat and brass plug with removable composition disc provides equal percentage flow.
- Stainless steel stem, 3/16 in. (5 mm) diameter.

### VP527 Typical Piping Diagram



### Close-off Ratings vs. Control Air Pressure



- 14003475-001 Valve Rebuild Kit for 1/2 in. valve with 0.4 or 0.63 Cv  
 14003476-001 Valve Rebuild Kit for 1/2 in. valve with 1 or 1.6 Cv  
 315917 Diaphragm  
 14003297-001 Valve repack kit for VP526A, VP527A, or VP531A valves with 3/16 inch stem

### Accessories:

- 14003648-001 Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover  
 14004932-001 Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)

# Pneumatic Valves

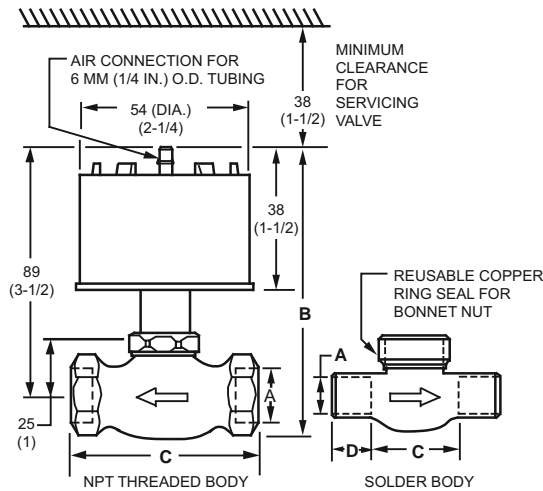
Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range	
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)
VP527A1034	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	45 psid at 13 psi	Proportional Normally Open	21 kPa to 69 kPa	3 psi to 10 psi
VP527A1059	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.54 Kv	0.63 Cv	130 psid at 8 psi	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi
VP527A1067	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	0.86 Kv	1.0 Cv	45 psid at 8 psi	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi
VP527A1075	O.D.: 12.7 mm; Nominal: 9.5 mm	O.D.: 1/2 in.; Nominal: 3/8 in.	45 deg. SAE flare	1.38 Kv	1.6 Cv	45 psid at 8 psi	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi



## VP531C Pneumatic Terminal Unit Valve



Dimensions in millimeters (inches)



BODY SIZE	A	B	C	D
1/2 IN. NPT (1.6 OR 2.3 CV)	1/2 IN. PIPE	104 MM (4-1/8 IN.)	58 MM (2-9/32 IN.)	—
3/4 IN. NPT (2.6 OR 3.3 CV)	3/4 IN. PIPE	106 MM (4-3/16 IN.)	61 MM (2-7/16 IN.)	—
1/2 IN. SOLDER (1.6 CV)	16 MM (5/8 IN.) O.D. COPPER TUBING	104 MM (4-1/8 IN.)	41 MM (1-5/8 IN.)	13 MM (1/2 IN.)
3/4 IN. SOLDER (2.6 OR 3.3 CV)	22 MM (7/8 IN.) O.D. COPPER TUBING	106 MM (4-3/16 IN.)	38 MM (1-1/2 IN.)	19 MM (3/4 IN.)

CC7987B

**Valve Type:** Unitary  
**Body Pressure:** 1034 kPa (150 psi)  
**Air Connections:** Push on for 1/4 in. O.D. plastic tubing  
**Valve Action:** Proportional Normally Open  
**Controlled Medium:** Steam; Water  
**Type of End Connection:** NPT  
**Operating Humidity Range (% RH):** 5 to 95% RH  
**Temperature Range:** 4 C to 116 C (78 K max difference, alternating hot and cold water service) [40 F to 240 F (140 F max difference, alternating hot and cold water service)]  
**Maximum Safe Actuator Diaphragm Temperature:** 110 C (230 F)  
**Maximum Diaphragm Pressure:** 205 kPa (30 psi)

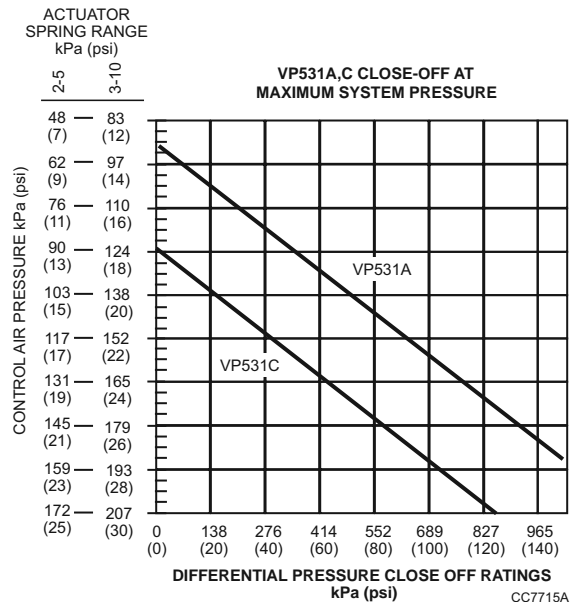
**Accessories:**

**14004932-001** Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)  
**14003648-001** Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover

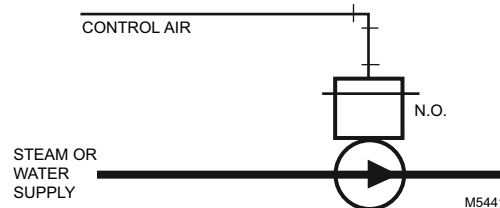
Normally-open, single-seated valve provides proportional control of steam or hot or cold water in terminal units. Replacement devices are available for Johnson, Powers, Robertshaw, Barber-Colman, and older Honeywell devices.

- Available in several capacities and spring ranges for various application requirements.
- Easily replaceable actuator assembly for convenience of service.
- Compact size for use inside most unit enclosures.

**Close-off Ratings for the VP531C**



**VP531C Typical Piping Diagram**



**Replacement Parts:**

- 14003102-001** Replacement top assembly
- 316027/0042** Green Spring, 2 to 5 psi
- 316026** Yellow Spring, 8-11 psi
- 14002560-010** Repair stem assembly, 1.6 Cv VP531C or to Upgrade, 1.6 Cv VP531A
- 14002560-011** Repair stem assembly for 2.6 Cv VP531C or to Upgrade 2.6 Cv VP531A
- 14002560-012** Repair stem assembly for 3.3 Cv VP531C or to Upgrade 3.3 Cv VP531A
- 14003297-002** Teflon packing kit for VP531C or VP531A upgrade valves
- 14004898-001** Repair Top & Insert for NPT and Solder body, 1.6 Cv VP531C or to upgrade NPT and solder body, 1.6 Cv VP531A
- 14004898-002** Repair Top & Insert for NPT and Solder body, 2.3 and 2.6 Cv VP531C or to upgrade NPT and solder body, 2.3 and 2.6 Cv VP531A
- 14004898-003** Repair Top & Insert for NPT and Solder body, 3.3 Cv VP531C or to upgrade NPT and solder body, 3.3 Cv VP531A

Pneumatic Controls

# Pneumatic Valves

Product Number	End Connection Size		Type of End Connection	Capacity		Close-off Ratings at Branch Line Pressure	Valve Action	Spring Range		Comments	Includes
	(mm)	(inch)		(Kv)	(Cv)			(kPa)	(psi)		
VP531C1000	12.7 mm	1/2 in.	NPT	1.38 Kv	1.6 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1004 and VP531A1012	20-68 kPa (3-10 psi) spring is packed in box
VP531C1018	19.1 mm	3/4 in.	NPT	2.24 Kv	2.6 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1046 and VP531A1053	20-68 kPa (3-10 psi) spring is packed in box
VP531C1026	19.1 mm	3/4 in.	NPT	2.85 Kv	3.3 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1061 and VP531A1079	20-68 kPa (3-10 psi) spring is packed in box
VP531C1034	O.D.: 15.9 mm; Nominal: 12.7 mm	O.D.: 5/8 in.; Nominal: 1/2 in.	Solder	1.38 Kv	1.6 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1087 and VP531A1095	20-68 kPa (3-10 psi) spring is packed in box
VP531C1042	O.D.: 22.2 mm; Nominal: 19.1 mm	O.D.: 7/8 in.; Nominal: 3/4 in.	Solder	2.24 Kv	2.6 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1103 and VP531A1111	20-68 kPa (3-10 psi) spring is packed in box
VP531C1059	O.D.: 22.2 mm; Nominal: 19.1 mm	O.D.: 7/8 in.; Nominal: 3/4 in.	Solder	2.85 Kv	3.3 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1129 and VP531A1137	20-68 kPa (3-10 psi) spring is packed in box
VP531C1067	12.7 mm	1/2 in.	NPT	1.99 Kv	2.3 Cv	70 psid at 20 psi (with 2 to 5 psi spring)	Proportional Normally Open	14 kPa to 34 kPa	2 psi to 5 psi	Replacement for VP531A1020 and VP531A1038	20-68 kPa (3-10 psi) spring is packed in box

## Pneumatic Valve Accessories

Product Number	Description	Used With
14002864-001	Valve rebuild kit for 1/2 to 3/4 in valves with Cv of 4 or less	VP512
14003102-001	Replacement top assembly	VP526; VP525; VP527; VP531
14003115-001	Valve rebuild kit for 1/2 in. valves with 2 Cv or less. Not for solder bodies.	VP525A
14003116-001	Valve rebuild kit for 3/4 in. valves with 2 Cv or less valves. Not for solder bodies.	VP525A
14003117-001	Valve rebuild kit for 3/4 in. valves with 3 Cv. Not for solder bodies.	VP525A
14003118-001	Valve rebuild kit for 3/4 in. valves with 5 Cv. Not for solder bodies.	VP525A
14003119-001	Valve rebuild kit for 1/2 in. valves with 3 Cv. Not for solder bodies.	VP525A
14003310-003	Stem assembly for valves with 1.6 Cv	VP531A
14003311-003	Stem assembly for valves with 2.3 or 2.6 Cv	VP531A
14003312-003	Stem assembly for valves with 3.3 Cv	VP531A
14003313-001	Base	VP526A; VP525A,C; VP531A,C
14003315-001	Gland	VP526A; VP527A; VP525A,C; VP531A,C
14003373-001	Rep Bonnet Assembly	VP513A
14003381-001	Brass Hex Bonnet, 1 3/8 diameter	VP526A; VP527A
14003648-001	Vandalism Resistant Assembly, Cover assembly with 1/8 in NPT air Connection and push-in retainer to replace standard Cover	VP526A; VP527A; VP525A,C; VP531A,C
14003873-001	Red Spring, 2 to 5 psi	VP526A
14004553-003	Stem and Plug Assembly for valves with 2.0 Cv	VP525A
14004554-003	Stem and Plug Assembly for valves with 3.0 Cv	VP525A
14004555-003	Stem and Plug Assembly for valves with 5.0 Cv	VP525A
14004932-001	Pneumatic Valve Adapter (M6410/M7410 linkage and a green main spring to allow to retrofit an electric actuator)	VP525; VP527; VP531
312817AA	Actuator Assembly, 3 to 8 psi, 21 to 55 kPa, and 1/2 in. stroke.	VP513; VP517; VP512
312817T	Actuator assembly, 3 to 10 psi, 21 to 69 kPa, and 1/2 in. stroke.	VP517A; VP513A
312817U	Actuator Assembly, 3 to 7 psi, 21 to 48 kPa, and 1/2 in. stroke.	VP517A; VP513A
312817V	Actuator Assembly, 8 to 12 psi, 55 to 83 kPa, and 1/2 in. stroke.	VP513
312817W	Actuator for VP522B1003	VP522B1003
312817Y	Actuator assembly for VP522B1011 and VP522B1029	VP522B1011; VP522B1029
313241A	Disc holder for VP513A	VP513A
313824A	Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction, VP522A1005	VP522A1005
315407A	Rebuild kit, include Stem and Disc holder, button with screw, packing and instruction for the VP522B1003	VP522B1003
316027/0042	Green Spring, 2 to 5 psi	VP525; VP527; VP531
316324A	Disc holder assemble for VP527A1026 and VP527A1067	VP527A1026; VP527A1067
CCT3833	Valve Seat Removal Wrench for 5/8 in. OD (1/2 in. nominal) and 7/8 in. OD (3/4 in. nominal) VP513B; VP517A; VP522A, B; VP526 Valves	VP517A; VP513B; VP526; VP522A, B
CCT3843	Valve Seat Removal Wrench for 1/2 in. OD (3/8 in. nominal) VP522; VP526 Valves	VP526; VP522

# Pneumatic Valves

## Pneumatic Valve Replacement Parts

Product Number	Description	Used With
1400639-001	Washer	VP526
14001046-004	Fastener	VP526A; VP527A; VP525A,C; VP531A,C
14002560-002	Stem and Disk Assembly	VP527A1018; VP527A1059
14002560-006	Stem and Disk Holder Assembly. For 0.63 Cv VP525 Valve	VP525
14002560-007	Repair stem assembly for 1/2 inch, 2.0 Cv VP525C or to Upgrade, 2.0 Cv VP525A	VP525A; VP525C
14002560-008	Repair stem assembly for 1/2 and 3/4 inch, 3.0 Cv VP525C or to Upgrade 1/2 and 3/4 inch, 3.0 Cv VP525A	VP525A; VP525C
14002560-009	Repair stem assembly for 3/4 inch, 5.0 Cv VP525C or to Upgrade, 5.0 Cv VP525A	VP525A; VP525C
14002560-010	Repair stem assembly, 1.6 Cv VP531C or to Upgrade, 1.6 Cv VP531A	VP531A; VP531C
14002560-011	Repair stem assembly for 2.6 Cv VP531C or to Upgrade 2.6 Cv VP531A	VP531A; VP531C
14002560-012	Repair stem assembly for 3.3 Cv VP531C or to Upgrade 3.3 Cv VP531A	VP531A; VP531C
14002560-013	Repair stem assembly for 1/2 inch, 0.63 Cv VP525C or to Upgrade, 0.63 Cv VP525A	VP525A; VP525C
14002863-001	Valve rebuild kit for 3/4 to 1 1/4 in valves with Cv of 6.3 or 10	VP512
14003297-001	Valve repack kit for VP526A, VP527A, or VP531A valves with 3/16 inch stem	VP526A; VP527A; VP531A
14003297-002	Teflon packing kit for VP531C or VP531A upgrade valves	VP531A; VP531C
14003299-001	Repair Top & Insert for 5/8 in. OD, 1.6 Cv VP525A solder body	VP525A
14003300-001	Repair Top & Insert for 7/8 in. OD, 2.5 Cv VP525A solder body	VP525A
14003308-001	Valve Bonnet	VP531A; VP531C
14003314-001	1 1/4 inch hex stainless steel Bonnet nut, Finish zinc plate with Dichromate treatment.	VP531A; VP531C
14003352-001	Seal washer, 1 1/64 outside diameter X 7/8 inside diameter	VP531A; VP531C
14003382-001	Brass Hex Bonnet 1-1/2 in. diameter	VP526A; VP525C
14003475-001	Valve Rebuild Kit for 1/2 in. valve with 0.4 or 0.63 Cv	VP527A
14003476-001	Valve Rebuild Kit for 1/2 in. valve with 1 or 1.6 Cv	VP527A
14004845-001	Green Packing Spring	VP525A; VP525C; VP531C
14004897-001	Repair Top & Insert for 1/2 inch NPT, 0.63 Cv VP525C or to upgrade 1/2 NPT, 0.63 Cv VP525A	VP525A; VP525C
14004897-002	Repair Top & Insert for 1/2 inch NPT, 2.0 Cv VP525C or to upgrade 1/2 NPT, 2.0 Cv VP525A	VP525A; VP525C
14004897-003	Repair Top & Insert for 3/4 inch NPT, 3.0 Cv VP525C or to upgrade 3/4 NPT, 3.0 Cv VP525A	VP525A; VP525C
14004897-004	Repair Top & Insert for 3/4 inch NPT, 5.0 Cv VP525C or to upgrade 3/4 NPT, 5.0 Cv VP525A	VP525A; VP525C
14004898-001	Repair Top & Insert for NPT and Solder body, 1.6 Cv VP531C or to upgrade NPT and solder body, 1.6 Cv VP531A	VP531A; VP531C
14004898-002	Repair Top & Insert for NPT and Solder body, 2.3 and 2.6 Cv VP531C or to upgrade NPT and solder body, 2.3 and 2.6 Cv VP531A	VP531A; VP531C
14004898-003	Repair Top & Insert for NPT and Solder body, 3.3 Cv VP531C or to upgrade NPT and solder body, 3.3 Cv VP531A	VP531A; VP531C
310135	Packing Spring, 1 Required	VP513A,B; VP522A,B
310137	Spacer for VP513 or VP517 Valves	VP513A,B; VP522A,B
310143	Black Packing, 3 required	VP513A,B; VP522A,B
310208	White Packing	VP525C; VP531C
312826	O-Ring	—
313051	1/2 inch valve Union Nut for VP525	VP501; VP500; VP525A,C
313052	3/4 inch valve Union Nut for VP525	VP501; VP500; VP525A,C
313102	Disc for VP513A Valves	VP513A
313744A	Actuator Replacement Assembly for the VP519 Valve	VP519C
314482	Stainless Steel Stem for 1/4 inch VP517A Valves	VP522A; VP517A
314526	Orange Spring with Blue stripe, 3 to 10 psi, 1/2 in. stroke	VP517A; VP513A; 312817T
315800A	O-Ring for VP513B, VP525, VP527 or VP531 Valves	VP513B; VP525; VP527; VP531

# Pneumatic Valves

Product Number	Description	Used With
315911/0021	Cup with keyhole for VP525, VP526, VP527, VP531	VP526A; VP527A; VP525A,C; VP531A,C
315913/0041	Orange Spring, 3 to 10 psi for VP525, VP526, VP527, VP531	VP526A; VP527A; VP525A,C; VP531A,C
315917	Diaphragm	VP526A; VP527A; VP525A,C; VP531A,C
315939	Spring	VP513B
316026	Yellow Spring, 8-11 psi	VP526A
316207	Stem for VP526A	VP526A
316208	Valve Seat	VP526A
316210	Plug for VP526	VP526A1118, VP526A1076, VP526A1092
316322	Plug	VP527A1026; VP527A1067
316336	Disc	VP527A1026; VP527A1067
320047	Retaining Ring	VP526A

# Pneumatic Gauges and Accessories

## Gauges for Pneumatics



Product Number	Description
14004904-001	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (-40 to 160 F), ± 2% accuracy. Replaces 14506495-001(gauge) + 14505846-001
14004904-002	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (0 to 200 F), ± 2% accuracy. Replaces 4506495-001(gauge) + 14505846-002
14004904-003	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (40 to 240 F), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-003
14004904-004	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (3 to 15 psi), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-022
14004904-005	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (0 to 20 psi), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-023
14004904-006	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (25 to 125 F), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-004
14004904-007	2-1/2 in. diameter, typical panel mount Pneumatic Receiver gauge (50 to 100 F), ± 2% accuracy, Replaces 14506495-001(gauge) + 14505846-005
14004905-001	3-1/2 in. diameter, Pneumatic Receiver gauge (-40 to 160 F), ± 2% accuracy
14004905-002	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 200 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-102
14004905-003	3-1/2 in. diameter, Pneumatic Receiver gauge (40 to 240 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-103
14004905-006	3-1/2 in. diameter, Pneumatic Receiver gauge (25 to 125 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-104
14004905-007	3-1/2 in. diameter, Pneumatic Receiver gauge (50 to 100 F), ± 2% accuracy. Replaces 14506496-001(gauge) + 14505846-105
14004905-010	3-1/2 in. diameter, Pneumatic Receiver gauge (15 to 85% RH), ± 2% accuracy
14004905-011	3-1/2 in. diameter, Pneumatic Receiver gauge (15 to 75% RH), ± 2% accuracy
14004905-101	3-1/2 in. diameter, Pneumatic Receiver gauge (-40 to 160 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-101
14004905-102	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 200 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-102
14004905-103	3-1/2 in. diameter, Pneumatic Receiver gauge (40 to 240 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-103
14004905-104	3-1/2 in. diameter, Pneumatic Receiver gauge (3 to 15 psi), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-122
14004905-105	3-1/2 in. diameter, Pneumatic Receiver gauge (0 to 20 psi), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-123
14004905-107	3-1/2 in. diameter, Pneumatic Receiver gauge (50 to 100 F), ± 1% accuracy. Replaces 14506496-101(gauge) + 14505846-105
305911	Gauge, 2 in., 0-160PSI, 1/8 in. NPT
305912	Gauge, 0-100PSI, 2 in., 1/8 in. NPT
305914	2 in. diameter, 1/8 NPT center stem back mount Pressure Indicating gauge (0 to 30 psi scale) with ± 3% accuracy
305917	2 in. diameter, 1/4 NPT center stem back mount Pressure Indicating gauge (0 to 160 psi scale) with ± 3% accuracy
305923	1-1/2 in. diameter, 1/8 NPT stem on bottom mount Pressure Indicating gauge (0 to 30 psi scale) with ± 4% accuracy
305986	Receiver Gauge. -20 to 80 F scale 1-1/2 in. diameter, 1/2 NPT connection
804191B	2-1/2 in. diameter, panel-mounted Pneumatic Pressure Indicating Gauge (0 to 30 psi), 1/4 in. barbed connection, ±3% accuracy

## Pneumatic Accessories











Product Number	Description	Used With
14002913-003	External Restriction Assembly. 0.007 in. Restriction, Red, Inlet 1/4 in; Outlet 1/4 in. and 5/32 in.	LP907
14002913-004	External Restriction Assembly. 0.005 in. Restriction, Blue Inlet 1/4 in; Outlet 5/32 in. and 5/32 in.	—
14002913-005	External Restriction Assembly. 0.007 in. Restriction, Blue Inlet 1/4 in; Outlet 5/32 in. and 5/32 in.	—
14002913-007	External Restriction Assembly. 0.013 in. Restriction, Gray and Red, Inlet 1/4 in; Outlet 1/4 in. and 1/4 in.	—
14003078-004	Three position switch, same as SP470A1018 without the scaleplate	SP470A1018
14003428-001	Amber tint filter bowl 4 1/64 inch long x 2 59/64 inch diameter including Bushing (313003)	WP251A
14003519-001	0-30 psi Gauge Kit with Fittings for Copper or Poly Tubing	—
14003567-001	Barbed cap with liner of low density polyethylene	14002913
14004441-015	Bag assembly with window [vertical. Logo], window [horizontal. Logo], window [vertical. 60-90], window [horizontal 60-90], Cover insert, setpoints window [vertical. 60-90]	—
14004596-004	1 1/4 in. Bonnet for V5011/V5013	V5011; V5013
14501600-001	Resistor Assembly PPK, End of Line Resistor, 1.91K Ohms Single Zone Fire Alarm Panels	—
14502412-009	Lightning Suppressor for Lighting Products	—
14505928-001	Lock & Key for Cabinet	—

# Pneumatic Gauges and Accessories

Product Number	Description	Used With
14506635-001	Rough-in Ring, for Half-sized (18 in. x 18 in.) Standard Cabinet (19 in. x 24 in. x 9 in.)	—
14506635-002	Rough-in Ring for Full-sized (36 in. x 36 in.) Standard Cabinet (38 in. x 24 in. x 9 in.)	—
14506636-001	Door with Lock for Half-sized (18 in. x 18 in.) Standard Cabinet	—
14506636-002	Door with Lock for Full-sized (36 in. x 36 in.) Standard Cabinet	—
301572A/0767	Thermostat Key	—
310418A	Pneumatic External Adjustable Restrictor	—
310543	Seat, Valve, Removable, V5005	—
311680	Plug, Orifice, Rubber, TP, LP Thermostats	—
314963	Spring	—
315559E	Pneumatic "Tee" Restrictor	—
316134B	PP901A & B Diaphragm Repair Kit	PP901A,B
316203A	Pressure Regulator Valve Assembly, PP901A & PP901B, PP902A,B	—
802550	Toggle Switch	—












Product Number	Description	Used With	
AK3052W1C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (5/32 in. O.D. x 0.030 in. wall thickness), Carton qty = 3000 ft	—	
AK3053W1C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (1/4 in. O.D. x 0.040 in. wall thickness), Black with Colored Markings, without Fittings, Carton qty = 1500 ft	—	
AK3056C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (3/8 in. O.D. x 0.062 in. wall thickness), Black with 1 through 2 White Markings, without Fittings, Carton qty = 1000 ft	—	
AK3061C	Pneumatic Tubing, Polyethylene Flame Retardant Plastic (1/2 in. O.D. x 0.062 in. wall thickness), Black with 1 through 2 White Markings, without Fittings, Carton qty = 500 ft	—	
AK3071A	3/8 in. White Stripes	—	
AK3071B	3/8 in. Red Stripes	—	
AK3071D	3/8 in. Yellow Stripes	—	
AK3071G	3/8 in. Violet Stripes	—	
AK3240C	Polyethylene Pneumatic Twin Tubing, includes two 5/32 in. O.D. x 0.030 in. Wall Thickness Tubings, Black with Joining Web without Fittings, Carton qty = 1000 ft	—	
AK3241C	Polyethylene Pneumatic Twin Tubing, includes two 1/4 in. O.D. x 0.040 in. Wall Thickness Tubings, Flame Retardant, Black with Joining Web without Fittings, Carton qty = 5000 ft	—	
AK3470B	Condensate Trap, 1/2 in., for 1 h.p. or larger compressors	—	
AK3470C	Condensate Trap, 3/8 in., for 3/4 h.p. or smaller compressors	—	
AK3486	Coalescing In-line Pneumatic Filter Kit includes Two Filters with integral barbed fitting for individual devices	—	
AK3997	Free Standing Mounting Kit for one General Purpose Cabinet	—	
ARR262	Miniature Pressure Regulator (0-125 psi Range), no gauge	—	
ARR262-S31	Miniature Pressure Regulator (0-125 psi Range), includes 0-160 psi gauge	—	
ARR262-S32	Miniature Pressure Regulator (0-60 psi Range), includes 0-60 psi gauge	—	
ARR262-S34	Arrow PRV 0-60	—	
ARR262I	Miniature Pressure Regulator (0-20 psi Range), no gauge	—	
ARRBK1611	Arrow PRV	—	
CCT1421	1/4 in. Brass Compression Union	—	

# Pneumatic Gauges and Accessories

Product Number	Description	Used With	
CCT1435T	Pneumatic Fitting - 1/4 in. x 1/8 in. NPT Brass Compression Adapter to NPT,	—	
CCT1529	Pneumatic Fitting - 1/4 in. Brass Compression Tee,	—	
CCT1531	Pneumatic Fitting - 3/8 in. Brass Compression Tee,	—	
CCT1532	Pneumatic Fitting - 1/2 in. Brass Compression Tee,	—	
CCT1571	Pneumatic Fitting - 1/4 in. Plastic Ferrule (white) for use with plastic tubing and standard compression fittings,	—	
CCT1572	Pneumatic Fitting - 3/8 in. Plastic Ferrule (white) for use with plastic tubing and standard compression fittings,	—	
CCT1573	Pneumatic Fitting - 1/2 in. Plastic Ferrule (white) for use with plastic tubing and standard compression fittings,	—	
CCT1575	Pneumatic Fitting - 1/4 in. Brass Insert for Plastic Tubing,	—	
CCT1576	Pneumatic Fitting - 3/8 in. Brass Insert for Plastic Tubing,	—	
CCT1577	Pneumatic Fitting - 1/2 in. Brass Insert for Plastic Tubing,	—	
CCT1589B	Pneumatic Fitting - 1/4 in.x1/8 in. FPT 90 Barbed Female Street Ells,	—	
CCT1590BT	Pneumatic Fitting - 1/4 in. Barbed x 1/8 in. NPT Male Adapter, Taped,	—	
CCT1594B	Pneumatic Fitting - 1/4 in. Barbed x 1/8 in. FPT Female Adapter,	—	
CCT1595BT	Pneumatic Fitting - 1/4 in. barbed x 1/8 in. NPT 90 Barbed Male Street Ells,	—	
CCT1598B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed 90 Elbow	—	
CCT1599BT	Pneumatic Fitting - combination 5/32 in. and 1/4 in. Barbed x 1/8 in. NPT Male Adapter,	—	
CCT1602	Pneumatic Fitting - In-line gauge Tee (5/32 in. barbed x 5/32 in. barbed x 1/8 in. FPT),	—	











# Pneumatic Gauges and Accessories

Product Number	Description	Used With	
CCT1606B	Pneumatic Fitting - 5/32 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling, reducing,	—	
CCT1607B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling,	—	
CCT1608B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed (brass) plastic tubing coupling,	—	
CCT1610B	Pneumatic Fitting - 3/8 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling,	—	
CCT1611B	Pneumatic Fitting - 1/2 in. barbed x 3/8 in. barbed (brass) plastic tubing coupling,	—	
CCT1612B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 1/4 in. barbed (brass) Straight Tee,	—	
CCT1613B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed x 3/8 in. barbed (brass) Straight Tee,	—	
CCT1614B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 1/8 in. FPT In-line gauge Tee,	—	
CCT1615B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed x 1/4 in. barbed Reducing Tee,	—	
CCT1616B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed x 1/4 in. barbed Reducing Tee,	—	
CCT1617B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed (brass) plastic tubing coupling,	—	
CCT1618B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed x 3/8 in. barbed Reducing Tee,	—	
CCT1619B	Pneumatic Fitting - Bulkhead Barb, 1/4 in. barbed x 1/4 in. Compression Nuts (for panels 5/16 in. thick),	—	
CCT1620B	Pneumatic Fitting - 1/2 in. barbed x 1/2 in. barbed x 1/2 in. barbed (brass) Straight Tee,	—	
CCT1622	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 1/8 in. FPT In-line gauge Tee with mounting tabs,	—	
CCT1623	Pneumatic Fitting - 1/4 in. Spring Clamp for Pneumatic Tubing,	—	
CCT1628B	Pneumatic Fitting - 5/32 in. barbed x 5/32 in. barbed (brass) plastic tubing coupling,	—	
CCT1629B	Pneumatic Fitting - 1/2 in. barbed x 1/4 in. barbed (brass) plastic tubing coupling,	—	

# Pneumatic Gauges and Accessories

Product Number	Description	Used With	
CCT1630B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed x 5/32 in. barbed Reducing Tee,	—	
CCT1631B	Pneumatic Fitting - 3/8 in. barbed x 3/8 in. barbed x 5/32 in. barbed Reducing Tee,	—	
CCT1633BT	Pneumatic Fitting - 1/4 in. Barbed x 1/4 in. NPT Male Adapter,	—	
CCT1635B	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. Compression Adapter,	—	
CCT1637B	Pneumatic Fitting - 5/32 in. barbed x 5/32 in. barbed x 5/32 in. barbed (brass) Straight Tee,	—	
CCT1640	Pneumatic Fitting - 1/4 in. Tubing Plug,	—	
CCT1641	Pneumatic Fitting - 5/32 in. barbed x 5/32 in. Brass barbed 90 Elbow,	—	
CCT1642	Pneumatic Fitting - 1/4 in. barbed x 1/4 in. barbed 90 Elbow,	—	
CCT1643	Pneumatic Fitting - 1/4 in. barbed x 5/32 in. barbed 90 Elbow	—	
CCT1650	90 degree brass elbow	—	
CCT1692T	Pneumatic Fitting - 1/4 in. NPT x 1/8 in. FPT (brass) Pipe Bushing Taped,	—	
CCT1694T	Pneumatic Fitting - 3/8 in. NPT x 1/4 in. FPT Brass Reducing Pipe Bushing, Taped.	—	
CCT1696T	Pneumatic Fitting - 1/2 in. NPT x 1/4 in. FPT Brass Reducing Pipe Bushing, Taped.	—	
CCT1801	Pneumatic Fitting - Rubber Cap for 1/4 in. O.D. Pneumatic Tubing.	—	
CCT1802	Pneumatic Fitting - Rubber Grommet for 1/4 in. hole used to install capillary in duct	—	
CCT1807A	Plastic Cap for 3/8 in. Tubing.	—	
CCT1809	Pneumatic Fitting - Plastic Cap for 1/2 in. O.D. Pneumatic Tubing.	—	
CCT1815	Pneumatic Fitting - Aluminum Barb Plug for 5/32 in. x 5/32 in. O.D. Pneumatic Tubing (no air passage).	—	
CCT1820	Plastic Bushing for 1/2 in. EMP or K.O.	—	
CCT2083T	Pneumatic Fitting - Tank Valve with CCT2084 Cap, 1/8 in. NPT.	—	

# Pneumatic Gauges and Accessories

Product Number	Description	Used With	
CCT2085	Pneumatic Fitting - Gauge Adapter fits any standard 1/8 in. NPT gauge.	LP907	
CCT2090A	Air Check Diode Valve 1/4 in. O.D. Brass, 1.2 SCFM.	—	
CCT2091	Pneumatic Fitting - Air Check Diode Valve FPT for 1/4 in. O.D. Pneumatic Tubing (4.4 scfm)	—	
CCT2092	Pneumatic Fitting - Air Check Diode Valve FPT for 3/8 in. O.D. Pneumatic Tubing (7.5 scfm)	—	
CCT2093	Pneumatic Fitting - Air Check Diode Valve FPT for 1/2 in. O.D. Pneumatic Tubing (12.7 scfm)	—	
CCT2127B	Pneumatic Fittings - 1/4 in. barbed x 1/4 in. barbed Pneumatic Needle Valve,	—	
CCT2564	Pneumatic Fittings - Plated Single Straps for 1/4 in. O.D. Copper Tubing,	—	
CCT2565	Pneumatic Fittings - Plated Single Straps for 3/8 in. O.D. Copper Tubing,	—	
CCT2566	Pneumatic Fittings - Plated Single Straps for 1/2 in. O.D. Copper Tubing,	—	
CCT2626	Pneumatic Fittings - Copper Gang Straps (6 in. wide) for 1/4 in. or 3/8 in. O.D. Copper Tubing,	—	
CCT2627	Pneumatic Fittings - Copper Gang Straps (36 in. wide) for 1/4 in. or 3/8 in. O.D. Copper Tubing,	—	
CCT2628	Pneumatic Fittings - Zinc-plated Steel Universal Gang Straps (24 in. wide) for 1/8 in. through 3/4 in. O.D. Copper Tubing,	—	
CCT2630	Pneumatic Fittings - Aluminum Universal Gang Straps (24 in. wide) for 1/8 in. through 3/4 in. O.D. Copper Tubing,	—	
CCT2762	Pneumatic Fittings - Adhesive Straps (1 in. wide) for 3/8 in. O.D. Tubing,	—	

# Definitions and Abbreviations

## Definitions and Abbreviations

**Actuator (Damper)**—A mechanical device that operates a final control element (e.g., valve, damper). **Actuator (Valve)**—The part of an automatic control valve that moves the stem up and down based on an electric, electronic, or pneumatic signal from a controller. For butterfly or other rotary valves, the actuator rotates the stem. The actuator and valve can be two separate devices or together they can be one device.

**BLP**—See Branchline pressure.

**Body rating (actual)**—The correlation between safe, permissible flowing fluid pressure and flowing fluid temperature of the valve body (exclusive of the packing, disc, etc.). The nominal valve body rating is the permissible pressure at a specific temperature.

**EXAMPLE:**

A cast iron, screwed-end valve has a 125 psi nominal body rating. The actual valve body ratings may be 125 psi at 380 F and 175 psi at 175 F.

**Body rating (nominal)**—The theoretical pressure rating, expressed in psi, of the valve body exclusive of packing, disc, etc. The nominal rating is often cast on the valve body and provides a way to classify the valve by pressure. A valve of specified body material and nominal body rating often has characteristics such as pressure-temperature ratings, wall thickness, and end connections which are determined by a society such as ANSI (American National Standards Institute). Figure 2 shows typical ANSI pressure-temperature ratings for valves. Note that the nominal body rating is not the same as the actual body rating.

**Body**—The valve casting through which the controlled fluid flows.

**Bonnet**—The part that screws to the top of the valve body and contains the packing that seals and guides the valve stem.

**Branch line**—The air line from a controller to the controlled device.

**Branchline pressure (BLP)**—A varying air pressure signal from a controller to an actuator, carried by the branch line. Can go from zero to full main line pressure.

**British thermal unit (Btu)**—The amount of heat required to raise one pound of water one degree Fahrenheit.

**Btu**—See British thermal unit.

**Close-off rating of three-way valves**—The maximum pressure difference between either of the two inlet ports and the outlet port for mixing valves, or the pressure difference between the inlet port and either of the two outlet ports for diverting valves.

**Close-off rating**—The maximum pressure drop that a valve can withstand without leakage while in the full closed position. The close-off rating is a function of actuator power to hold the valve closed against pressure drop, but structural parts such as the stem can be the limiting factor.

**EXAMPLE:**

A valve with a close-off rating of 10 psi could have 40 psi upstream pressure and 30 psi downstream pressure. Note that in applications where failure of the valve to close is hazardous, the maximum upstream pressure must not exceed the valve close-off rating, regardless of the downstream pressure.

The valve close-off rating is independent of the actual valve body rating. See definition of BODY RATING (ACTUAL) in this section.

**Control point**—The actual value of the controlled variable (setpoint plus or minus offset).

**Control valve**—A device used to control the flow of fluids such as steam, water, or air.

**Controlled variable**—The quantity or condition that is measured and controlled (e.g., temperature, relative humidity, pressure).

**Controller**—A device that senses the controlled variable (or receives an input signal from a remote sensing element), compares the signal with the setpoint, and outputs a control signal (branchline pressure) to an actuator.

**Cv**—See Flow coefficient.

**DA**—See Direct acting or Discharge air.

**Damper**—A device used to control the flow of air in a duct or through a wall louver.

**Dew-point temperature**—The temperature at which water vapor from the air begins to form droplets and settles or condenses on surfaces that are colder than the air. The more moisture the air contains, the higher its dew point temperature. When dry-bulb and wet-bulb temperatures of the air are known, the dew-point temperature can be plotted on the psychrometric chart.

**Differential**—A term that applies to two-position devices. The range through which the controlled variable must pass in order to move the final control element from one to the other of its two possible positions. The difference between cut-in and cut-out temperatures, pressures, etc.

**Direct acting (DA)**—A direct-acting thermostat or controller increases the branchline pressure on an increase in the measured variable and decreases the branchline pressure on a decrease in the variable. A direct-acting actuator extends on an increase in branchline pressure and retracts on a decrease in pressure.

**Direction of flow**—The correct flow of the controlled fluid through the valve is usually indicated on the valve body. If the flow of the fluid goes against the indicated direction, the disc can slam into the seat as it approaches the closed position. The result is excessive valve wear, hammering, and oscillations. In addition, the actuator must work harder to reopen the closed valve since it must overcome the pressure exerted by the fluid on top of the disc rather than have the fluid assist in opening the valve by exerting pressure under the disc.

**Discharge air (DA)**—Conditioned air that has passed through a coil. Also, air discharged from a supply duct outlet into a space.

**Disc**—The part of the plug assembly that contacts the valve seat to close off flow of the controlled fluid. Certain valve plug assemblies are built so the part of the assembly contacting the seat is replaceable. This type of plug is called a renewable disc plug assembly. Renewable discs are usually made of a composition material softer than metal. Valves with all metal or nonrenewable discs may have to be “ground in” to restore a damaged seating surface. Note that the term disc can mean both the plug and disc together.

**Dry-bulb temperature**—The temperature read directly on an ordinary thermometer as degrees Fahrenheit (F) or degrees Celsius (C).

**Equal percentage**—A valve which changes the existing flow an equal percentage (regardless of flow rate) for similar movements in stem travel (at any point in the flow range).

**Final control element**—A device such as a valve or damper that acts to change the value of the manipulated variable. Positioned by an actuator.

**Flow coefficient (capacity index)**—Used to state the flow capacity of a control valve for specified conditions. Currently, in this catalog, two flow coefficients Kv, or Cv are used. The flow coefficients have the following relationships:

$$Av = 0.0000240 Cv$$

$$Kv = 0.865 Cv$$

The flow coefficient Kv is water flow in cubic meters per hour with a static pressure loss across the valve of  $10^5$  pascals (1 bar) within the temperature range of 5 to 40 C and can be determined from the formula:

$$Kv = Q \sqrt{\frac{\Delta p_{Kv}}{\Delta p} \cdot \frac{\rho}{\rho_w}} \quad \text{M2807}$$

Where:

Q = volumetric flow in cubic meters per hour.

$\rho$  = fluid density in kilograms per cubic meter.

# Definitions and Abbreviations

$\rho_W$  = density of water in kilograms per cubic meter.

$\Delta p_{Kv}$  = static pressure loss of  $10^5$  pascals.

$\Delta p$  = static pressure loss across the valve in pascals.

The flow coefficient  $C_v$  is water flow in gallons per minute with a pressure loss across the valve of one pound per square inch within the temperature range of 40 to 100 F and can be determined for other conditions from the formula:

$$C_v = Q \sqrt{\frac{1}{\Delta P} \cdot \frac{\rho}{\rho_W}} \quad M2810$$

Where:

$Q$  = volumetric flow in US gallons per minute.

$\rho$  = fluid density in pounds per cubic foot.

$\rho_W$  = density of water in pounds per cubic foot within the temperature range of 40 to 100 F.

$\Delta p$  = static pressure loss across the valve in pounds per square inch.

**K**—Kelvin used in Standard International Units (SI) to express a temperature range.

**Kv**—See Flow coefficient.

**Linear**—A valve which provides a flow-to-lift relationship that is directly proportional. It provides equal flow changes for equal lift changes, regardless of percentage of valve opening. When plotted on rectilinear coordinates, the relationship approximates a straight diagonal line.

**Linkage**—A device which connects an actuator to a damper or control valve. To open and close a damper, the typical linkage consists of an actuator crankarm, balljoints, pushrod, and damper crank arm. In a valve application, the linkage connects the actuator to the valve and translates the rotary output of the actuator to the linear action of the valve stem.

**M**—See Main line.

**MA**—See Mixed air.

**Main line (M)**—The air line from the air supply system to controllers and other devices. Usually plastic or copper tubing.

**Maximum pressure and temperature**—The maximum pressure and temperature limitations of fluid flow that a valve can withstand. These ratings may be due to valve packing, body, or disc material or actuator limitations. The actual valve body ratings are exclusively for the valve body and the maximum pressure and temperature ratings are for the complete valve (body and trim). Note that the maximum pressure and temperature ratings may be less than the actual valve body ratings.

EXAMPLE:

The body of a valve, exclusive of packing, disc, etc., has a pressure and temperature rating of 125 psi at 380 F. If the valve contains a composition disc that can withstand a temperature of only 115 C, then the temperature limit of the disc becomes the maximum temperature rating for the valve.

**Measuring element**—Same as sensing element.

**Mixed air (MA)**—Typically a mixture of outdoor air and return air from the space.

**mL/s**—milliliters per second.

**Modulating**—Varying or adjusting by small increments. Also called "proportioning".

**Offset**—A sustained deviation between the actual system control point and its controller setpoint under stable operating conditions. Usually applies to proportional (modulating) control.

**Plug**—The part that varies the opening for the fluid to flow through the valve body. The following describes the three most common types of plugs:

- A contoured plug has a shaped end that is usually end-guided at the top or bottom (or both) of the valve body. The shaped end controls fluid flow through the valve.
- A quick-opening plug is flat and is either end-guided or guided by wings riding in the valve seat ring. The flat plug provides maximum flow soon after it lifts from the valve seat.
- A V-port plug has a cylinder, called a skirt, that rides up and down in the valve seat ring. The skirt guides the plug and varies the flow area via its shaped openings.

**Port**—The opening in the valve seat.

**Pressure drop (critical)**—The flow of a gaseous controlled fluid through the valve increases as the pressure drop increases until reaching a critical point. This point is the critical pressure drop, denoted  $\Delta P_{\text{Critical}}$ .

$$\Delta P_{\text{Critical}} = 50\% \times P_1 \text{ (Absolute upstream pressure)}$$

When critical pressure is reached, any increase in pressure is dissipated in noise and cavitation rather than increase in flow. The noise and cavitation can destroy valve and adjacent piping components.

**Pressure drop**—The difference in upstream and downstream pressures of the fluid flowing through the valve. Pressure drop is denoted  $\Delta P$ .

**Proportional band**—As applied to pneumatic control systems, the change in the controlled variable required to change the controller output pressure from 3 to 13 psi. Usually expressed as a percentage of sensor span.

**Quick-opening**—A valve which provides maximum possible flow as soon as the stem starts to lift the disc from the valve seat.

**RA**—See Reverse acting and Return air.

**Relative humidity**—The ratio of the measured amount of moisture in the air to the maximum amount of moisture the air can hold at the same temperature and pressure. Relative humidity is expressed in percent of saturation. Air with a relative humidity of 35, for example, is holding 35 percent of the moisture that it is capable of holding at that temperature and pressure.

**Restrictor**—A device in an air line that limits the flow of air.

**Return air (RA)**—Air from the conditioned space which is passed through the air handling unit and returned to the conditioned space.

**Reverse acting (RA)**—A reverse-acting thermostat or controller decreases the branchline pressure on an increase in the measured variable and increases the branchline pressure on a decrease in the variable. A reverse-acting valve actuator retracts on an increase in branchline pressure and extends on a decrease in pressure.

**scfm**—standard cubic feet per minute.

**Seat**—The stationary part of the valve body that has a raised lip to contact the valve disc when closing off flow of the controlled fluid.

**Sensing element**—A device that detects and measures the controlled variable (e.g., temperature, humidity).

**Setpoint**—The value on the controller scale at which the controller is set (e.g., the desired room temperature set on a thermostat). The desired control point.

**Sling psychrometer**—A device commonly used to measure the wet-bulb temperature. It consists of two identical thermometers mounted on a common base. The base is pivoted on a handle so it can be whirled through the air. One thermometer measures dry-bulb temperature. The bulb of the other thermometer is encased in a water-soaked wick. This thermometer measures wet-bulb temperature. Some models provide slide rule construction which allows converting the dry-bulb and wet-bulb readings to relative humidity.

# Definitions and Abbreviations

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Although commonly used, sling psychrometers can cause inaccurate readings, especially at low relative humidities, because of factors such as inadequate air flow past the wet-bulb wick, too much wick wetting from a continuous water feed, thermometer calibration error, and human error. To take more accurate readings, especially in low relative humidity conditions, motorized psychrometers are recommended.

**Stem**—The shaft that runs through the valve bonnet and connects an actuator to the valve plug.

**Thermostat**—A device that responds to changes in temperature and outputs a control signal (branchline pressure). Usually mounted on a wall in the controlled space.

**Throttling range**—Same as proportional band, except expressed in values of the controlled variable (e.g., degrees, percent relative humidity, pounds per square inch) rather than in percent.

**Tight shut-off/close-off**—A valve condition in which virtually no leakage of the controlled fluid occurs in the closed position. Generally, only single-seated valves provide tight shut-off. Double-seated valves typically have a one to three percent leakage in the closed position.

**Trim**—All parts of the valve that contact the controlled fluid. Trim includes the stem, packing, plug, disc, and seat; it does *not* include the valve body.

**Wet-bulb temperature**—The temperature read on a thermometer with the mercury bulb encased in a wet wick (stocking or sock) and with an air flow of 900 feet per minute across the wick. Water evaporation causes the temperature reading to be lower than the ambient dry-bulb temperature by an amount proportional to the moisture content of the air. The temperature reduction is sometimes called the evaporative effect. When the reading stops falling, the value read is the wet-bulb temperature.

The wet-bulb and dry-bulb temperatures are the easiest air properties to measure. When they are known, they can be used to determine other air properties on a psychrometric chart.

## Product Selection Matrix for CE Sequence Primary/Programmer Relay Modules:

### For 230 Vac nominal applications—

Fuel	Burner Type	Relay Module Type
Single	Atmospheric	EC7810
Single	Atmospheric with fan	EC7820
Combination or single	On/Off Controlled Power Burner	EC7830
Combination or single	Full Modulation Power Burner	EC7850

### For 120 Vac nominal applications—

Fuel	Burner Type	Relay Module Type
Combination or single	On/Off Controlled Power Burner	RM7830
Combination or single	Full Modulation Power Burner	RM7850

### Use the following pages to select the following *required* devices:

Relay Module, 1 per burner  
 Subbase, 1 per relay module  
 Purge Timer Card, 1 per relay module  
 Flame Amplifier, 1 per relay module

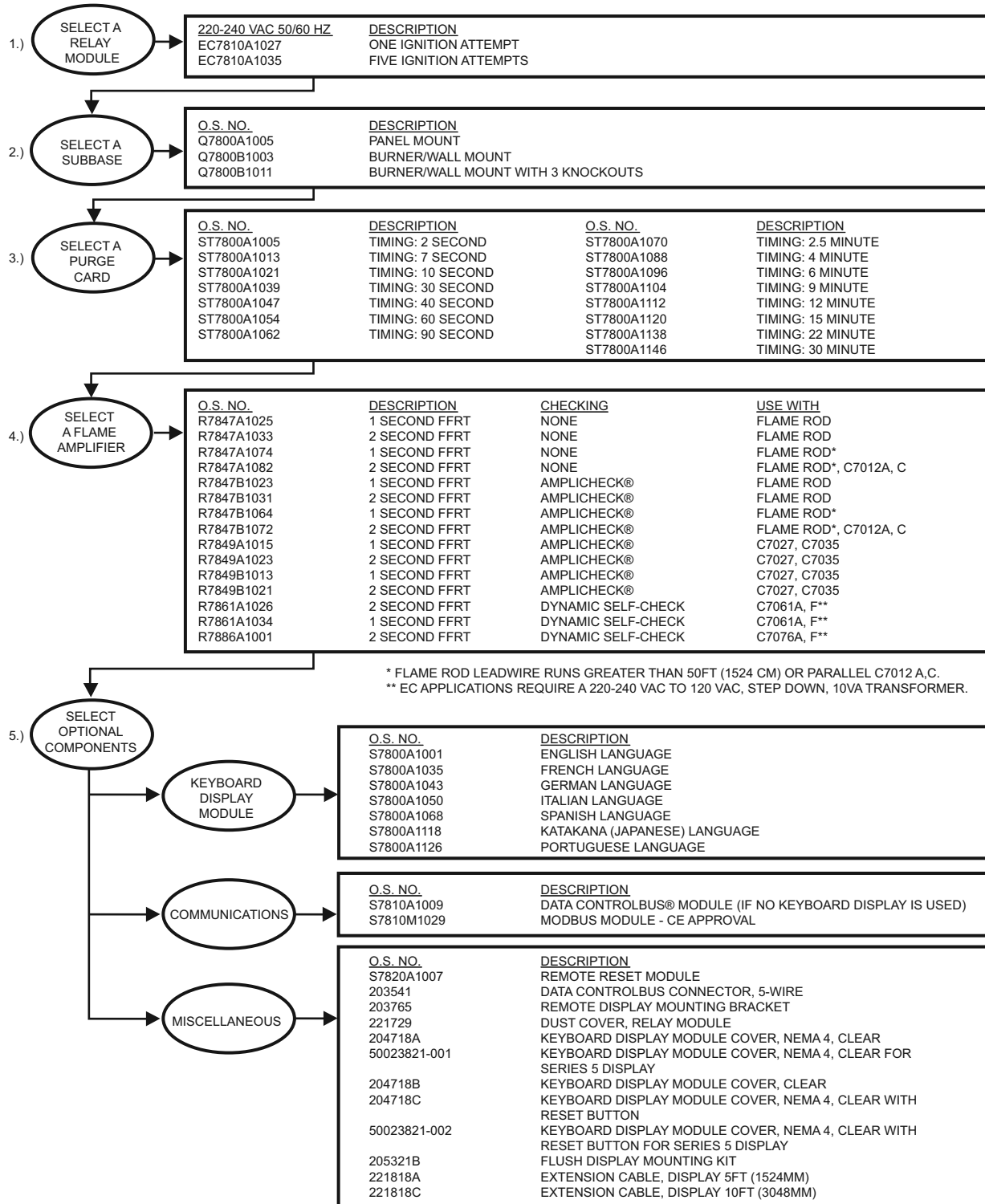
Some products are available only through Authorized Flame Safeguard Wholesalers and/or Distributors.

### Use the following pages to select the following *optional* devices:

Keyboard Display module, up to 1 mounted to relay module, remote as desired  
 Communications, network and ControlBus™ modules to service selected relays  
 Miscellaneous, as required to complete installation

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR EC7810 PROGRAMMER RELAY MODULES:

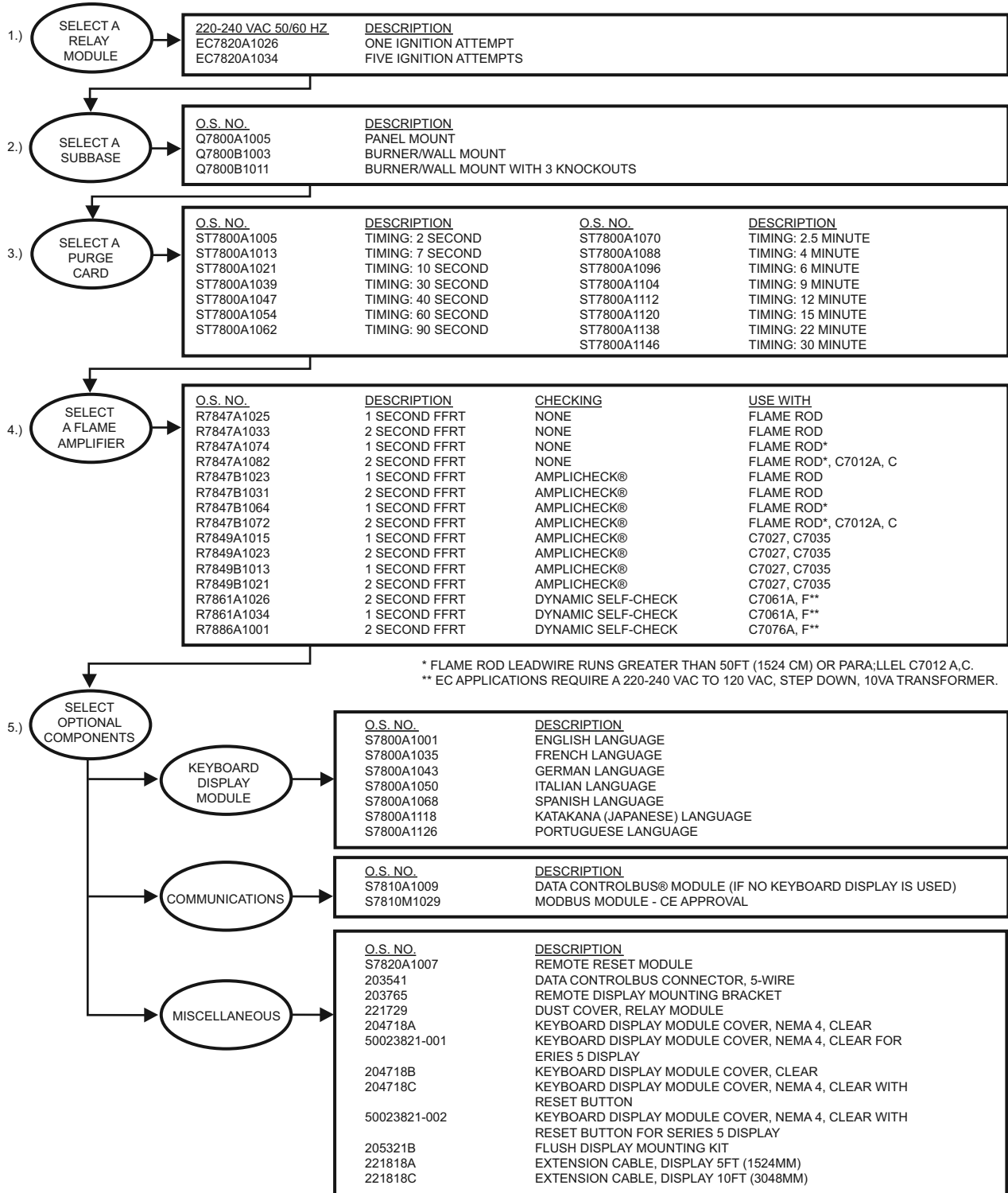


M15515F



# Flame Safeguard Systems

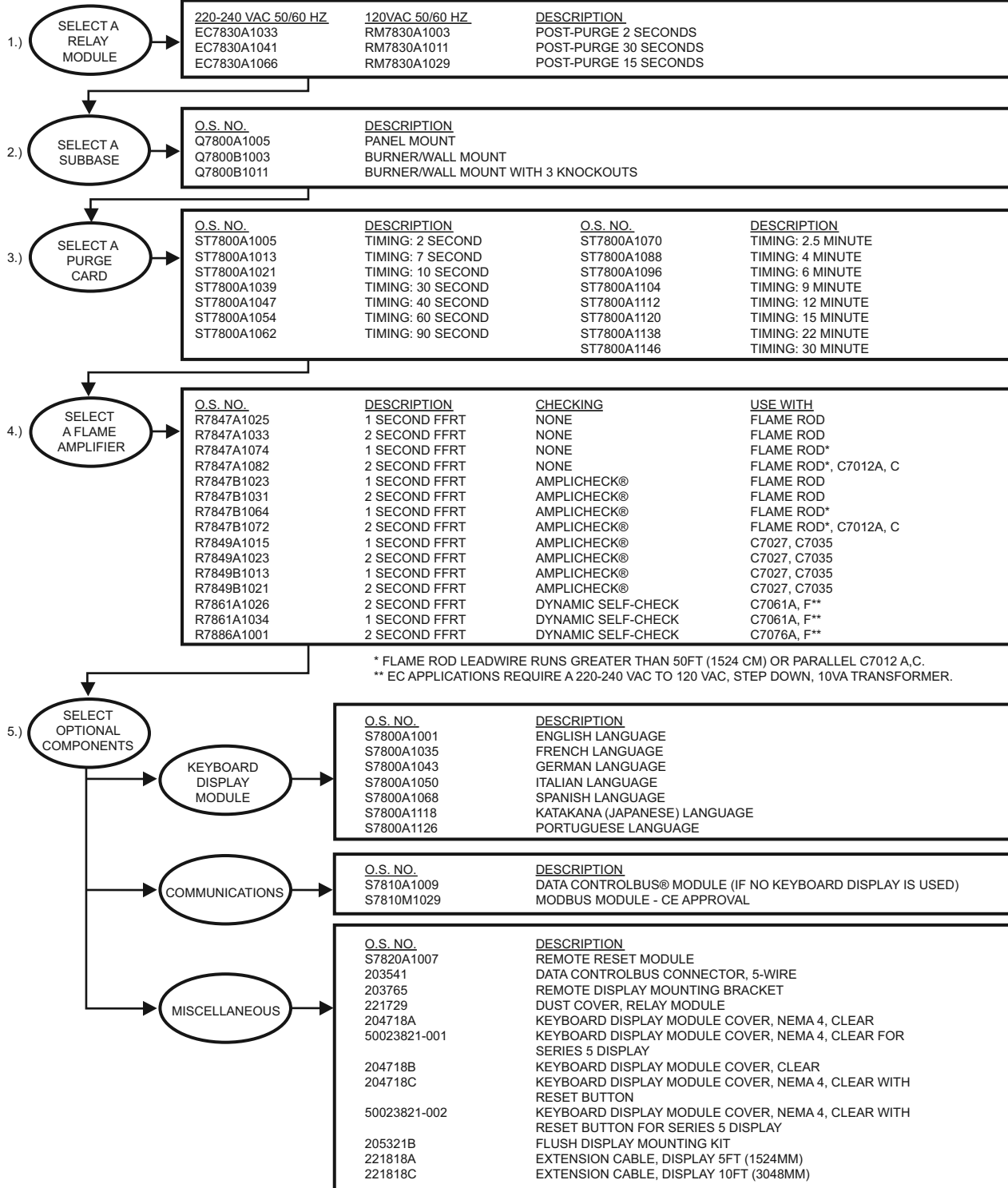
## PRODUCT SELECTION MATRIX FOR EC7820 PROGRAMMER RELAY MODULES:



M15516F

# Flame Safeguard Systems

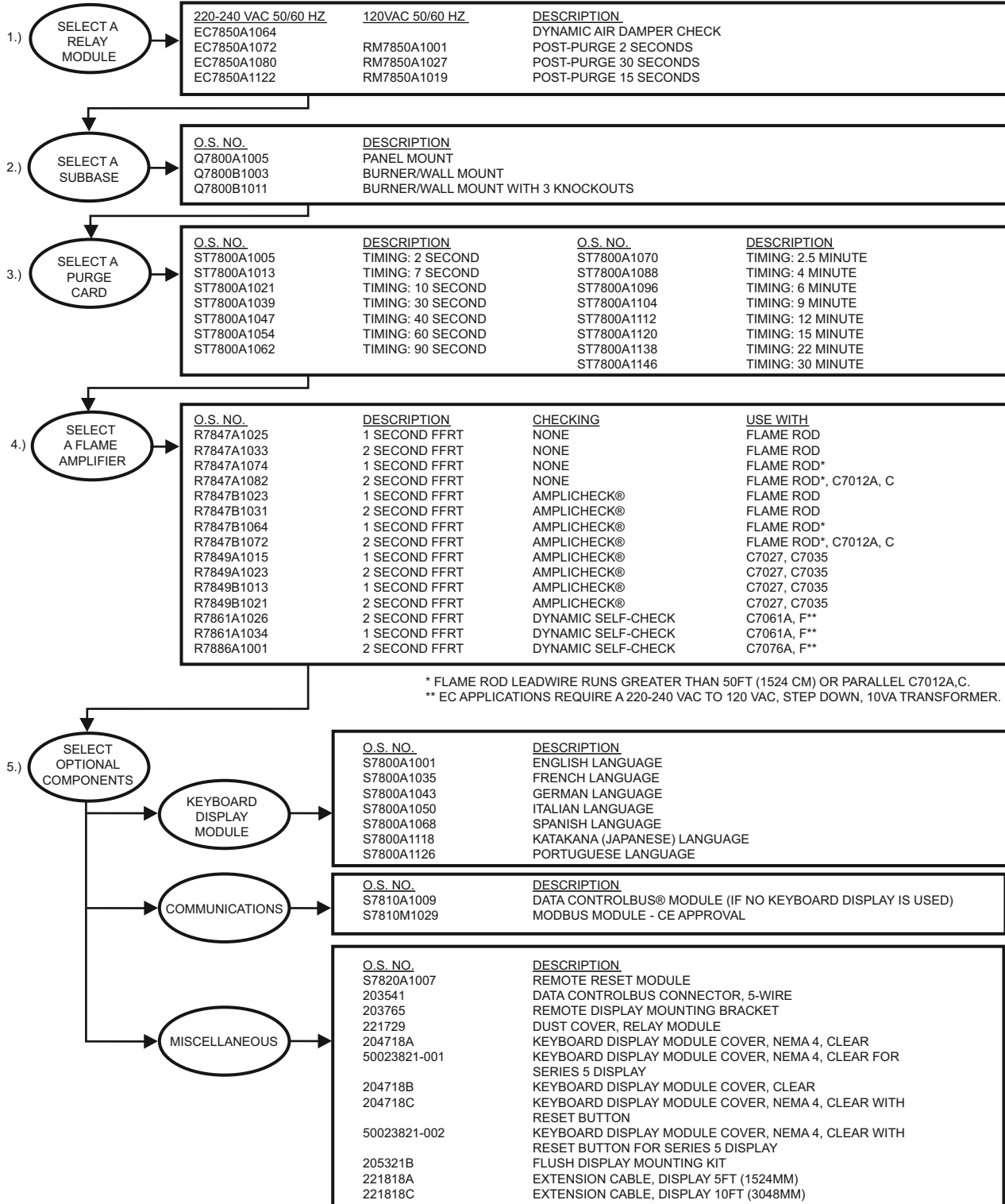
## PRODUCT SELECTION MATRIX FOR EC/RM7830 PROGRAMMER RELAY MODULES:



M15517F

# Flame Safeguard Systems

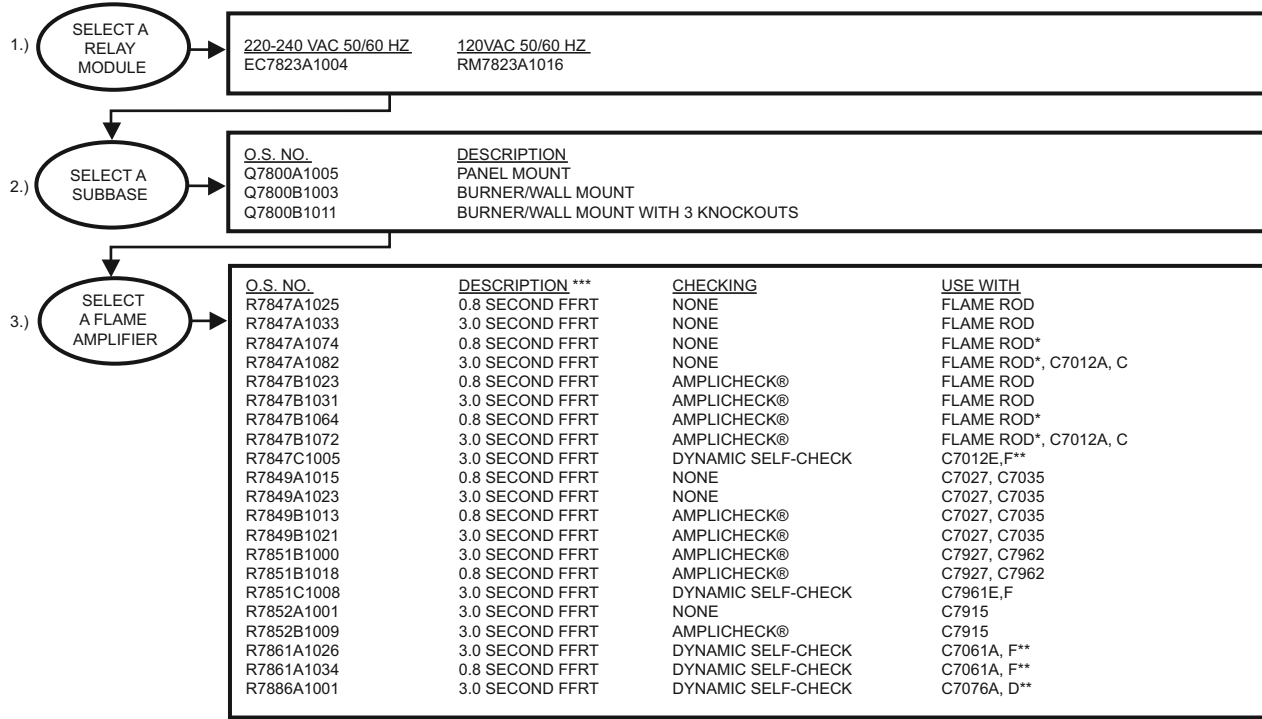
## PRODUCT SELECTION MATRIX FOR EC/RM7850 PROGRAMMER RELAY MODULES:



M15519F

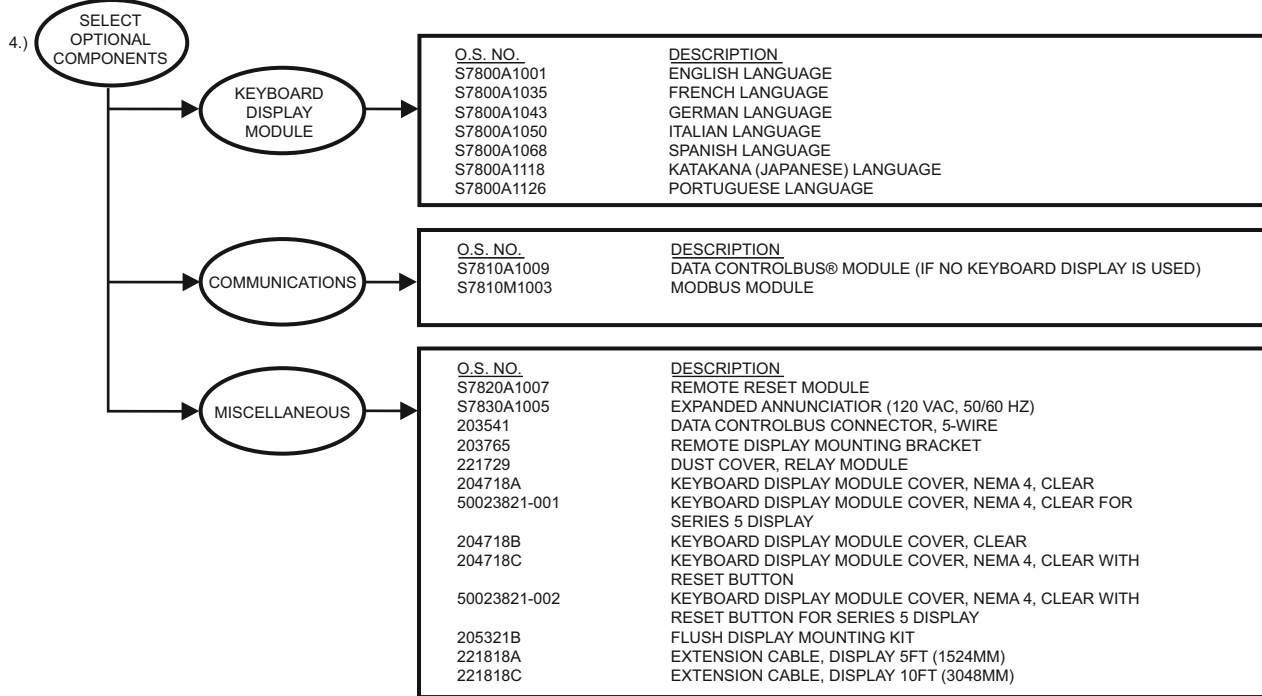
# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR EC/RM7823 FLAME SWITCH RELAY MODULES:



\* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).

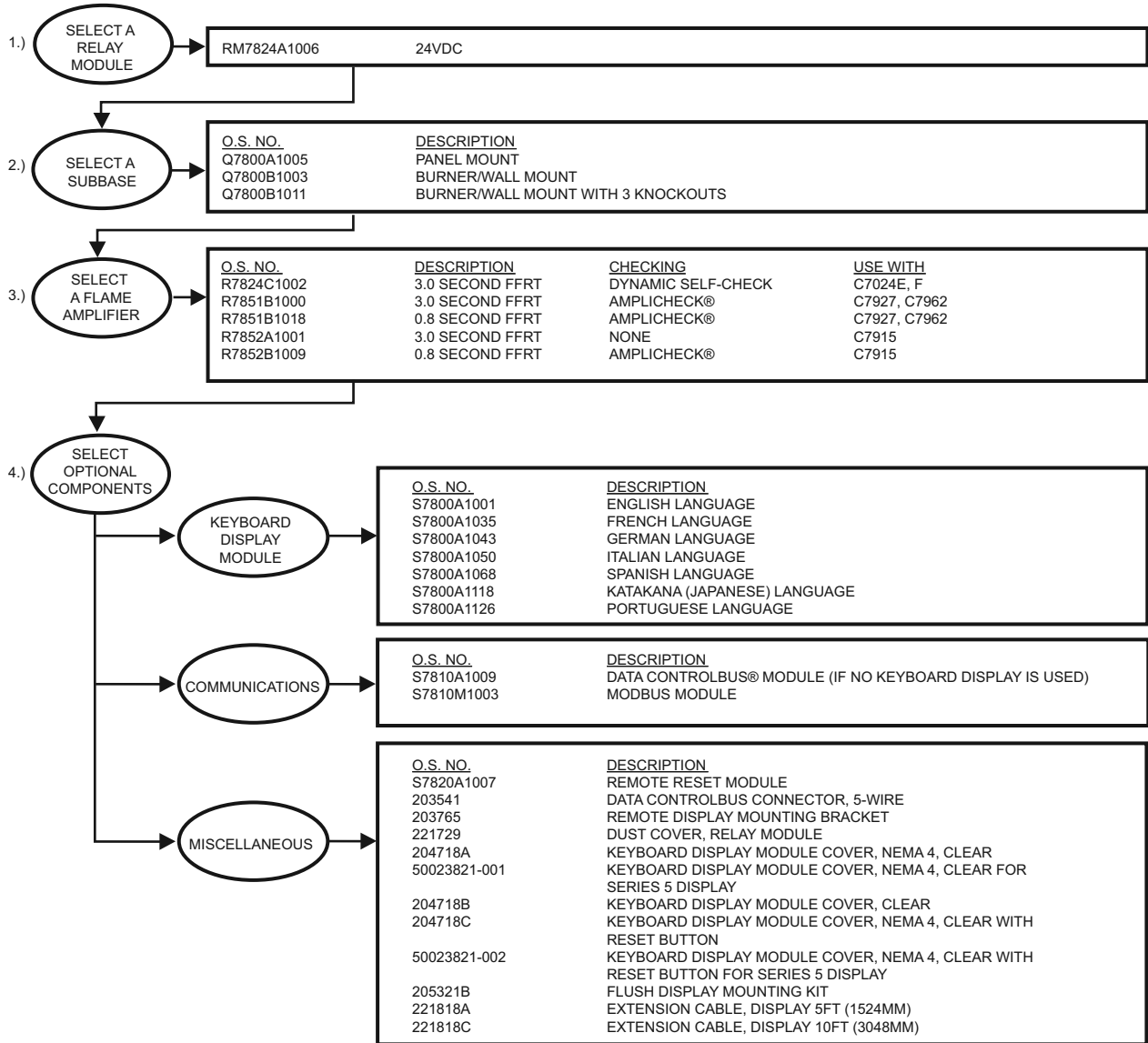
\*\* EC APPLICATIONS REQUIRE A 220-240 VAC TO 120 VAC, STEP DOWN, 10VA TRANSFORMER.



M15520E

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR RM7824A 24VDC PRIMARY CONTROL RELAY MODULES:



M15521C

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR EC/RM7885 MANUAL START PRIMARY RELAY MODULES:

1.) SELECT A RELAY MODULE

220-240 VAC 50/60 HZ	120VAC 50/60 HZ	DESCRIPTION
EC7885A1011	RM7885A1015	SEMI AUTOMATIC PRIMARY

2.) SELECT A SUBBASE

O.S. NO.	DESCRIPTION
Q7800A1005	PANEL MOUNT
Q7800B1003	BURNER/WALL MOUNT
Q7800B1011	BURNER/WALL MOUNT WITH 3 KNOCKOUTS

3.) SELECT A FLAME AMPLIFIER

O.S. NO.	DESCRIPTION***	CHECKING	USE WITH
R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
R7847B1023	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1031	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1064	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD*
R7847B1072	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD*, C7012A, C
R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F**
R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
R7849B1013	0.8 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7849B1021	3.0 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7851B1000	3.0 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851B1018	0.8 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E,F
R7852A1001	3.0 SECOND FFRT	NONE	C7915
R7852B1009	3.0 SECOND FFRT	AMPLICHECK®	C7915
R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D**

\* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).  
 \*\* EC APPLICATIONS REQUIRE A 220-240 VAC TO 120 VAC, STEP DOWN, 10VA TRANSFORMER.

4.) SELECT OPTIONAL COMPONENTS

O.S. NO.	DESCRIPTION
S7800A1001	ENGLISH LANGUAGE
S7800A1035	FRENCH LANGUAGE
S7800A1043	GERMAN LANGUAGE
S7800A1050	ITALIAN LANGUAGE
S7800A1068	SPANISH LANGUAGE
S7800A1118	KATAKANA (JAPANESE) LANGUAGE
S7800A1126	PORTUGUESE LANGUAGE

O.S. NO.	DESCRIPTION
S7810A1009	DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED)
S7810M1003	MODBUS MODULE

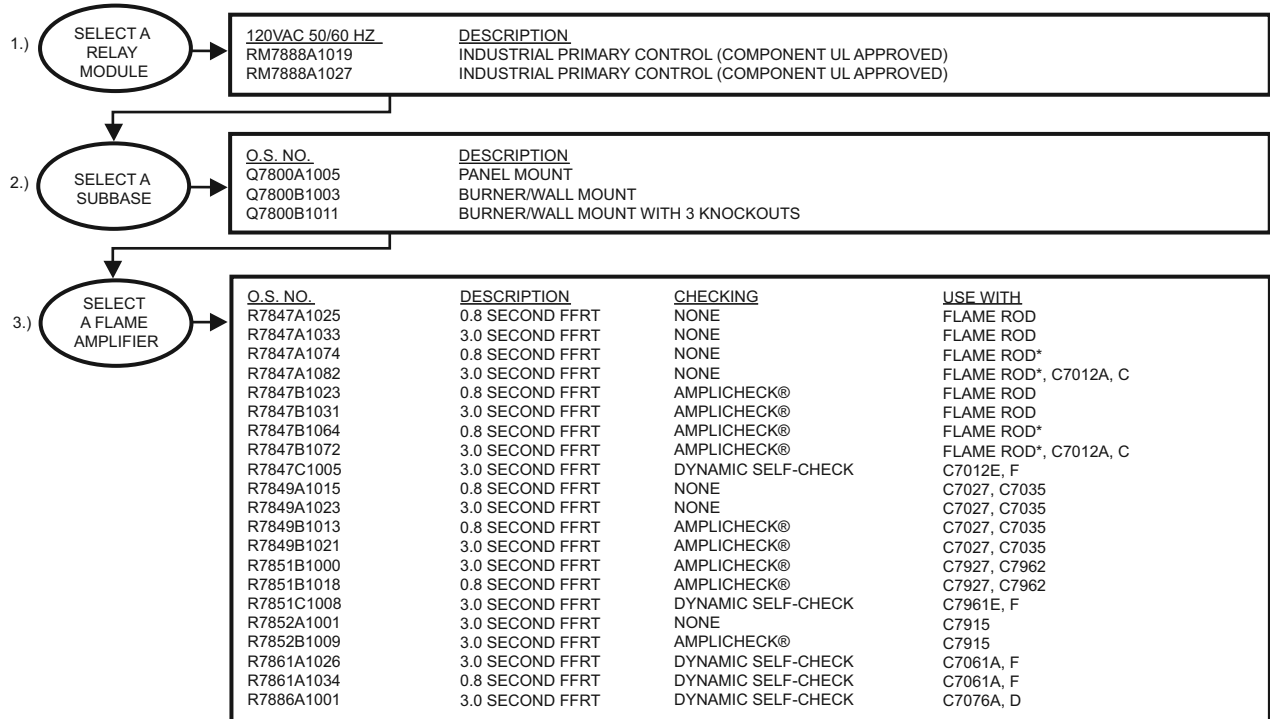
  

O.S. NO.	DESCRIPTION
S7820A1007	REMOTE RESET MODULE
203541	DATA CONTROLBUS CONNECTOR, 5-WIRE
203765	REMOTE DISPLAY MOUNTING BRACKET
221729	DUST COVER, RELAY MODULE
204718A	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR
50023821-001	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY
204718B	KEYBOARD DISPLAY MODULE COVER, CLEAR
204718C	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON
50023821-002	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY
205321B	FLUSH DISPLAY MOUNTING KIT
221818A	EXTENSION CABLE, DISPLAY 5FT (1524MM)
221818C	EXTENSION CABLE, DISPLAY 10FT (3048MM)

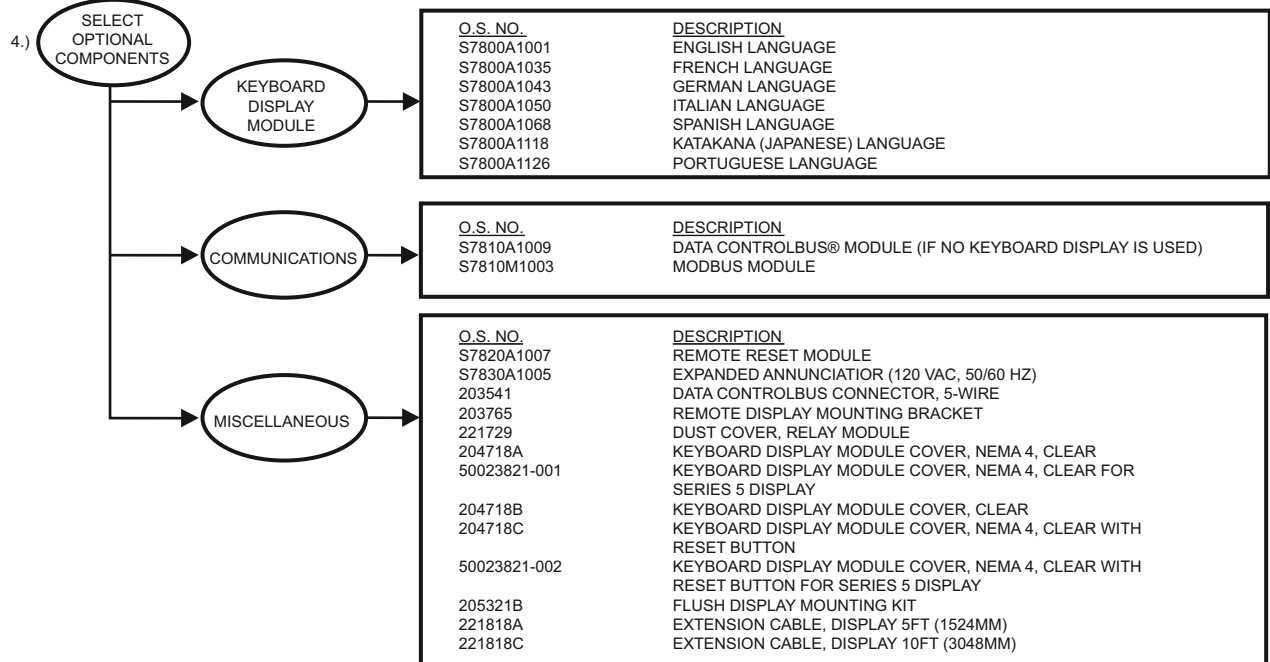
M15522E

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR RM7888A SPECIAL FUNCTION PRIMARY CONTROL RELAY MODULES:



\* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).



M15523E

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR EC/RM7890 ON/OFF PRIMARY CONTROL RELAY MODULES:

	<u>220-240 VAC 50/60 HZ</u>	<u>120VAC 50/60 HZ</u>	<u>DESCRIPTION</u>
1.) SELECT A RELAY MODULE	EC7890A1011	RM7890A1015	
	EC7890A1029‡		
		RM7890A1031	30 SECOND PFEP
		RM7890A1056	FOR VALVE PROVING APPLICATIONS
		RM7890A1064‡	
		RM7890B1014	WITH SHUTTER DRIVE
		RM7890B1030	WITH SHUTTER DRIVE AND FULL PFEP
		RM7890B1048	WITH SHUTTER DRIVE - FOR VALVE PROVING APPLICATIONS
		RM7890B1055++	WITH SHUTTER DRIVE
		RM7890C1005	STANDING PILOT APPLICATIONS WITH FLAME RODS ONLY
	RM7890D1004	INFRARED HEATER ONLY 15 OR 30 PREF	

‡ CE APPROVED  
++ NORTH AMERICAN AMD CE APPROVED

	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
2.) SELECT A SUBBASE	Q7800A1005	PANEL MOUNT
	Q7800B1003	BURNER/WALL MOUNT
	Q7800B1011	BURNER/WALL MOUNT WITH 3 KNOCKOUTS

	<u>O.S. NO.</u>	<u>DESCRIPTION***</u>	<u>CHECKING</u>	<u>USE WITH</u>
3.) SELECT A FLAME AMPLIFIER	R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
	R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
	R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
	R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
	R7847B1023	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD
	R7847B1031	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD
	R7847B1064	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD*
	R7847B1072	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD*, C7012A, C
	R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F**
	R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
	R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
	R7849B1013	0.8 SECOND FFRT	AMPLICHECK®	C7027, C7035
	R7849B1021	3.0 SECOND FFRT	AMPLICHECK®	C7027, C7035
	R7851B1000	3.0 SECOND FFRT	AMPLICHECK®	C7927, C7962
	R7851B1018	0.8 SECOND FFRT	AMPLICHECK®	C7927, C7962
	R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E, F
	R7852B1001	3.0 SECOND FFRT	NONE	C7915
	R7852B1009	3.0 SECOND FFRT	AMPLICHECK®	C7915
	R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
	R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F**
	R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D**

\* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).  
\*\* EC APPLICATIONS REQUIRE A 220-240 VAC TO 120 VAC, STEP DOWN, 10VA TRANSFORMER.  
\*\*\* FFRT FOR CE APPROVED CONTROLS 1 SEC. OR 2 SEC.

	<u>O.S. NO.</u>	<u>DESCRIPTION</u>	
4.) SELECT OPTIONAL COMPONENTS	KEYBOARD DISPLAY MODULE	S7800A1001	ENGLISH LANGUAGE
		S7800A1035	FRENCH LANGUAGE
		S7800A1043	GERMAN LANGUAGE
		S7800A1050	ITALIAN LANGUAGE
		S7800A1068	SPANISH LANGUAGE
		S7800A1118	KATAKANA (JAPANESE) LANGUAGE
		S7800A1126	PORTUGUESE LANGUAGE
		S7800A1142	ENGLISH (REQUIRED TO PROGRAM VP TIMINGS)
		S7800A1167	SPANISH (REQUIRED TO PROGRAM VP TIMINGS)

	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
COMMUNICATIONS	S7810A1009	DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED)
	S7810B1007	DATA CONTROLBUS® MODULE, MULTI DROP SWITCH MODULE
	S7810M1003	MODBUS MODULE
	S7810M1029	MODBUS MODULE - CE APPROVED

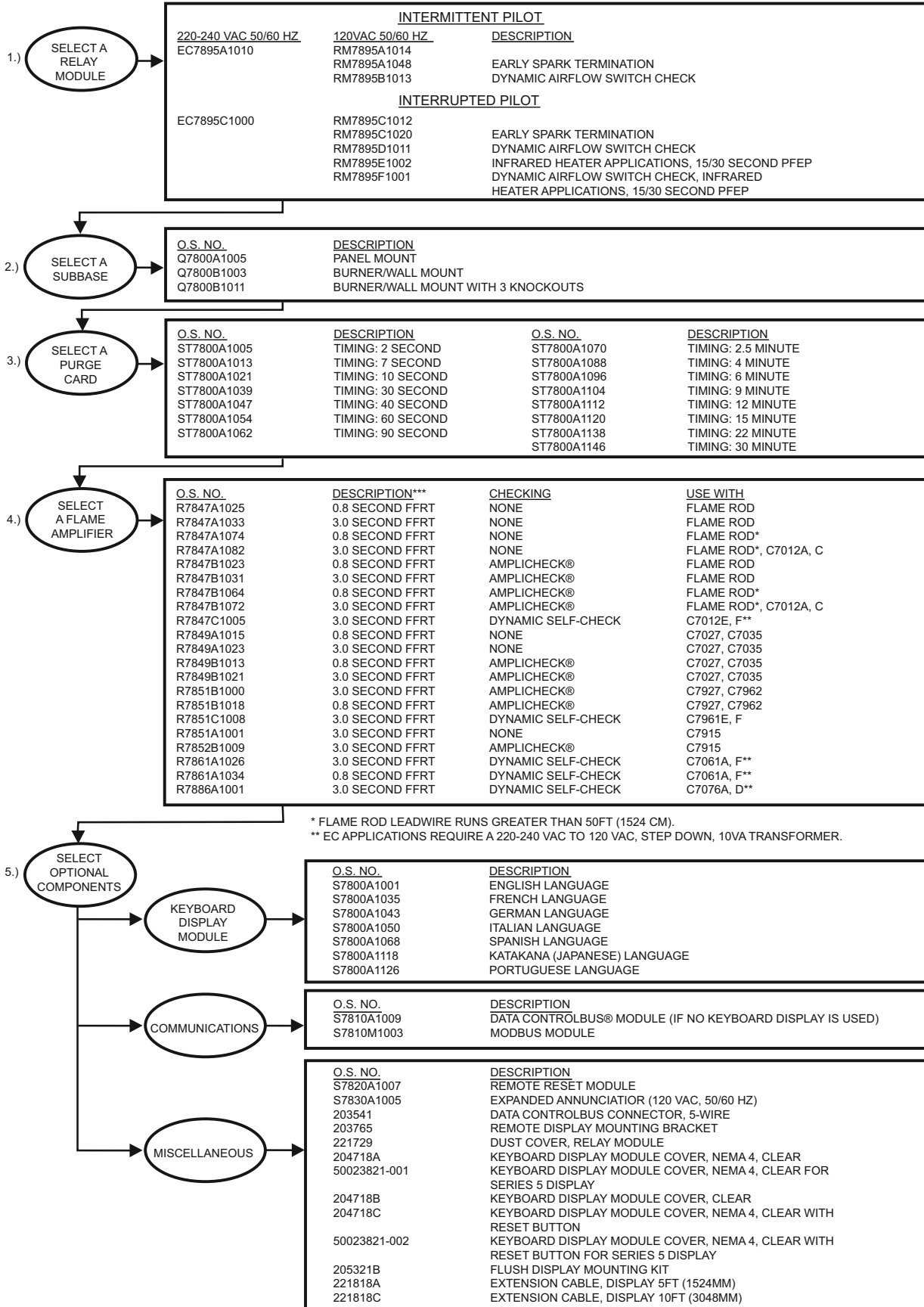
	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
MISCELLANEOUS	S7820A1007	REMOTE RESET MODULE
	S7830A1005	EXPANDED ANNUNCIATOR (120 VAC, 50/60 HZ)
	203541	DATA CONTROLBUS CONNECTOR, 5-WIRE
	203765	REMOTE DISPLAY MOUNTING BRACKET
	221729	DUST COVER, RELAY MODULE
	204718A	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR
	50023821-001	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY
	204718B	KEYBOARD DISPLAY MODULE COVER, CLEAR
	204718C	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON
	50023821-002	KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY
	205321B	FLUSH DISPLAY MOUNTING KIT
	221818A	EXTENSION CABLE, DISPLAY 5FT (1524MM)
	221818C	EXTENSION CABLE, DISPLAY 10FT (3048MM)

M15524E



# Flame Safeguard Systems

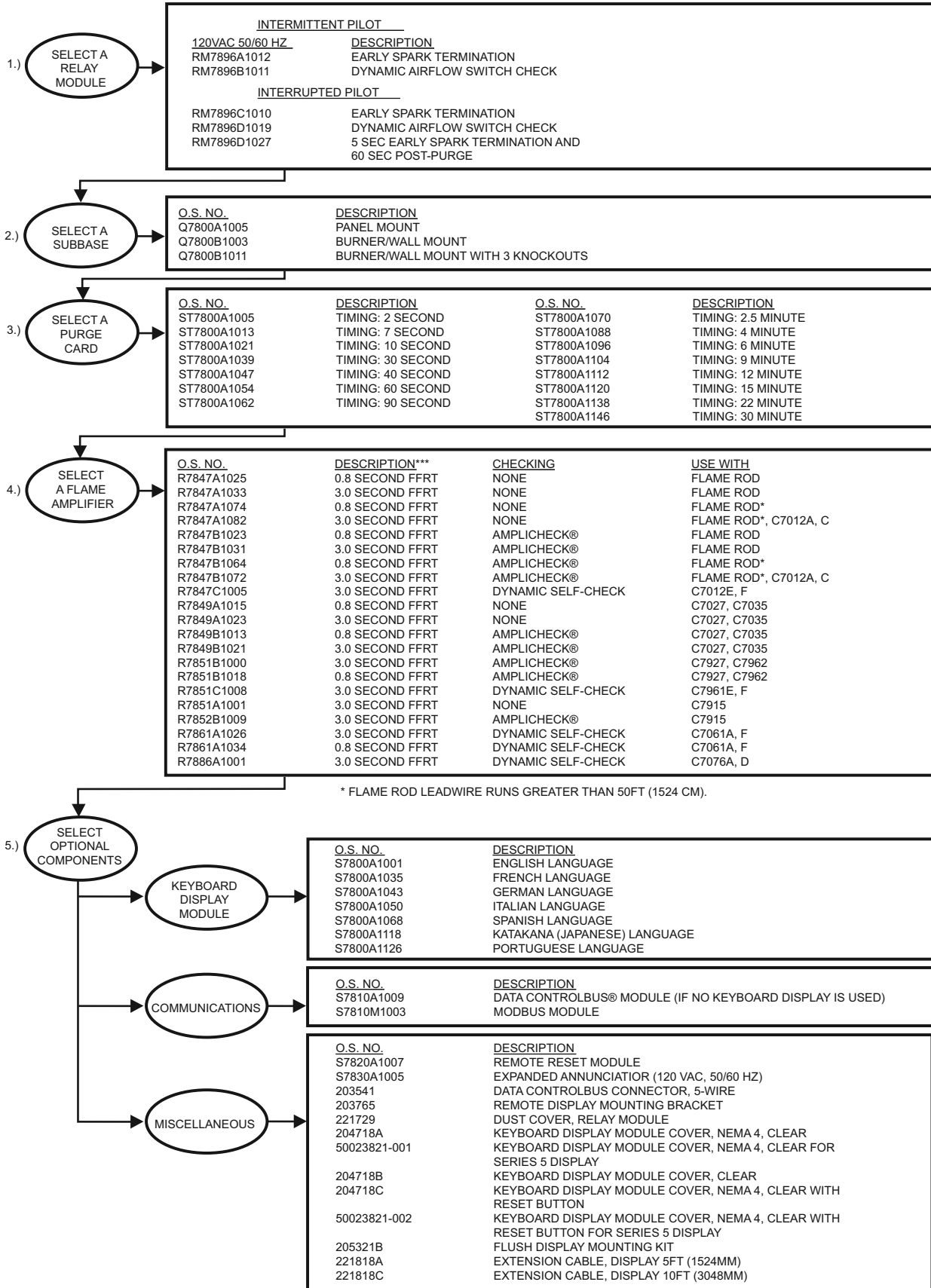
## PRODUCT SELECTION MATRIX FOR EC/RM7895 ON/OFF WITH PURGE PRIMARY RELAY MODULES:



M15525E

# Flame Safeguard Systems

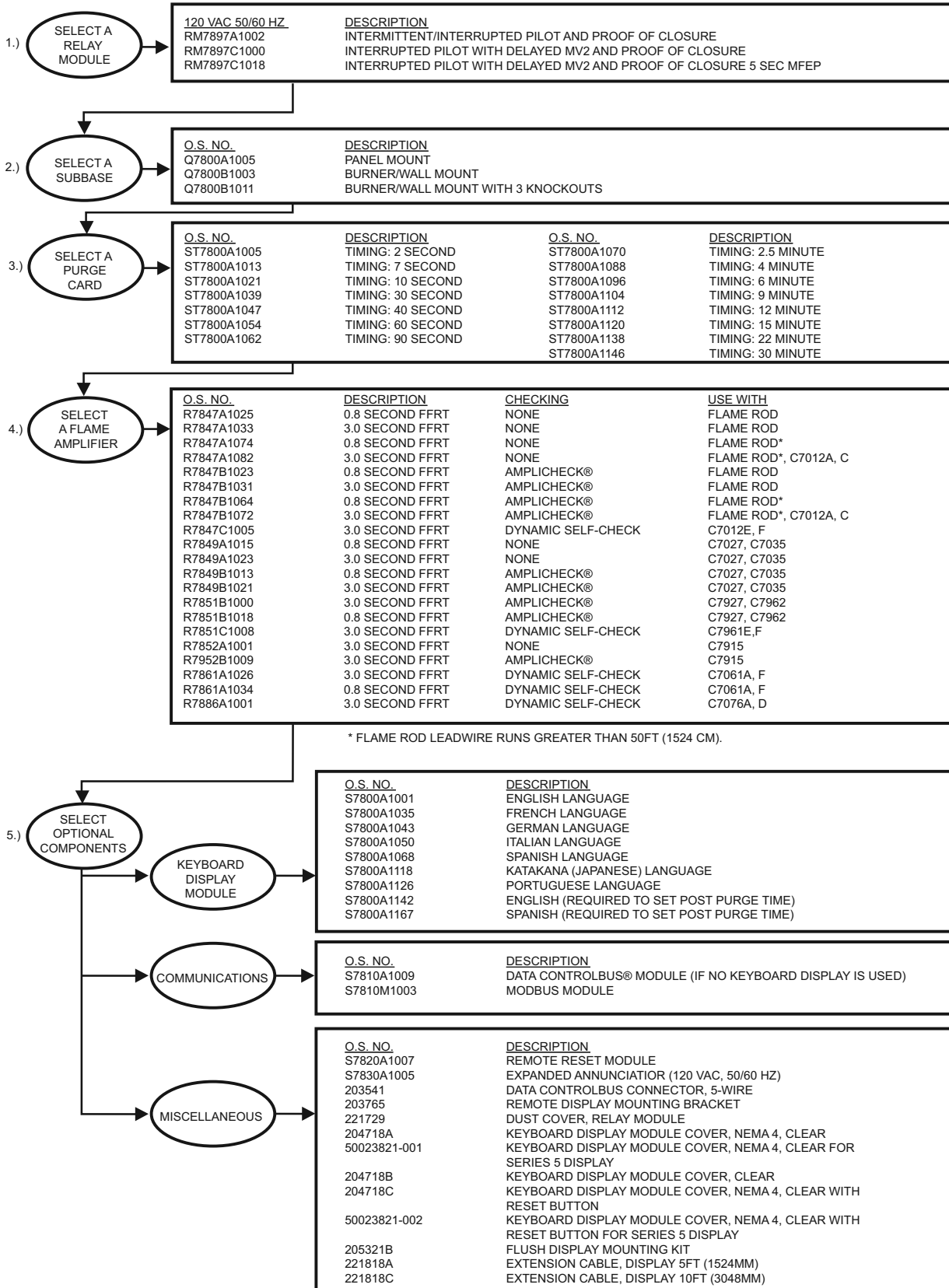
## PRODUCT SELECTION MATRIX FOR RM7896 ON/OFF WITH PRE- AND POST-PURGE PRIMARY RELAY MODULES:



M13908A

# Flame Safeguard Systems

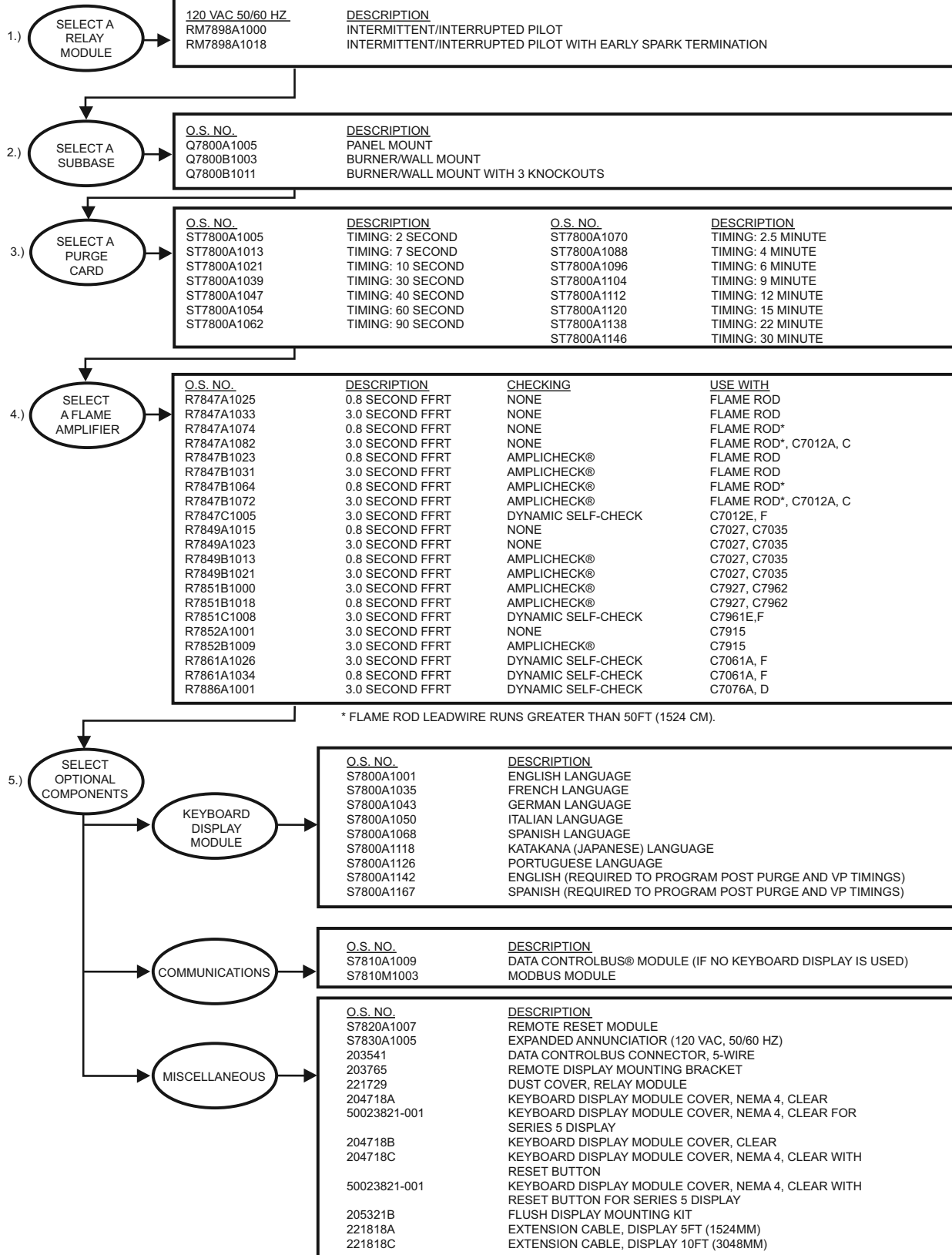
## PRODUCT SELECTION MATRIX FOR RM7897 ON/OFF WITH PRE- AND PROGRAMMABLE POST-PURGE PRIMARY RELAY MODULES:



M15526F

# Flame Safeguard Systems

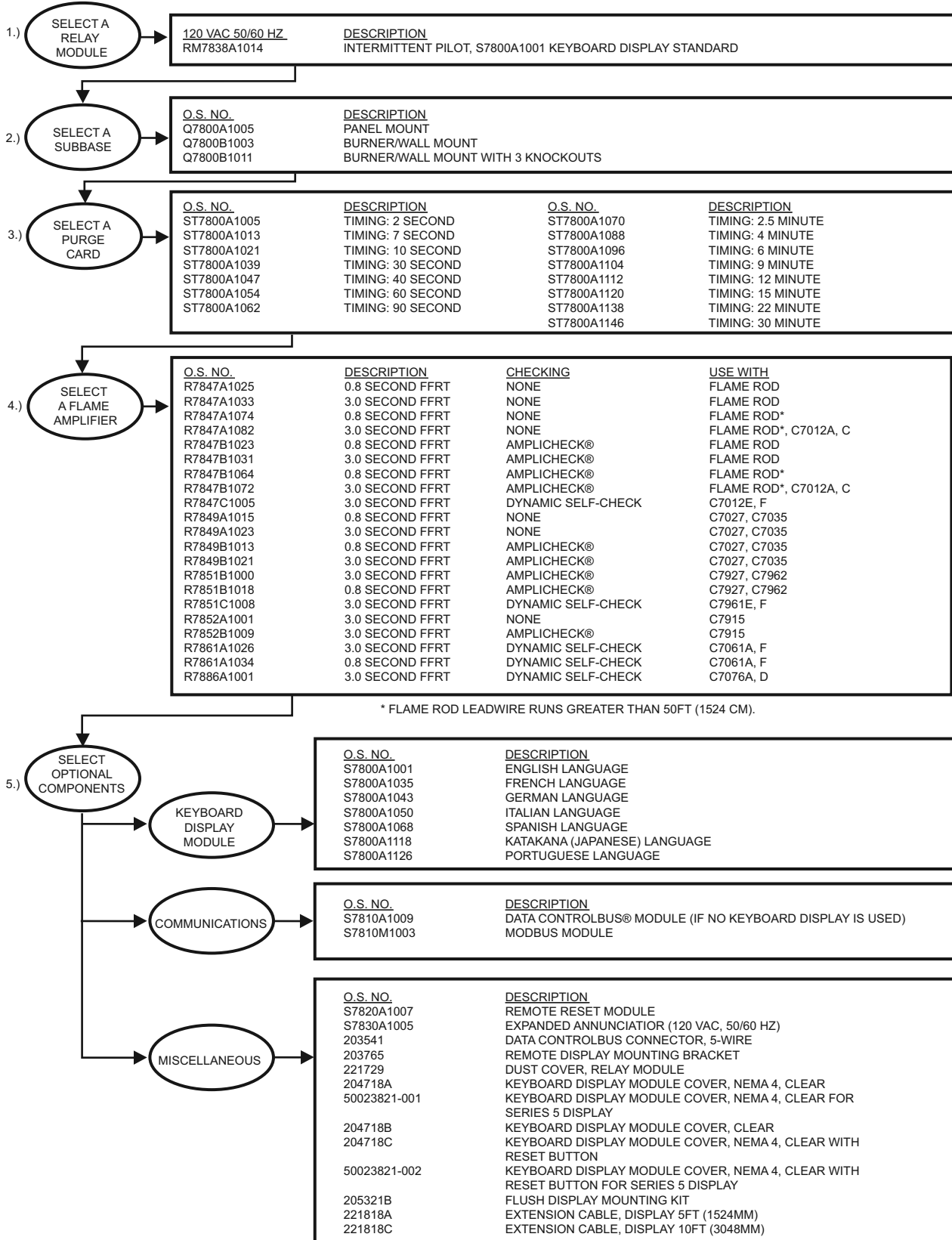
## PRODUCT SELECTION MATRIX FOR RM7898 ON/OFF WITH PRE- AND PROGRAMMABLE POST-PURGE PRIMARY RELAY MODULES FOR VALVE PROVING APPLICATIONS:



M23254B

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR RM7838A MANUAL START WITH PURGE INDUSTRIAL PRIMARY RELAY MODULE:



M15527E

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR RM7838B MANUAL START INDUSTRIAL PROGRAMMER RELAY MODULE:

1.) SELECT A RELAY MODULE

<u>120 VAC 50/60 HZ</u> RM7838B1013*	<u>DESCRIPTION</u> SEMI-AUTOMATIC PROGRAMMER WITH S7800A1001 KEYBOARD DISPLAY STANDARD S7800A1142 KEYBOARD DISPLAY STANDARD - HAS VALVE PRVING FEATURE
RM7838B1021*	

\* ALARM SOUNDS UNTIL FLAME SENSED

2.) SELECT A SUBBASE

<u>O.S. NO.</u> Q7800A1005 Q7800B1003 Q7800B1011	<u>DESCRIPTION</u> PANEL MOUNT BURNER/WALL MOUNT BURNER/WALL MOUNT WITH 3 KNOCKOUTS
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3.) SELECT A PURGE CARD

<u>O.S. NO.</u>	<u>DESCRIPTION</u>	<u>O.S. NO.</u>	<u>DESCRIPTION</u>
ST7800A1005	TIMING: 2 SECOND	ST7800A1070	TIMING: 2.5 MINUTE
ST7800A1013	TIMING: 7 SECOND	ST7800A1088	TIMING: 4 MINUTE
ST7800A1021	TIMING: 10 SECOND	ST7800A1096	TIMING: 6 MINUTE
ST7800A1039	TIMING: 30 SECOND	ST7800A1104	TIMING: 9 MINUTE
ST7800A1047	TIMING: 40 SECOND	ST7800A1112	TIMING: 12 MINUTE
ST7800A1054	TIMING: 60 SECOND	ST7800A1120	TIMING: 15 MINUTE
ST7800A1062	TIMING: 90 SECOND	ST7800A1138	TIMING: 22 MINUTE
		ST7800A1146	TIMING: 30 MINUTE

4.) SELECT A FLAME AMPLIFIER

<u>O.S. NO.</u>	<u>DESCRIPTION</u>	<u>CHECKING</u>	<u>USE WITH</u>
R7847A1025	0.8 SECOND FFRT	NONE	FLAME ROD
R7847A1033	3.0 SECOND FFRT	NONE	FLAME ROD
R7847A1074	0.8 SECOND FFRT	NONE	FLAME ROD*
R7847A1082	3.0 SECOND FFRT	NONE	FLAME ROD*, C7012A, C
R7847B1023	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1031	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD
R7847B1064	0.8 SECOND FFRT	AMPLICHECK®	FLAME ROD*
R7847B1072	3.0 SECOND FFRT	AMPLICHECK®	FLAME ROD*, C7012A, C
R7847C1005	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7012E, F
R7849A1015	0.8 SECOND FFRT	NONE	C7027, C7035
R7849A1023	3.0 SECOND FFRT	NONE	C7027, C7035
R7849B1013	0.8 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7849B1021	3.0 SECOND FFRT	AMPLICHECK®	C7027, C7035
R7851B1000	3.0 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851B1018	0.8 SECOND FFRT	AMPLICHECK®	C7927, C7962
R7851C1008	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7961E, F
R7852A1001	3.0 SECOND FFRT	NONE	C7915
R7852B1009	3.0 SECOND FFRT	AMPLICHECK®	C7915
R7861A1026	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F
R7861A1034	0.8 SECOND FFRT	DYNAMIC SELF-CHECK	C7061A, F
R7886A1001	3.0 SECOND FFRT	DYNAMIC SELF-CHECK	C7076A, D

\* FLAME ROD LEADWIRE RUNS GREATER THAN 50FT (1524 CM).

5.) SELECT OPTIONAL COMPONENTS

KEYBOARD DISPLAY MODULE

<u>O.S. NO.</u> S7800A1001 S7800A1035 S7800A1043 S7800A1050 S7800A1068 S7800A1118 S7800A1126	<u>DESCRIPTION</u> ENGLISH LANGUAGE FRENCH LANGUAGE GERMAN LANGUAGE ITALIAN LANGUAGE SPANISH LANGUAGE KATAKANA (JAPANESE) LANGUAGE PORTUGUESE LANGUAGE
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COMMUNICATIONS

<u>O.S. NO.</u> S7810A1009 S7810M1003	<u>DESCRIPTION</u> DATA CONTROLBUS® MODULE (IF NO KEYBOARD DISPLAY IS USED) MODBUS MODULE
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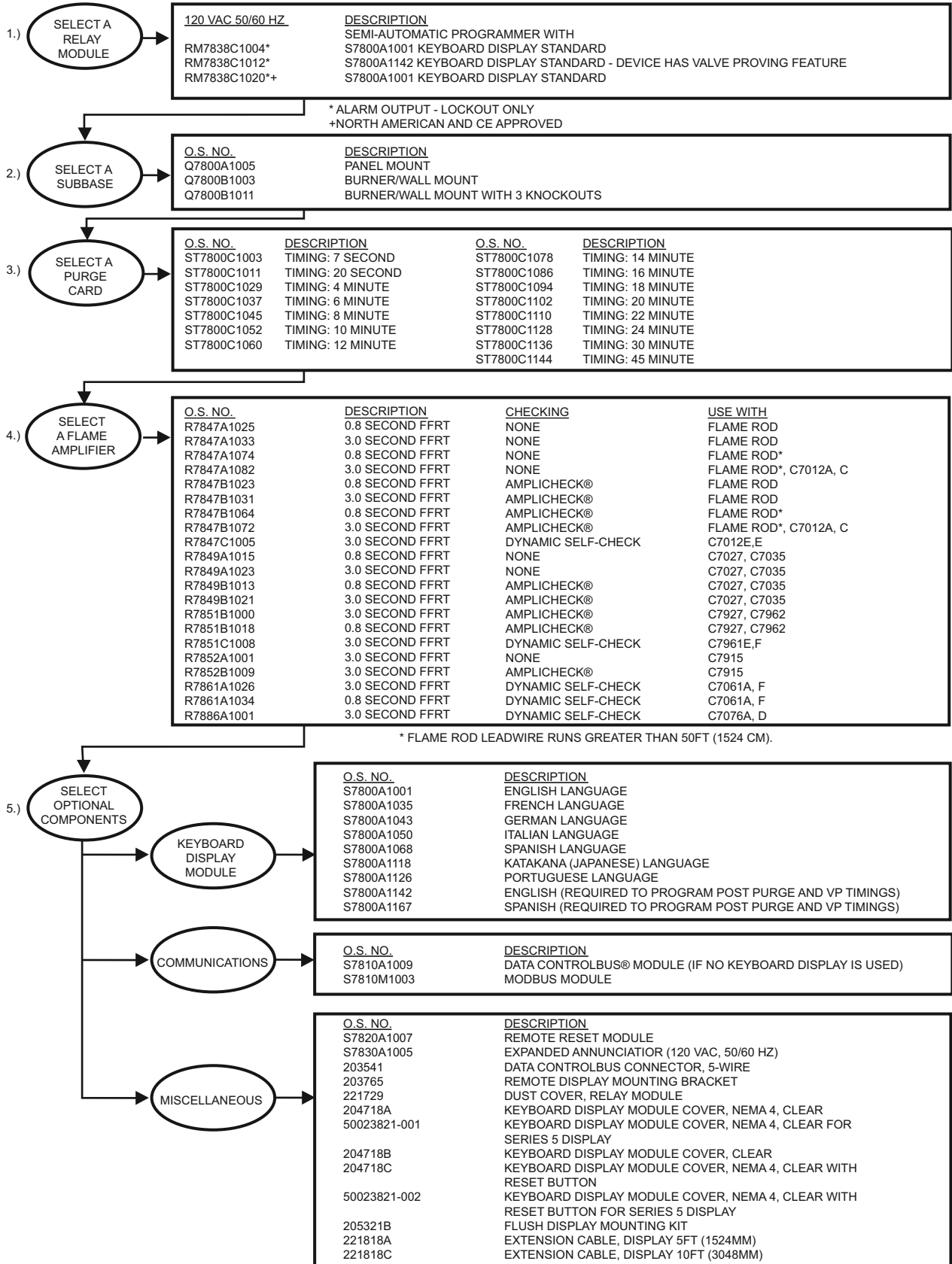
MISCELLANEOUS

<u>O.S. NO.</u> S7820A1007 S7830A1005 203541 203765 221729 204718A 50023821-001  204718B 204718C  50023821-002  205321B 221818A 221818C	<u>DESCRIPTION</u> REMOTE RESET MODULE EXPANDED ANNUNCIATOR (120 VAC, 50/60 HZ) DATA CONTROLBUS CONNECTOR, 5-WIRE REMOTE DISPLAY MOUNTING BRACKET DUST COVER, RELAY MODULE KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR FOR SERIES 5 DISPLAY KEYBOARD DISPLAY MODULE COVER, CLEAR KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON KEYBOARD DISPLAY MODULE COVER, NEMA 4, CLEAR WITH RESET BUTTON FOR SERIES 5 DISPLAY FLUSH DISPLAY MOUNTING KIT EXTENSION CABLE, DISPLAY 5FT (1524MM) EXTENSION CABLE, DISPLAY 10FT (3048MM)
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M15528E

# Flame Safeguard Systems

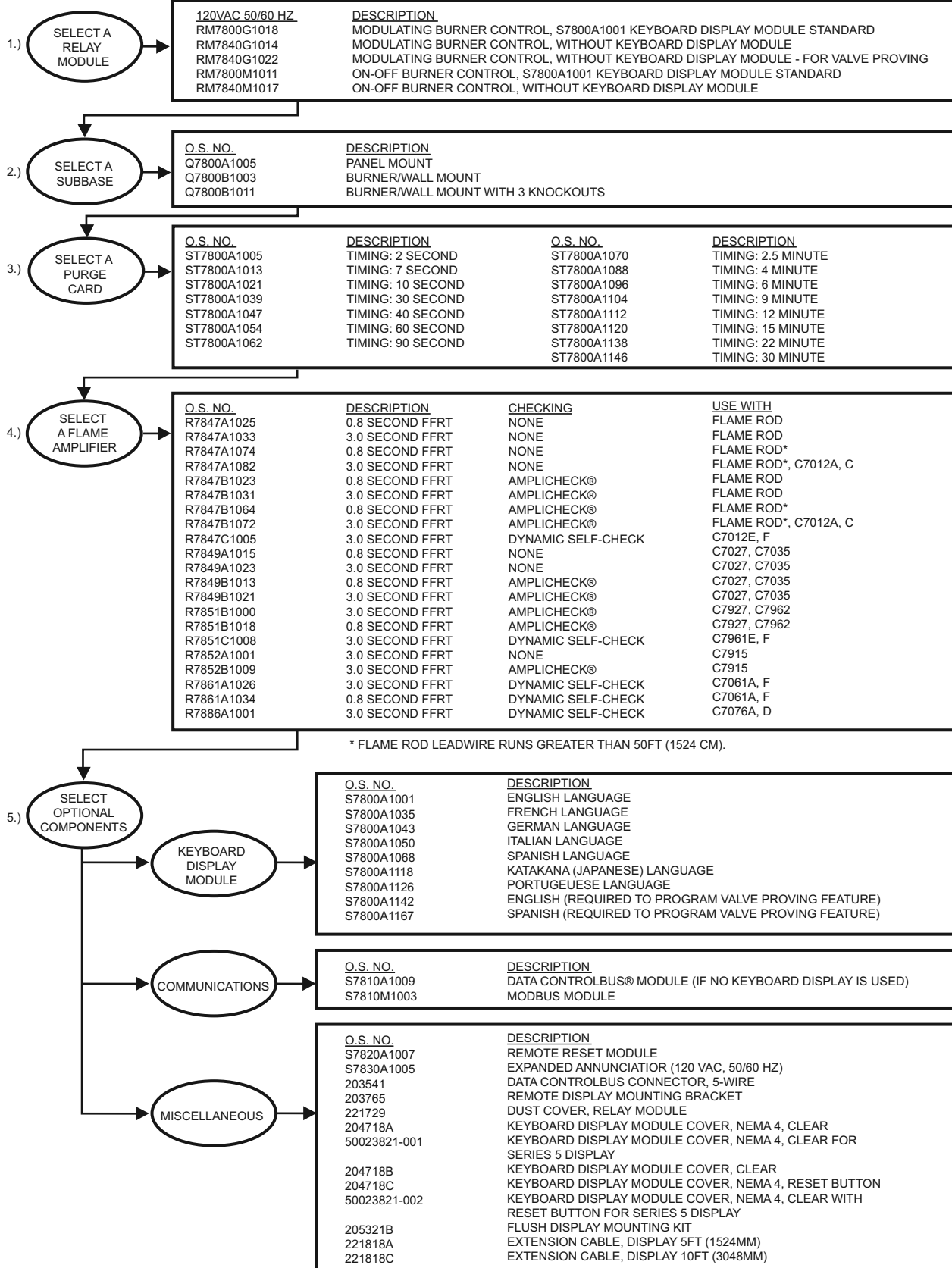
## PRODUCT SELECTION MATRIX FOR RM7838C MANUAL START INDUSTRIAL PROGRAMMER RELAY MODULE:



M18830D

# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR UL/CSA RM78XXG,M PROGRAMMER RELAY MODULE:

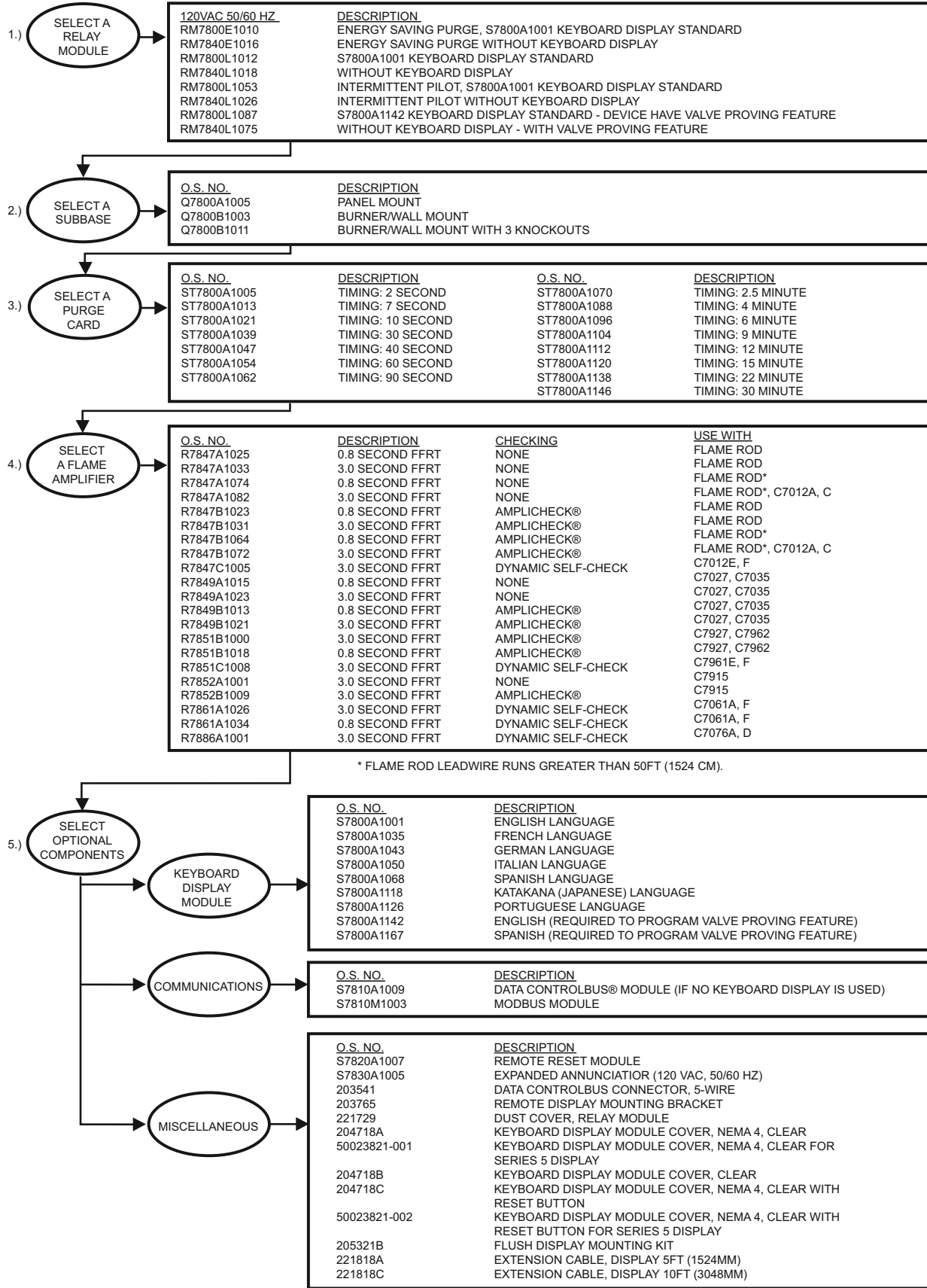


M15529E



# Flame Safeguard Systems

## PRODUCT SELECTION MATRIX FOR FM/RI RM78XXE, L PROGRAMMER RELAY MODULE:



M15530E

# Microprocessor Burner Controls

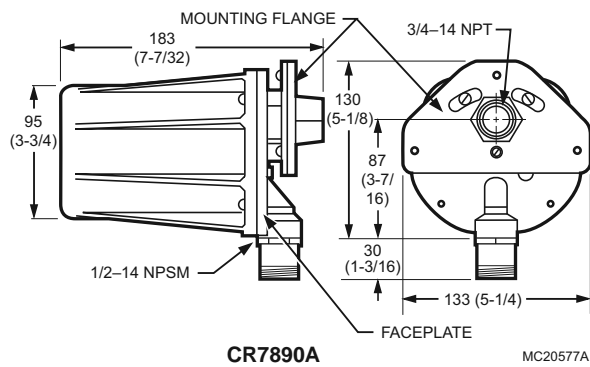
## CR7890 Integrated Burner Control



The CR7890B Integrated Burner Control consists of a self contained relay module, amplifier and a shutter type solid state Ultraviolet Detector for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.

- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the UV sensor checking function.
- Amplifier circuitry components are checked from the microprocessor in the CR7890B Control.
- Device can be mounted horizontally, vertically or at any other angle.
- The device has faceplate alignment and integral locating reference points to assure proper shutter mechanism operation.
- Quartz viewing window is field replaceable. CR7890B1019 uses Brad Harrison™ 3R9006A20A120 connector.
- A swivel mount is available to facilitate flame sighting.
- -40 C (-40 F) rated ultraviolet sensing tube.
- High pressure 50 psi (345 kPa) quartz viewing window, magnifying lens and anti-vibration mount are available as accessories.
- Housing meets NEMA 4 enclosure standards. (NEMA 1 when access cover is used.)
- Protective heat block built into mounting flange.
- Power LED blinks a fault code when device is in ALARM state.
- Optional Keyboard Display Module (KDM).

### Dimensions in millimeters (inches)



**Application:** On-Off Primary Control with 9 pin connector

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**Weight:** 1.71 kg (3.78 lb)

**Approvals:**

**Canadian Standards Association:** Certified

**Control Safety Devices:** Acceptable: CSD-1

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

Product Number	Voltage	Pilot Type	Flame Establishing Period	
			Main	Pilot
CR7890B1019	120 Vac (+10, -15%)	intermittent	Intermittent	10 sec

# Microprocessor Burner Controls

## EC7810; EC7820 Primary Control Meeting European Community Timings



**Application:** Primary Control  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Frequency:** 50 Hz; 60 Hz (±10%)  
**Early Spark Termination:** Yes, 5 sec  
**Preignition:** Yes  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**PostPurge:** 5 sec  
**Interlocks:** Lockout  
**Flame Establishing Period**  
**Main:** 5 sec, or 8 sec, or Intermittent  
**Pilot:** 5 sec or 10 sec

Microprocessor-based integrated burner control for automatically fired gas, oil, or combination fuel single burner atmospheric with fan applications. Provides automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics, and troubleshooting.

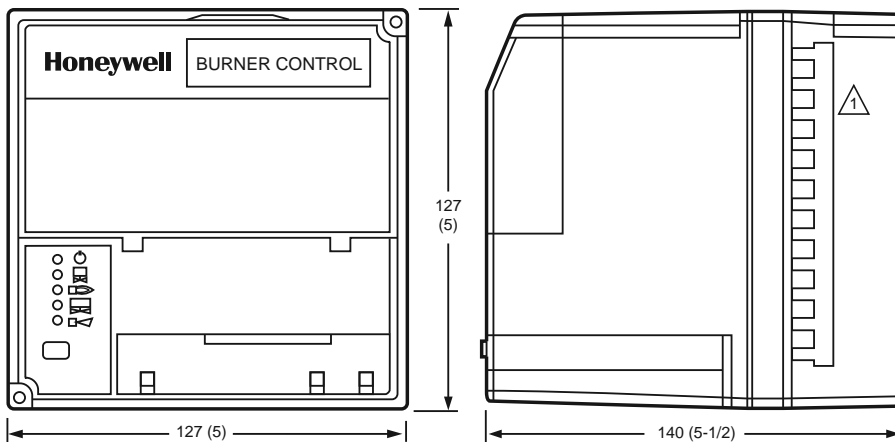
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch. Interchangeable plug-in amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Non-volatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

**Second Stage Pilot Valve:** Intermittent  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**  
**Factory Mutual:** Report No. 1V9AO.AF.  
**Gastec/European:** GASTEC: CE-63AP3070/1, Approved to EN298.  
**Swiss RE (formerly IRI):** Acceptable  
**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7849, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	AirFlow Check	Comments
EC7810A1027	220 to 240 Vac (+10, -15%)	interrupted	—	1 ignition attempt, Includes Modulation w/o Fan Output
EC7810A1035	220 to 240 Vac (+10, -15%)	interrupted	—	5 ignition attempts, Includes Modulation w/o Fan Output
EC7820A1026	220 to 240 Vac (+10, -15%)	interrupted	User selectable	1 ignition attempt, Includes Modulation w/ Fan Output
EC7820A1034	220 to 240 Vac (+10, -15%)	interrupted	User selectable	5 ignition attempts, Includes Modulation w/ Fan Output

### Dimensions in millimeters (inches)



△ REMOVE ONLY FOR TERMINAL TEST ACCESS.

MC12821

# Microprocessor Burner Controls

## EC7830; EC7850; RM7830; RM7850 Programming Control Meeting European Community Timings



**Application:** Programming Control  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Voltage:** 220 to 240 Vac (+10, -15%)  
**Frequency:** 50 Hz; 60 Hz (±10%)  
**Early Spark Termination:** Yes, 5 sec  
**Preignition:** Yes  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**AirFlow Check:** User selectable

**Flame Establishing Period**  
**Main:** 3 sec, or 5 sec, or Intermittent  
**Pilot:** 3 sec or 5 sec

**Microprocessor-based integrated burner control for full modulation applications. Provides automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics, and troubleshooting.**

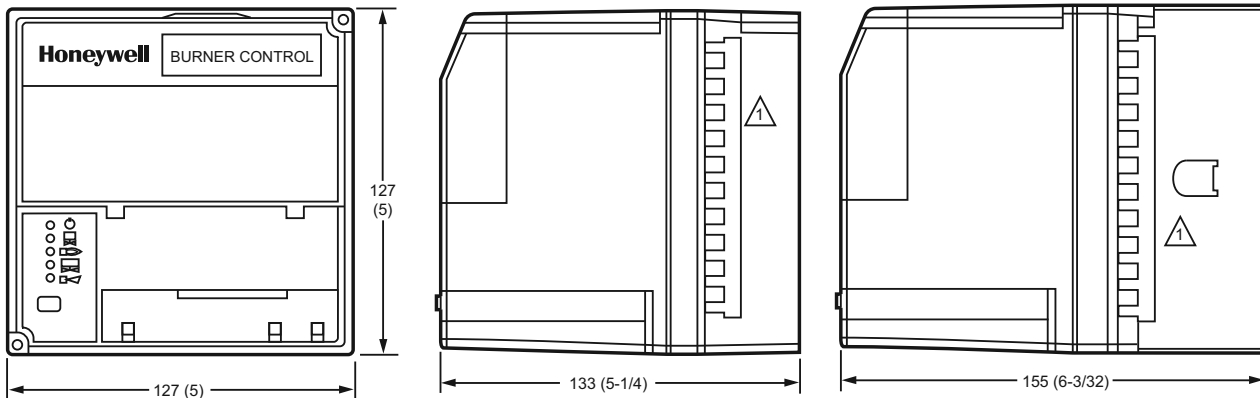
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

**Second Stage Pilot Valve:** Intermittent  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**  
**Factory Mutual:** Report No. 1V9AO.AF.  
**Gastec/European:** GASTEC: CE-63AP3070/1, Approved to EN298.  
**Swiss RE (formerly IRI):** Acceptable  
**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7849, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	PostPurge	Interlocks	Comments
EC7830A1033	220 to 240 Vac (+10, -15%)	interrupted	2 sec	Lockout	On/Off Power Burner
EC7830A1041	220 to 240 Vac (+10, -15%)	interrupted	30 sec	Lockout	On/Off Power Burner
EC7830A1066	220 to 240 Vac (+10, -15%)	interrupted	15 sec	Lockout	On/Off Power Burner
EC7850A1064	220 to 240 Vac (+10, -15%)	interrupted	30 sec	Lockout	LHL-LF&HF Proven; Dynamic damper check
EC7850A1072	220 to 240 Vac (+10, -15%)	interrupted	2 sec	Lockout	LHL-LF&HF Proven
EC7850A1080	220 to 240 Vac (+10, -15%)	interrupted	30 sec	Lockout	LHL-LF&HF Proven
EC7850A1122	220 to 240 Vac (+10, -15%)	interrupted	15 sec	Lockout	LHL-LF&HF Proven
RM7830A1003	120 Vac (+10, -15%)	interrupted	2 sec	Lockout	On/Off Power Burner
RM7850A1001	120 Vac (+10, -15%)	interrupted	2 sec	Lockout	LHL-LF&HF Proven
RM7850A1019	120 Vac (+10, -15%)	interrupted	15 sec	Lockout	LHL-LF&HF Proven
RM7850A1027	120 Vac (+10, -15%)	interrupted	30 sec	Lockout	LHL-LF&HF Proven

### Dimensions in millimeters (inches)



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MC15532A

# Microprocessor Burner Controls

## RM7800 Programmers



**Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.**

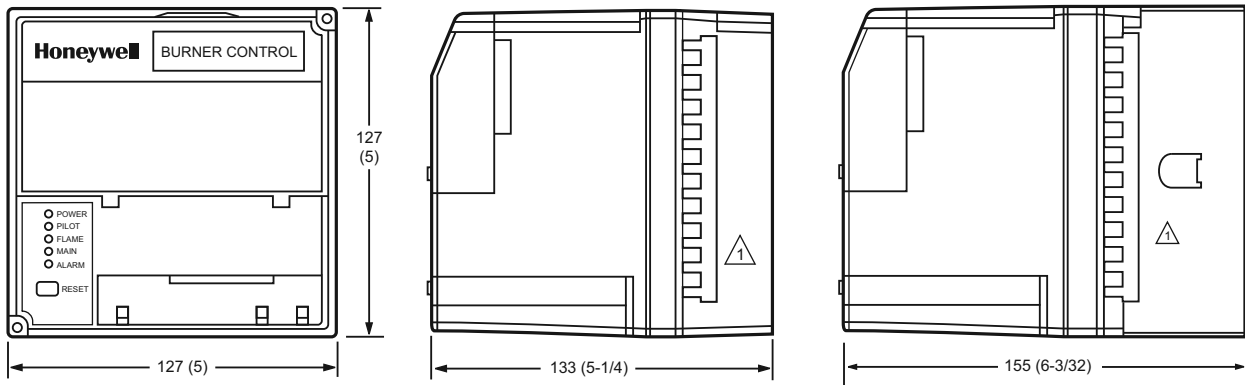
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- Includes Keyboard Display Module.

**Application:** Programming Control  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )  
**Pilot Type:** interrupted  
**Early Spark Termination:** Yes, 5 sec  
**Preignition:** Yes  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**PostPurge:** 15 sec  
**Interlocks:** Lockout  
**AirFlow Check:** User selectable  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**  
**Canadian Standards Association:** Certified, File No. LR95329-3.  
**Federal Communications Commission:** FCC Part 15, Class B, Emissions.  
**Factory Mutual:** Report No. 1V9AO.AF.  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.  
**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
			Main	Pilot			
RM7800E1010	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800 Display, LHL-LF&HF Proven
RM7800G1018	120 Vac (+10, -15%)	interrupted	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	selectable	Running	Includes S7800 Display, LHL-LF Proven
RM7800L1012	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800 Display, LHL-LF&HF Proven
RM7800L1053	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Lockout	Includes S7800 Display, LHL-LF&HF Proven
RM7800M1011	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	Includes S7800 Display, On/Off-LF proven

Dimensions in millimeters (inches)



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MODULE WITH SUBBASE

MC15518A

# Microprocessor Burner Controls

## RM7800 Programmers with VPS



Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls. With Valve Proving Feature. RM7800L comes standard with S7800A1142 Keyboard Display.

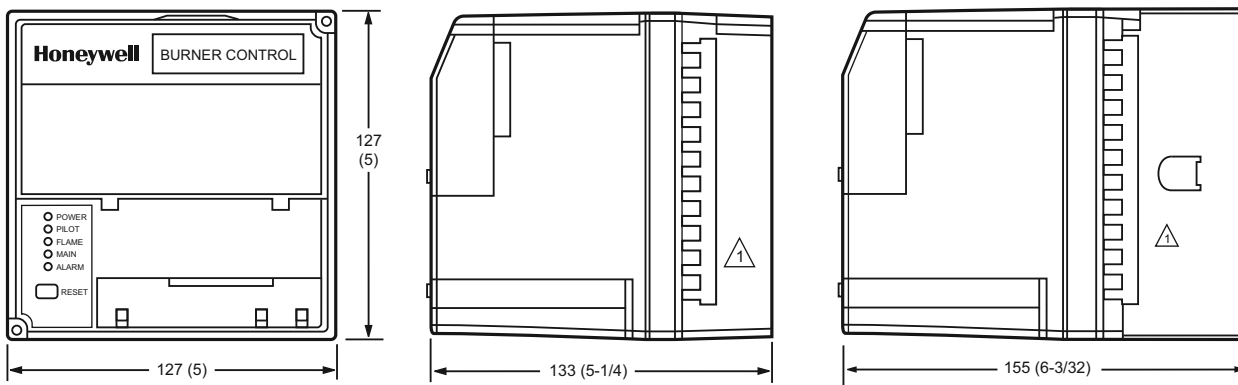
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information. Power LED blinks fault code on Lockout.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- RM7800 comes with S7800A1142 Keyboard Display Module.
- Keyboard required to setup Valve Proving Feature and change post purge time.

**Application:** Programming Control w/VPS  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Frequency:** 50 Hz; 60 Hz (±10%)  
**Pilot Type:** interrupted  
**Early Spark Termination:** Yes, 5 sec  
**Preignition:** Yes  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**PostPurge:** programmed with S7800A1142 display  
**AirFlow Check:** User selectable  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**  
**Federal Communications Commission:** FCC Part 15, Class B, Emissions.  
**Factory Mutual:** Report No. 1V9AO.AF.  
**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.  
**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
		Main	Pilot			
RM7800L1087	120 Vac (+10, -15%)	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	Includes S7800A1142 Display, LHL-LF&HF Proven

### Dimensions in millimeters (inches)



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MODULE WITH SUBBASE

MC15518A

# Microprocessor Burner Controls

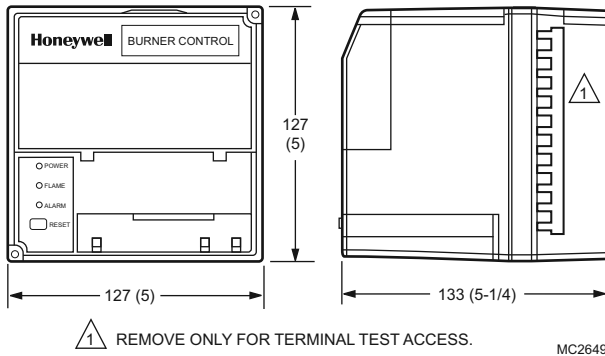
## RM7823; EC7823 Flame Switch



Microprocessor-based integrated flame switch for detecting a flame using rectification, ultraviolet (UV) or infrared (IR) source. Provides level of safety, functional capability and features beyond conventional controls.

- Can be fitted with any 7800 Series Amplifier to provide relay action from two single pole, double throw (SPDT) relays when flame is present or not present. RM7823A and EC7823 are a flame detector relays only.
- Suitable primary control must be used to provide safe-start check, safety lockout, load switching and other functions required in flame safeguard systems.
- Three LEDs to indicate power, flame and alarm.
- Access for external electrical voltage checks.
- Nonvolatile memory.
- Shutter drive output.
- Compatible with existing Honeywell flame detectors.

### Dimensions in millimeters (inches)



### Application: Flame Switch

**Dimensions, Approximate:** 127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase (5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase)

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**Weight:** 0.8 kg (1 lb 13 oz)

### Approvals:

**Factory Mutual:** Report No. OY0A9.AF.

**Swiss RE (formerly IRI):** Acceptable

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Comments	Approvals	
			Canadian Standards Association	Underwriters Laboratories, Inc.
EC7823A1004	220 to 240 Vac (+10, -15%)	Two SPDT outputs	—	—
RM7823A1016	120 Vac (+10, -15%)	Two SPDT outputs	Certified, File No. LR95329-3.	Component Recognized, File No. MP268; Guide No. MCCZ.

# Microprocessor Burner Controls

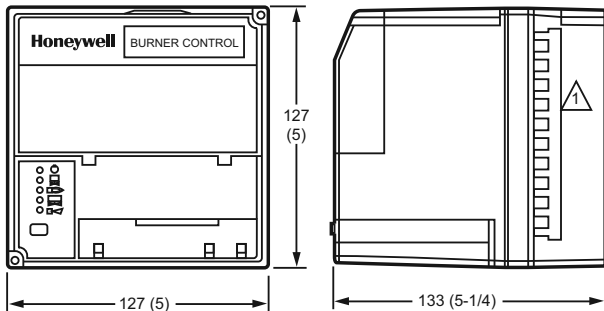
## RM7824 On-Off Primary Control



24 Vdc microprocessor-based integrated burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond the capacity of conventional controls.

- For use with R7824C Amplifier with C7024E,F Flame Detectors; R7848A,B with C7015A Flame Detectors; R7851B with C7927, C7962 Flame Detectors; or R7852A,B with C7915 Flame Detectors.
- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Five LEDs provide sequence information.
- Selectable recycle or lockout on loss of flame.
- Shutter drive output for use with dynamic self-check flame detectors.
- Access for external electrical voltage checks.
- Plug-in flame amplifier.
- Nonvolatile memory retains history files and lockout status after loss of power.

### Dimensions in millimeters (inches)



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**Application:** Primary Control 24 Vdc

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

### Flame Establishing Period

**Main:** Intermittent

**Pilot:** 4 sec or 10 sec

**Weight:** 0.8 kg (1 lb 13 oz)

### Approvals:

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7824 or R7848 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type
RM7824A1006	24 Vdc (+10, -15%)	intermittent



# Microprocessor Burner Controls

## RM7838A Manual Start Industrial Primary Control with Purge



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.

**Application:** Semi Automatic Primary Control with Purge  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**Interlocks:** Running

**Flame Establishing Period**  
**Main:** Intermittent  
**Pilot:** 4 sec or 10 sec  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Control Safety Devices:** Acceptable: CSD-1

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

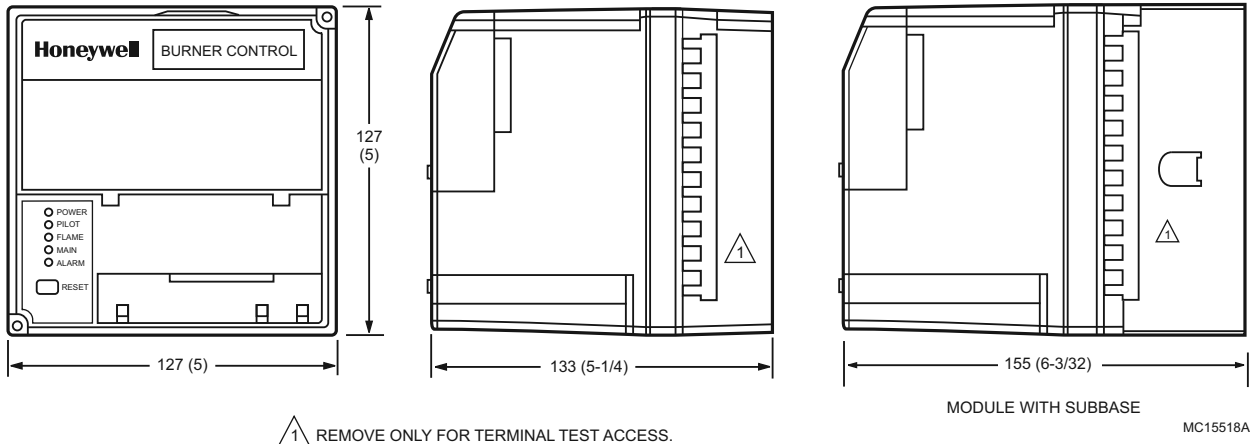
**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Comments
RM7838A1014	120 Vac (+10, -15%)	intermittent	Includes S7800 Display

**Dimensions in millimeters (inches)**



# Microprocessor Burner Controls

## RM7838B,C Manual Start Industrial Programmers

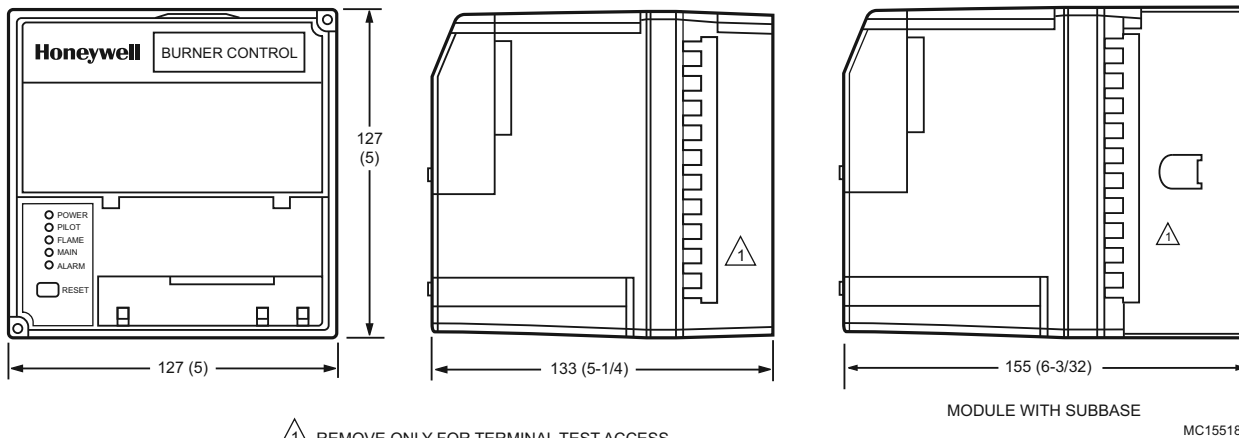


burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.

Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single

Dimensions in millimeters (inches)



**Application:** Semi Automatic Programming Control  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Frequency:** 50 Hz; 60 Hz (±10%)  
**Early Spark Termination:** Yes, 5 sec  
**Preignition:** Yes  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**Interlocks:** Lockout  
**Flame Establishing Period**  
**Main:** 10 sec or Intermittent  
**Pilot:** 4 sec or 10 sec  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**  
**Canadian Standards Association:** Certified, File No. LR95329-3.  
**Control Safety Devices:** Acceptable: CSD-1  
**Federal Communications Commission:** FCC Part 15, Class B, Emissions.  
**Factory Mutual:** Report No. OX4A5.AF  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.  
**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Comments	Gastec/European
RM7838B1013	120 Vac (+10, -15%)	interrupted	Includes S7800 Display	—
RM7838C1004	120 Vac (+10, -15%)	interrupted	Includes S7800 Display	—
RM7838C1020	120 Vac (+10, -15%)	interrupted	Includes S7800 Display	Gastec EN268 Report 1156791

# Microprocessor Burner Controls

## RM7838B,C Manual Start Industrial Programmers with VPS



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls. Includes Valve Proving Feature.

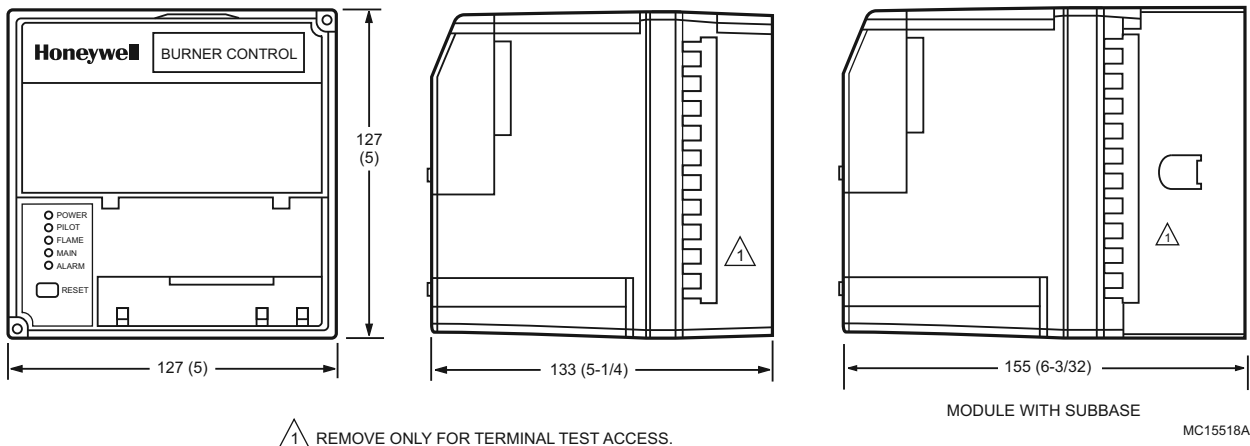
- Functions include purge, burner pilot startup, flame supervision, system status indication, system or self diagnosis and troubleshooting.
- Delays admission of fuel to combustion chamber until pilot flame has been proven and then monitors the flame through the run period while providing system status indication.
- Includes S7800A1142 Keyboard Display Module.
- Five LEDs provide sequence information.
- Intermittent pilot valve.
- Interchangeable plug-in flame amplifier.
- Access for external electrical voltage checks.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Selectable pilot flame establishing period.
- Provides application flexibility and optional communication interface capability.
- Compatible with existing Honeywell flame detectors.
- With Valve Proving Feature and Programmable Post Purge Time.
- Power LED blinks a fault code on system lockout.

**Application:** Semi Automatic Programming Control w/VPS  
**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)  
**Vibration:** 0.5 G environment  
**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )  
**Early Spark Termination:** Yes, 5 sec  
**Preignition:** Yes  
**PrePurge:** Determined by ST7800A Purge Timer Card  
**PostPurge:** programmed with S7800A1142 display  
**Flame Establishing Period**  
**Main:** 10 sec or Intermittent  
**Pilot:** 4 sec or 10 sec  
**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**  
**Control Safety Devices:** Acceptable: CSD-1  
**Federal Communications Commission:** FCC Part 15, Class B, Emissions.  
**Factory Mutual:** Report No. OX4A5.AF  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.  
**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Interlocks	Comments
RM7838B1021	120 Vac (+10, -15%)	interrupted	Lockout	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation
RM7838C1012	120 Vac (+10, -15%)	interrupted	Lockout	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation

### Dimensions in millimeters (inches)



REMOVE ONLY FOR TERMINAL TEST ACCESS.

# Microprocessor Burner Controls

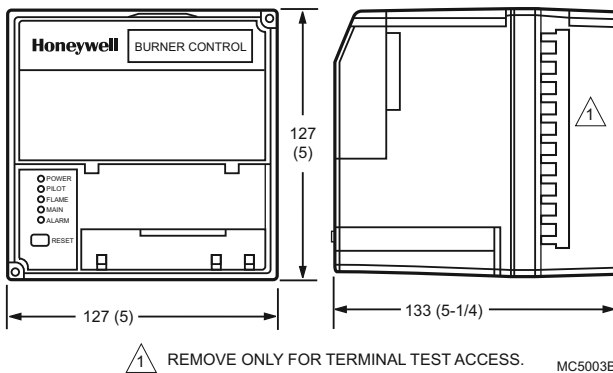
## RM7840 Programmers



**Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of RM7840 operation and fault information.
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.

### Dimensions in millimeters (inches)



**Application:** Programming Control

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Early Spark Termination:** Yes, 5 sec

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** 15 sec

**AirFlow Check:** User selectable

**Weight:** 0.8 kg (1 lb 13 oz)

### Approvals:

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Control Safety Devices:** Acceptable: CSD-1

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
			Main	Pilot			
RM7840E1016	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
RM7840G1014	120 Vac (+10, -15%)	interrupted	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	selectable	Running	LHL-LF Proven
RM7840L1018	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
RM7840L1026	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Lockout	LHL-LF&HF Proven
RM7840M1017	120 Vac (+10, -15%)	interrupted	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	On/Off-LF Proven

# Microprocessor Burner Controls

## RM7840 Programmings with VPS



RM7840G

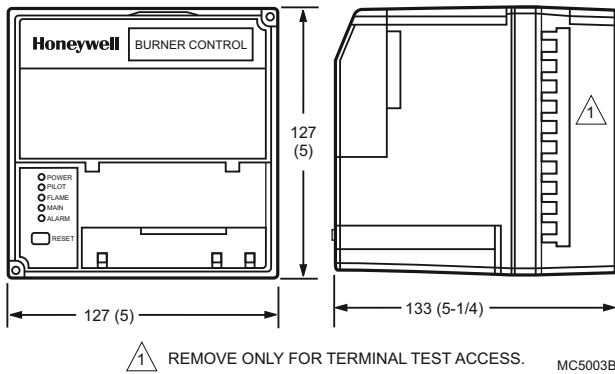


RM7840L

Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls. With Valve Proving Feature. RM7800L comes standard with S7800A1142 Keyboard Display.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble shooting.
- Access for external electrical voltage checks.
- Application flexibility and communication interface capability.
- Five LEDs provide sequence information. Power LED blinks fault code on Lockout.
- Five function Run/Test Switch.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information (optional).
- Nonvolatile memory retains history files and lockout status after loss of power.
- Compatible with existing Honeywell flame detectors.
- RM7800 comes with S7800A1142 Keyboard Display Module.
- Keyboard required to setup Valve Proving Feature and change post purge time.

### Dimensions in millimeters (inches)



**Application:** Programming Control w/VPS

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Early Spark Termination:** Yes, 5 sec

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**AirFlow Check:** User selectable

**Second Stage Pilot Valve:** selectable

**Weight:** 0.7 kg (1 lb 10 oz)

#### Approvals:

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. 1V9AO.AF.

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Interlocks	Comments
			Main	Pilot		
RM7840G1022	120 Vac (+10, -15%)	interrupted	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	Running	Requires S7800A1142 Display, LHL-LF Proven
RM7840L1075	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Lockout	Requires S7800A1142 Display, LHL-LF&HF Proven

# Microprocessor Burner Controls

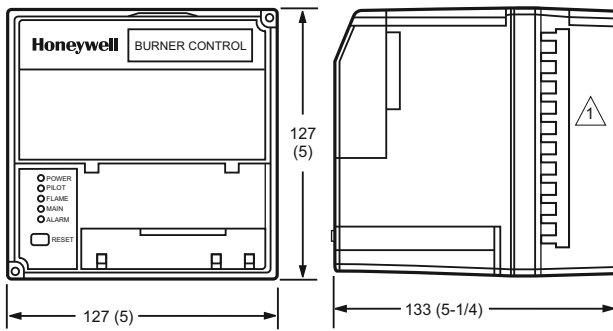
## RM7885; EC7885 Manual Start Industrial Primary Control



Microprocessor-based integrated burner control for industrial semi-automatically fired gas, oil, coal, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Adaptable to continuous firing, high-low or modulating firing rate for semi-automatic burner sequencing.
- Operates with the following: Torch-ignited main burner or torch-ignited pilot using S445A Start-Stop Station, or conventional knee or foot operated station.
- Direct-ignition oil burner or electrically ignited pilot, using S445A Start-Stop Station.
- Five LEDs provide sequence information.
- Nonvolatile memory.
- Flame signal check during standby.
- Shutter drive output.
- Compatible with existing Honeywell flame detectors.
- Terminal provided for external alarm to sound on flame failure.

### Dimensions in millimeters (inches)



REMOVE ONLY FOR TERMINAL TEST ACCESS. MC5003B

**Application:** Semi Automatic Primary Control

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Flame Establishing Period**

**Main:** Intermittent

**Pilot:** 15 min

**Weight:** 0.8 kg (1 lb 13 oz)

**Approvals:**

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Approvals:		
			Canadian Standards Association	Swiss RE (formerly IRI)	Underwriters Laboratories, Inc.
EC7885A1011	220 to 240 Vac (+10, -15%)	intermittent	—	—	—
RM7885A1015	120 Vac (+10, -15%)	intermittent	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.

# Microprocessor Burner Controls

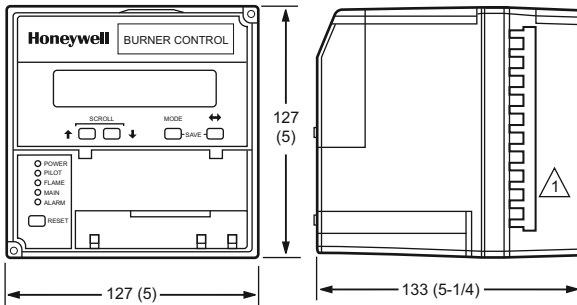
## RM7888 PLC Adaptable Primary Control



Microprocessor-based integrated burner control for industrial process semi-automatically fired gas, oil, coal, or combination fuels for single and multiple burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner startup sequencing, five user selectable run sequences, four line-voltage sequence control inputs, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Requires a relay module, subbase, and amplifier for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™MODULE, remote display mounting, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Use with master system control which determines purge timing and confirms air supply and air flow.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.

### Dimensions in millimeters (inches)



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MC9494

**Application:** Primary Control - PLC Adaptable

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**Flame Establishing Period**

**Main:** 15 sec

**Pilot:** 4 sec

**Weight:** 0.7 kg (1 lb 10 oz)

**Approvals:**

**Canadian Standards Association:** Certified

**Factory Mutual:** Approved.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Comments
RM7888A1019	120 Vac (+10, -15%)	selectable	Selectable sequences
RM7888A1027	120 Vac (+10, -15%)	selectable	For 10 sec DSI applications, selectable sequences

# Microprocessor Burner Controls

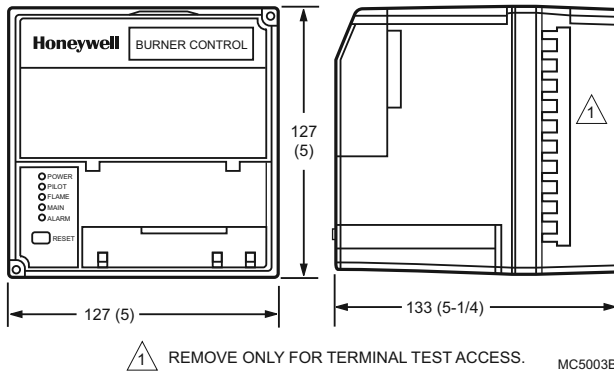
## RM7890 On-Off Primary Control with VPS



Microprocessor-based integrated primary burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Subbase and amplifier are required for operation.
- Power LED blinks Fault Code on lockout.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Contains Valve Proving Feature - require S7800A1142 Keyboard Display (not provided) to set up.

### Dimensions in millimeters (inches)



**Application:** On-Off Primary Control w/VPS

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**Preignition:** Yes

**Flame Establishing Period**

**Main:** Intermittent

**Pilot:** 4 sec or 10 sec

**Weight:** 0.8 kg (1 lb 13 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Comments
RM7890A1056	120 Vac (+10, -15%)	intermittent	Includes programmable VPS (Valve Proving Switch) check feature and blinking LED fault annunciation
RM7890B1048	120 Vac (+10, -15%)	intermittent	Includes Shutter Drive Capability, VPS (Valve Proving Switch) check and blinking LED fault annunciation



# Microprocessor Burner Controls

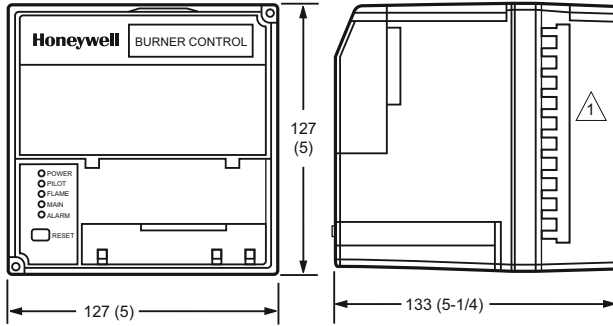
## RM7890; EC7890 On-Off Primary Controls



Microprocessor-based integrated primary burner control for automatically fired gas, oil or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self diagnostics and troubleshooting.
- Subbase and amplifier are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.

### Dimensions in millimeters (inches)



REMOVE ONLY FOR TERMINAL TEST ACCESS. MC5003B

**Application:** On-Off Primary Control

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**Weight:** 0.8 kg (1 lb 13 oz)

**Approvals:**

**Factory Mutual:** Report No. 1D0A1.AF†

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Comments	Approvals			
			Main	Pilot		Gastec/ European	Canadian Standards Association	Swiss RE (formerly IRI)	Underwriters Laboratories, Inc.
EC7890A1011	220 to 240 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	—	—	—	—
EC7890A1029	220 to 240 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	Gastec: CE- 63AP3070/1, Approved to EN298.	—	—	—
EC7890B1010	220 to 240 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability	—	—	—	—
RM7890A1015	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	—	—	Certified, File No. LR95329-3.	Acceptable	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7890A1031	120 Vac (+10, -15%)	intermittent	Intermittent	30 sec fixed	—	—			
RM7890B1014	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability	—			
RM7890B1030	120 Vac (+10, -15%)	intermittent	Intermittent	Fixed 4 sec or 10 sec PFEP	Includes Shutter Drive Capability, Alarm sounds when Reset pushed.	—			
RM7890B1055	120 Vac (+10, -15%)	intermittent	Intermittent	4 sec or 10 sec	Includes Shutter Drive Capability	Gastec EN268 Report 1156791	—	—	—
RM7890C1005	120 Vac (+10, -15%)	Standing Pilot	Intermittent	—	Standing Pilot Applications	—	—	—	—
RM7890D1004	120 Vac (+10, -15%)	intermittent	Intermittent	15 sec or 30 sec	Higher Flame Sensor Voltage for Infra Red Heater Applications	—	—	—	—

# Microprocessor Burner Controls

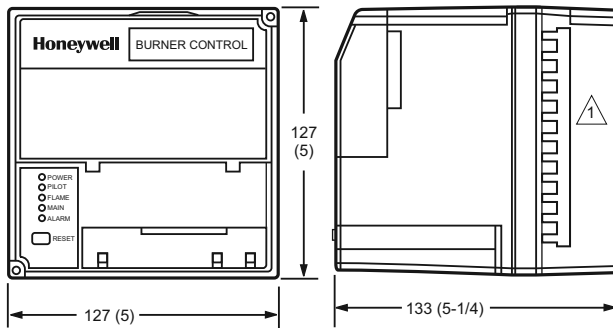
## RM7895; EC7895 On-Off Primary Control with Prepurge



Microprocessor-based integrated primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier, and prepurge timer are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Airflow switch check.

### Dimensions in millimeters (inches)



REMOVE ONLY FOR TERMINAL TEST ACCESS. MC5003B

**Application:** On-Off Primary Control with Prepurge

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**PrePurge:** Determined by ST7800A Purge Timer Card

**Interlocks:** Selectable

**Weight:** 0.9 kg (1 lb 15 oz)

**Approvals:**

**Factory Mutual:** Report No. 1D0A1.AF†

**Required Components:** Q7800A,B Universal Wiring Subbases.

R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	AirFlow Check	Flame Establishing Period		Delayed Main Valve	Comments	Used With	Approvals			
				Main	Pilot				Canadian Standards Association	Swiss RE (formerly IRI)	Control Safety Devices	Underwriters Laboratories, Inc.
EC7895A1010	220 to 240 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	—	7800 Series Amplifiers	—	—	—	—
EC7895C1000	220 to 240 Vac (+10, -15%)	interrupted	—	10 sec	4 sec or 10 sec	Yes	—	—	—	—	—	—
RM7895A1014	120 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	—	7800 Series Amplifiers	Certified, File No. LR95329-3.	Acceptable	Acceptable: CSD-1	Component Recognized, File No. MP268; Guide No. MCCZ.
RM7895A1048	120 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	Includes ignition cut-out during PFEP	—				
RM7895B1013	120 Vac (+10, -15%)	intermittent	Dynamic	Intermittent	4 sec to 10 sec	No	—	—				
RM7895C1012	120 Vac (+10, -15%)	interrupted	—	10 sec	4 sec or 10 sec	Yes	—	—				
RM7895C1020	120 Vac (+10, -15%)	interrupted	—	10 sec	10 sec	Yes	Includes ignition cut-out during PFEP	—				
RM7895D1011	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	—	—				
RM7895E1002	120 Vac (+10, -15%)	intermittent	—	Intermittent	15 sec or 30 sec	No	Higher Flame Sensor Voltage for Infra Red Heater Applications	R7847 only				
RM7895F1001	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	15 sec or 30 sec	Yes	—	—				

# Microprocessor Burner Controls

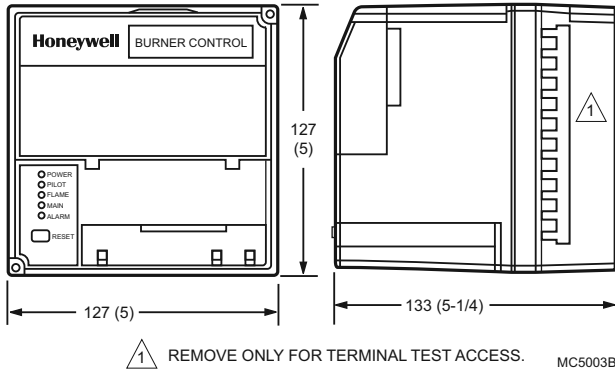
## RM7896 On-Off Primary Control with Pre- and Post-Purge



Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- 15 second postpurge.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Delayed main valve.

### Dimensions in millimeters (inches)



**Application:** On-Off Primary Control with Pre and Post purge

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**PrePurge:** Determined by ST7800A Purge Timer Card

**Interlocks:** Selectable

**Weight:** 0.9 kg (1 lb 15 oz)

### Approvals:

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	AirFlow Check	Flame Establishing Period		Delayed Main Valve	PostPurge	Comments
				Main	Pilot			
RM7896A1012	120 Vac (+10, -15%)	intermittent	—	Intermittent	4 sec or 10 sec	No	15 sec	Includes Pre- and Post -Purge.
RM7896B1011	120 Vac (+10, -15%)	intermittent	Dynamic	Intermittent	4 sec or 10 sec	No	15 sec	Includes Pre- and Post -Purge.
RM7896C1010	120 Vac (+10, -15%)	interrupted	—	10 sec	4 sec or 10 sec	Yes	15 sec	Includes Pre- and Post -Purge.
RM7896D1019	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	15 sec	Includes Pre- and Post -Purge.
RM7896D1027	120 Vac (+10, -15%)	interrupted	Dynamic	10 sec	4 sec or 10 sec	Yes	60 sec	Blinking Fault code LED, early spark termination when flame sensed, pre and post purge

# Microprocessor Burner Controls

## RM7897 Automatic Primary Control with Programmable Post-Purge



**Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls. Along with Programmable Post Purge.**

**Application:** On-Off Primary Control with Pre and Programmable Post purge

**Dimensions, Approximate:** 127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase (5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase)

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz (±10%)

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**Interlocks:** Selectable

**Flame Establishing Period**

**Pilot:** 4 sec or 10 sec

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Five LEDs provide sequence information. Power LED blinks fault code on Safety Shutdown.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Delayed main valve.
- Programmable post purge using S7800A1142 Keyboard Display (not provided).

**Weight:** 0.9 kg (1 lb 15 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Control Safety Devices:** Acceptable: CSD-1

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Delayed Main Valve	Comments	Used With
RM7897A1002	120 Vac (+10, -15%)	selectable	—	Includes blinking LED fault annunciation feature	7800 Series Amplifiers
RM7897C1000	120 Vac (+10, -15%)	selectable	Yes	Includes blinking LED fault annunciation feature	7800 Series Amplifiers

# Microprocessor Burner Controls

## RM7898 On-Off Primary Control with VPS



**Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls. Include Programmable Post Purge and Valve Proving Feature.**

**Application:** On-Off Primary Control w/VPS

**Dimensions, Approximate:** 127 mm wide x 127 mm high x 133 mm deep with Q7800A Subbase x 155 mm deep with Q7800B Subbase (5 in. wide x 5 in. high x 5 1/4 in. deep with Q7800A Subbase x 6 3/32 in. deep with Q7800B Subbase)

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** programmed with S7800A1142 display

**Interlocks:** Selectable

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier and purge card are required for operation.
- Options include PC interface, keyboard display module, DATA CONTROLBUS™ MODULE, remote display module, first-out expanded annunciator, and COMBUSTION SYSTEM MANAGER™ software.
- Programmable postpurge.
- Five LEDs provide sequence information. Power LED Blinks Fault code on safety shutdown.
- Interchangeable plug-in flame amplifiers.
- Local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable recycle or lockout on loss of airflow or flame.
- Shutter drive output.
- Airflow switch check.
- Programmable post purge and Valve Proving feature with S7800A1142 Keyboard Display (not supplied).

### Flame Establishing Period

**Pilot:** 4 sec or 10 sec

**Weight:** 0.9 kg (1 lb 15 oz)

### Approvals:

**Canadian Standards Association:** Pending

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. OX4A5.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** Q7800A,B Universal Wiring Subbases. R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800A Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Comments	Used With
RM7898A1000	120 Vac (+10, -15%)	selectable	Includes blinking LED fault annunciation feature	7800 Series Amplifiers
RM7898A1018	120 Vac (+10, -15%)	selectable	Includes blinking LED fault annunciation feature, with early spark termination	7800 Series Amplifiers

# Microprocessor Burner Controls

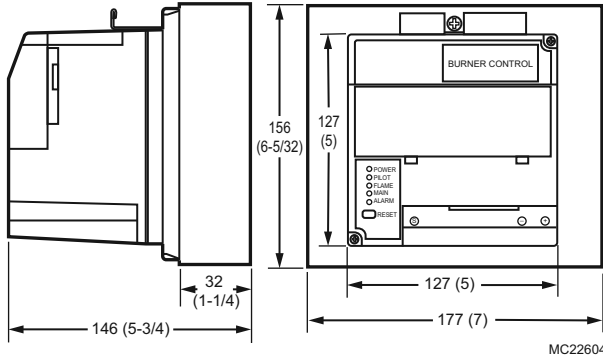
## R7140 Programmers



The Honeywell R7140G, L, M Burner Control Modules are microprocessor-based integrated burner control for automatically fired gas, oil or combination fuel single burner applications.

- Functions provided by the R7140G,L,M include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Upgrade replacement for BC7000 or R4140 legacy Programmer controls.
- Require ST7800 Purge Timer and appropriate R78XX Amplifier to complete the replacement.

### Dimensions in millimeters (inches)



**Application:** Upgrade Replacement Programming Control for R4140 or BC7000

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Frequency:** 50 Hz; 60 Hz ( $\pm 10\%$ )

**Early Spark Termination:** Yes, 5 sec

**Preignition:** Yes

**PrePurge:** Determined by ST7800A Purge Timer Card

**PostPurge:** 15 sec

**Interlocks:** Running

**AirFlow Check:** User selectable

**Weight:** 1.4 kg (3 lb 1 oz)

### Approvals:

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

**Required Components:** R7847, R7848, R7849, R7851, R7852, R7861, or R7886 Flame Signal Amplifier. ST7800 Plug-in Purge Timer Card.

Product Number	Voltage	Pilot Type	Flame Establishing Period		Second Stage Pilot Valve	Interlocks	Comments
			Main	Pilot			
R7140G1000	120 Vac (+10, -15%)	Interrupted or Intermittent	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	selectable	Running	LHL-LF Proven
R7140G2008	120 Vac (+10, -15%)	Interrupted or Intermittent	10 sec, or 15 sec, or 30 sec, or Intermittent	4 sec or 10 sec	—	Running	LHL-LF Proven
R7140L1009	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
R7140L2007	120 Vac (+10, -15%)	interrupted	10 sec or 15 sec	4 sec or 10 sec	Interrupted	Lockout	LHL-LF&HF Proven
R7140M1007	120 Vac (+10, -15%)	Interrupted or Intermittent	10 sec or Intermittent	4 sec or 10 sec	Intermittent	Running	On/Off-LF Proven

# Microprocessor Burner Controls

## S7830 First Out Expanded Annunciator



Microprocessor-based expanded annunciator to support the 7800 SERIES relay modules for first-out annunciation, sequencing, system or self-diagnostics and troubleshooting.

- Twenty-six status LEDs.
- Front panel LED array-arranged to indicate flow of line-voltage through string of limits, controls and interlocks.
- Selectable current and first-out LED array display status.
- Twenty-one monitored contact points.
- Access for external electrical voltage checks.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Voltage:** 120 Vac (+10, -15%)

**Frequency:** 50 Hz; 60 Hz (±10%)

**Weight:** 0.62 kg (1 lb 6 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329.

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. 1V9AO.AF.

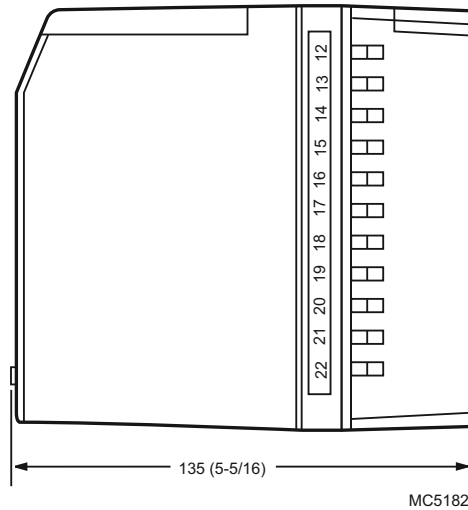
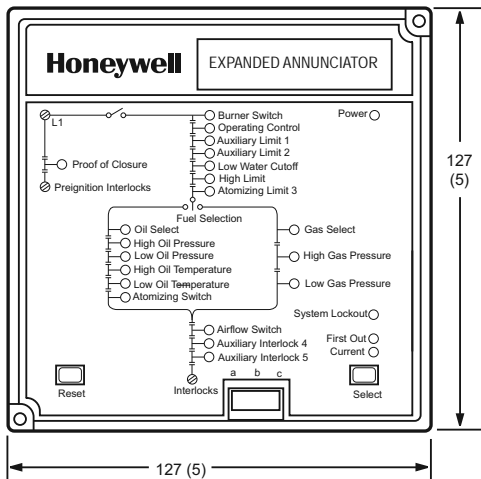
**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MH17367; Guide No. MJAT.

**Required Components:** 7800 Series Relay Modules and Q7800A, B Subbases

Product Number	Application
S7830A1005	Expanded Annunciator

Dimensions in millimeters (inches)



# Microprocessor Burner Controls

## Q7800 22 Terminal Universal Wiring Subbases



Q7800F



Q7800B



Q7800A

Burner, panel or wall mount subbases for 7800 SERIES relay modules and S7830A Expanded Annunciator.

- Makes electrical connections for 7800 SERIES relay modules or S7830A Expanded Annunciator through bifurcated contacts.
- Provides terminals for field wiring.
- Twenty-two terminals.

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.20 kg (7 oz)

**Approvals:**

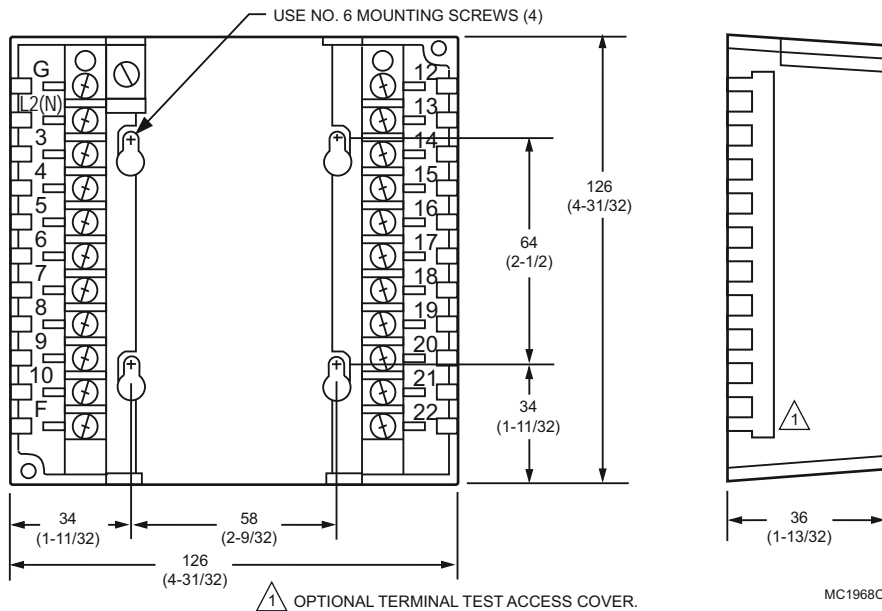
**Canadian Standards Association:** Certified, File No. LR95329-3.

**Underwriters Laboratories, Inc.** Component Recognized, File No.

MP268; Guide No. MCCZ2.

Product Number	Application	Comments	Used With
Q7800A1005	Wiring Subbase	Panel mount	—
Q7800B1003	Wiring Subbase	Burner/wall mount 2 knockouts each end	—
Q7800B1011	Wiring Subbase	Burner/wall mount 3 knockouts each end	—
Q7800F1004	Wiring Adapter Subbase	Burner/wall mount adapter subbase for RA890	RM7890
Q7800F1012	Wiring Adapter Subbase	Burner/wall mount adapter subbase for R4795	RM7895

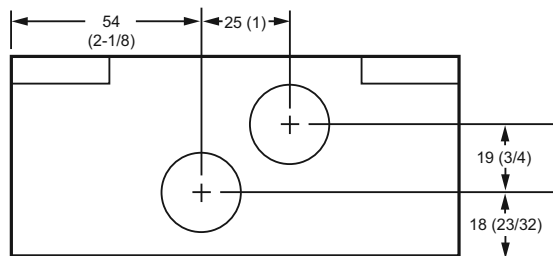
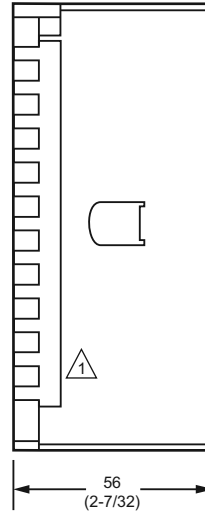
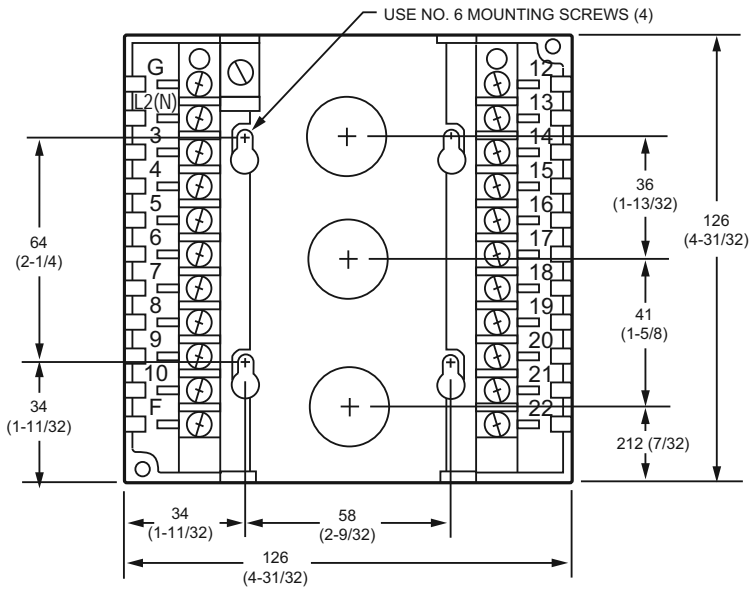
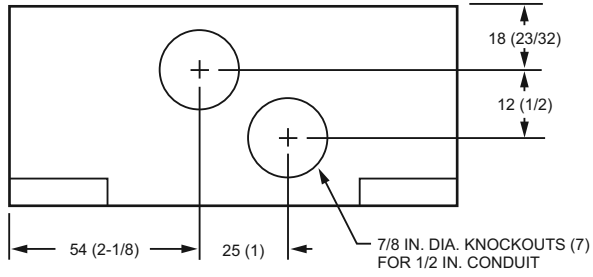
### Dimensions in millimeters (inches)






# Microprocessor Burner Controls

Dimensions in millimeters (inches)



 REMOVE ONLY FOR TERMINAL TEST ACCESS.

MC1966B

# Microprocessor Burner Controls

## S7800 Keyboard Display Module



**Application:** Keyboard Display

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.11 kg (4 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.**

- Application flexibility.
- First-out annunciation and system diagnostics provided by 2 row by 20 column Vacuum Fluorescent Display (VFD).
- S7800A1001 offers "Call Service" (Business Card) programmable message displayed when system lockout occurs.
- S7800A1001 series 5 and greater has selectable ModBus Feature.
- Local or remote annunciation of operation and fault information.
- First out expanded annunciation with 24 limit and interlock LEDs enhances keyboard display module information.
- Remote reset.

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

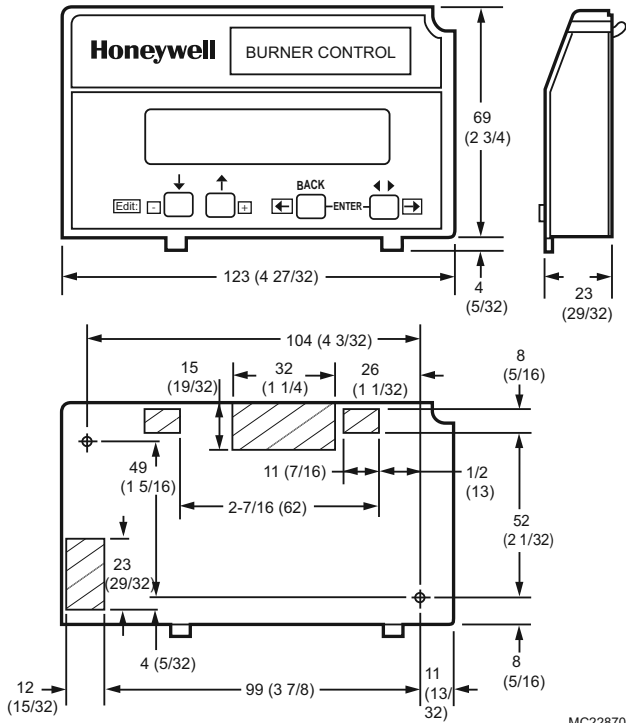
**Factory Mutual:** Report No. 1V9AO.AF.

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

Product Number	Voltage	Comments
S7800A1001	13 Vdc peak fullwave rectified (+20/-15%).	English Language
S7800A1035	13 Vdc peak fullwave rectified (+20/-15%).	French Language
S7800A1043	13 Vdc peak fullwave rectified (+20/-15%).	German Language
S7800A1050	13 Vdc peak fullwave rectified (+20/-15%).	Italian Language
S7800A1068	13 Vdc peak fullwave rectified (+20/-15%).	Spanish Language
S7800A1126	13 Vdc peak fullwave rectified (+20/-15%).	Portuguese Language

**Dimensions in millimeters (inches)**



MC22870

# Microprocessor Burner Controls

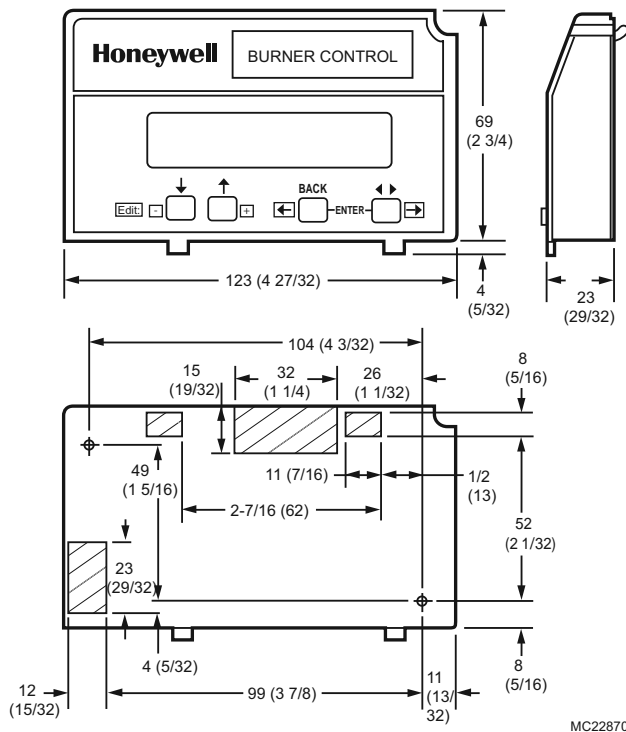
## S7800 Keyboard Display Module for VP Programming



Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.

- Application flexibility.
- First-out annunciation and system diagnostics provided by 2 row by 20 column Vacuum Fluorescent Display (VFD).
- "Call Service" (Business Card) programmable message displayed when system lockout occurs.
- Local or remote annunciation of operation and fault information.
- First out expanded annunciation with 24 limit and interlock LEDs enhances keyboard display module information. Display can be Programmed to customize the expanded annunciator messages to the system.
- Required to program Valve Proving and Post Purge feature on selected 7800 Series devices.
- Can be setup for ModBus Communication.
- Provides burner controller data.
- Remote reset.

Dimensions in millimeters (inches)



**Application:** Keyboard Display for VP setup

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.11 kg (4 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Federal Communications Commission:** FCC Part 15, Class B, Emissions.

**Factory Mutual:** Report No. 1V9AO.AF.

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ.

Product Number	Voltage	Comments
S7800A1142	13 Vdc peak fullwave rectified (+20/-15%).	English Language, Capable of displaying special "Call Service" messages, allows setup of S7830A1005 Expanded Annunciator messages, used for VPS programming, and programming Post Purge on select 7800 Devices

# Microprocessor Burner Controls

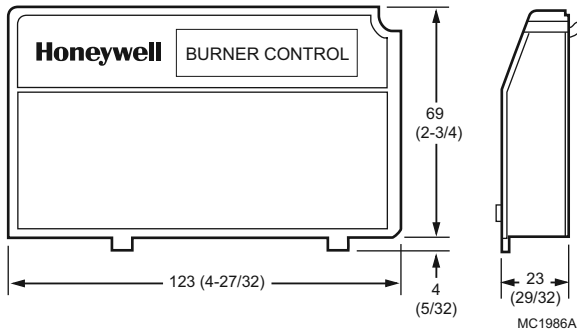
## S7810A Data ControlBus Module



**Supports remote mounting of S7800 Keyboard Display Module, personal computer communications interface and remote reset.**

- Use with remotely mounted S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides communications bus interface and remote reset.

Dimensions in millimeters (inches)



**Application:** ControlBus™ Module

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.11 kg (4 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Factory Mutual:** Report No. 1V9AO.AF.

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Voltage	Comments
S7810A1009	13 Vdc peak fullwave rectified (+20/-15%).	Includes 203541 5-wire Connector

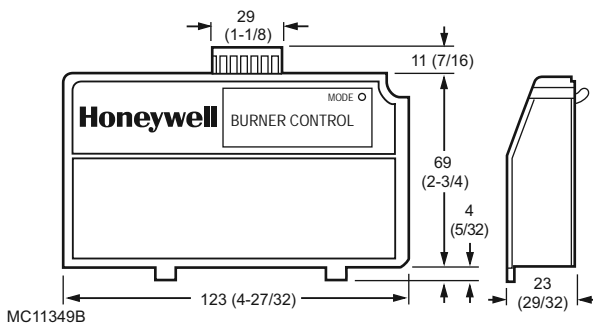
## S7810B Multi-Drop Switch Module



**S7810B Multi-Drop Switch Module primarily used for communications interface for multiple 7800 SERIES subnetworks.**

- Provides ability to remotely mount S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides communications bus interface and remote reset.

Dimensions in millimeters (inches)



**Application:** ControlBus™ Module

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.11 kg (4 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Factory Mutual:** Report No. 1V9AO.AF.

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Voltage	Comments
S7810B1007	13 Vdc peak fullwave rectified (+20/-15%).	Includes 208727 8 pin electrical connector

# Microprocessor Burner Controls

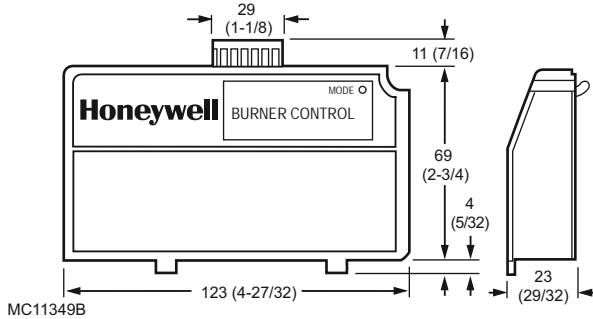
## S7810M ModBus Module



**S7810M ModBus Module operates as ModBus RTU slave device.**

- Provides ability to remotely mount the S7800 Keyboard Display Module.
- Installs directly on the front of 7800 SERIES Relay Modules.
- Provides ModBus communications bus interface.
- Remote reset.

Dimensions in millimeters (inches)



**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.11 kg (4 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Factory Mutual:** Report No. 1V9AO.AF.

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Application	Voltage	Comments	Gastec/European
S7810M1003	ControlBus™ Module-MODBUS	13 Vdc peak fullwave rectified (+20/-15%).	Includes 208727 8 pin electrical connector	—
S7810M1029	ControlBus™ Module-MODBUS - CE Certified (no reset allowed)	13 Vdc peak fullwave rectified (+20/-15%).	Includes 208727 8 pin electrical connector	Gastec EN268 Report 1156791

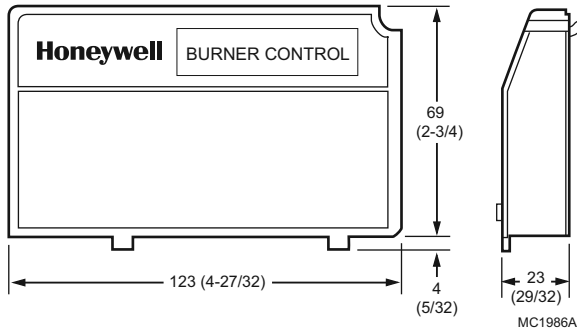
## S7820 Remote Reset Module



**Serves as link between remote reset pushbutton and relay module. Allows 7800 SERIES relay module to be reset from a remote location.**

- Reset button can be installed up to 1000 feet away.
- Installs directly on the front of 7800 SERIES relay module.

Dimensions in millimeters (inches)



**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Vibration:** 0.5 G environment

**Weight:** 0.09 kg (3 oz)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR95329-3.

**Factory Mutual:** Report No. 1V9AO.AF

**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Application	Comments
S7820A1007	Remote Reset Module	Includes 203541 5-wire Connector

# Microprocessor Burner Controls

## ST7800 Plug In Purge Timer



Provides the prepurge timing for select 7800 SERIES relay modules. ST7800C used with the RM7838C only.

**Application:** Purge Timer  
**PrePurge:** 2 seconds

**Approvals:**  
**Canadian Standards Association:** Certified, File No. LR95329-3.  
**Factory Mutual:** Approved: Report No. 2X0A1.AF.  
**Underwriters Laboratories, Inc.** Component Recognized, File No. MP268; Guide No. MCCZ2.

Product Number	Application	PrePurge
ST7800A1005	Purge Timer	2 seconds
ST7800A1013	Purge Timer	7 seconds
ST7800A1021	Purge Timer	10 seconds
ST7800A1039	Purge Timer	30 seconds
ST7800A1047	Purge Timer	40 seconds
ST7800A1054	Purge Timer	60 seconds
ST7800A1062	Purge Timer	90 seconds
ST7800A1070	Purge Timer	2.5 minutes
ST7800A1088	Purge Timer	4.0 minutes
ST7800A1096	Purge Timer	6.0 minutes
ST7800A1104	Purge Timer	9.0 minutes
ST7800A1112	Purge Timer	12.0 minutes
ST7800A1120	Purge Timer	15.0 minutes
ST7800A1138	Purge Timer	22.0 minutes
ST7800A1146	Purge Timer	30.0 minutes
ST7800C1003	Purge Timer for RM7838C Only	7 seconds
ST7800C1011	Purge Timer for RM7838C Only	20 seconds
ST7800C1029	Purge Timer for RM7838C Only	4.0 minutes
ST7800C1037	Purge Timer for RM7838C Only	6.0 minutes
ST7800C1045	Purge Timer for RM7838C Only	8.0 minutes

## 7800 Series Accessories or Parts

Product Number	Application	Description	Comments	Used With
203541	Accessory or Replacement Part	Five Wire Connector for S7800 Display	—	S7800 Display
203765	Accessory or Replacement Part	Remote Mounting Bracket for S7800 Display (wall mounting)	Includes 203541 5-wire Connector	S7800 Display
204718A	Accessory or Replacement Part	Nema 4 Cover Assembly for Panel Mounting S7800 Display (series 1-4 models)	Includes 203541 5-wire Connector	S7800 Display
204718B	Accessory or Replacement Part	Nema 1 Cover Assembly for Panel Mounting S7800 Display (series 1-4 models)	Includes 203541 5-wire Connector	S7800 Display
204718C	Accessory or Replacement Part	Nema 4 Cover Assembly with Reset Button for Panel Mounting S7800 Display (series 1-4 models)	Includes 203541 5-wire Connector	S7800 Display
205321B	Accessory or Replacement Part	Mounting Bracket - Flush Mounting the S7800 Display	Includes 203541 5-wire Connector	S7800 Display
206311	Accessory or Replacement Part	Carrying Case for S7800 Display	Carrying Case for S7800 Display	S7800 Display
221729A	Dust Cover for 7800 Relay Modules - Honeywell Logo	Dust Cover for 7800 Relay Modules - Honeywell Logo	—	7800 Relay Modules
221818A	Accessory or Replacement Part	Display Extension Cable - 60 inches for S7800 Display	—	S7800 Display
221818C	Accessory or Replacement Part	Display Extension Cable - 120 inches (10 foot) for S7800 Display	—	S7800 Display
50023821-002	Accessory or Replacement Part	Nema 4 Cover Assembly with Reset Button for Panel Mounting Series 5 S7800 Display	Includes 203541 5-wire Connector	S7800 Display

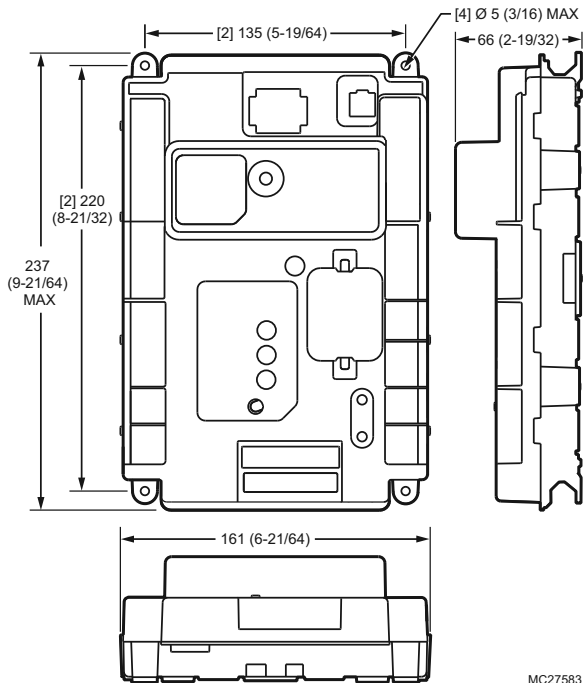
## SOLA™ Hydronic Control



The R7910A SOLA HC is a hydronic boiler control system that provides heat control, flame supervision, circulation pump control, fan control, boiler control, and electric ignition function. It will also provide boiler status and error reporting.

- Frost Protection, Slow Start, Anti-condensate, Boiler Delta-T, Stack Limit, Boiler Limit, DHW Limit, Outlet T-Rise Limit
- Primary Flame Safeguard Control
- Internal or external spark generator.
- Analog NTC Sensor Inputs (10kohm or 12kohm).
- Other Analog Inputs
- PID Load Control
- Digital Inputs
- Digital Outputs
- Analog Outputs
- Algorithm Prioritization
- Two Temperature Loops of Control
- High Limit Control-CH, DHW, & Stack (Meets UL 353) using dual 10kohm NTC sensors.
- Fifteen Item Fault Code History including equipment status at time of lockout
- Fifteen Item Alert Code Status including equipment status at time of internal alerts
- 24Vac Device Power
- 24 or 120Vac Digital I/O models available.
- Flame Signal test jacks (Vdc)
- Three Status LEDs.
- UV or Flame rod Flame Sensing.

### Dimensions in millimeters (inches)



**Application:** Hydronic

**Enclosure Rating:** NEMA I/IP 40

**Comments:** Includes Programmable features

**Frequency (Hz):** 60 Hz ± 5%

**Flame Sensor Type:** FR/UV

**Approvals:**

**Control Safety Devices:** Acceptable

**Federal Communications Commission:** Part 15, Class B Emissions

**Underwriters Laboratories, Inc.** UL, cUL Component File No. MH20613 (MCCZ)

Product Number	Modulation Output			Load Voltage	Operating Voltage	Comments
	(0-10 Vdc)	(4-20 mA)	(PWM)			
R7910A1001	Yes	Yes	Yes	24 Vac	24 Vac	Includes Programmable features
R7910A1027	Yes	Yes	Yes	120 Vac	24 Vac	Includes Programmable features

# SOLA™ Displays

## S7910 SOLA™ Keyboard Display

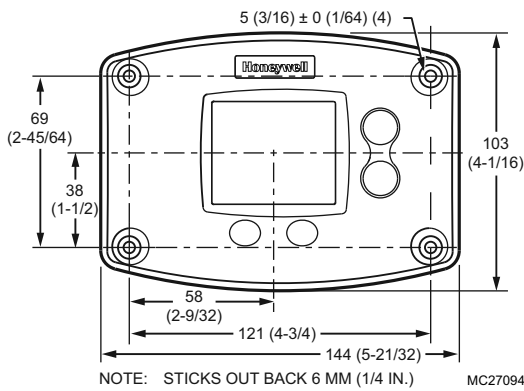


The S7910 Local Keyboard display interface provides setpoint and control adjustments to parameters of the R7910 SOLA Hydronic Control. All data is displayed on an LCD with backlight. The S7910 has four function buttons. The function of the bottom two buttons varies according to the operation mode and screen displayed. The

right two buttons are used to adjust settings and navigate up and down the displayed data.

- Burner control state, sequence
- Rate control manual adjustment
- Lockout code
- Alert and Hold Reason
- CH, CH TOD, DHW, and DHW TOD set points
- Communication interface with R7910.
- First out and system status and diagnostics provided through the LCD.
- Local communication of operation and fault information.
- Control DHW, Inlet, Outlet, Delta T (Outlet-Inlet), and Stack Temperatures
- Set-up
- Diagnostics
- Blue, includes (future feature: TOD), only "talks" to Commercial R7910A, Flame Signal Vdc, pilot hold function, screw mounting

### Dimensions in millimeters (inches)



**Ambient Temperature Range:** 0 C to 49 C (32 F to 120 F)  
**Temperature Range, Storage:** -51 C to +66 C (-60 F to +150 F)  
**Operating Humidity Range (% RH):** 85% relative humidity continuous, noncondensing  
**Weight:** 124 g (4 oz)

**Approvals:**  
**Federal Communications Commission:** Part 15, Class B emissions.  
**Underwriters Laboratories, Inc.** Listed: File No. MH20613 (MCCZ)  
**Canadian Underwriters Laboratories, Inc.** Listed: File No. MH20613 (MCCZ)

Product Number	Description	Electrical Ratings	Vibration	Used With
S7910A1008	Keyboard Display Module	24 VAC powered from R7910A/R7911A	0.5G environment	R7910/R7911



## S7999B SOLA™ System Operator Interface

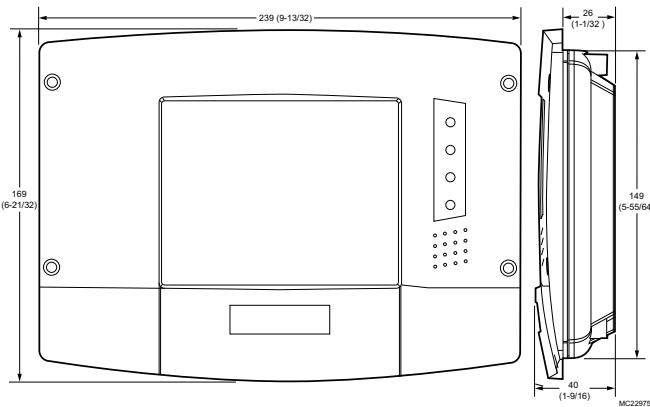


The S7999B is a four color touch-screen display module that provides operator interface for monitoring and configuring parameters in the R7910 SOLA Hydronic or the R7911 SOLA Steam system.

The S7999B is flush mounted into a panel cutout (8-1/8 in. W x 5-7/8 in. H). Wiring connections to the S7999B are through a removable 9-pin wiring header.

- Individual and multiple boiler status, configuration, history, diagnostics, and trend analysis.
- Allows configuration and monitoring of the R7910 SOLA Hydronic or the R7911 SOLA Steam system.
- Allows monitoring of the R7910/R7911 burner control sequence, flame signal, diagnostics, historical files, and faults.
- Allows switching view between multiple boilers.
- Allows for lead/lag commissioning (future enhancement).
- Locates up to 8 attached boilers.
- Allows boiler naming.
- System trend analysis.
- Color 3.5 in. x 4.625 in. (5.7 in. diagonal) user interface display.
- Touch screen.
- Two communication ports
- LED indicators
- Touch screen disable for screen cleaning.
- 12 Vdc power supply (included).
- Screen saver.
- Contrast control.
- Volume control.
- Real-time data trending analysis.
- Graphic user interface.

### Dimensions in millimeters (inches)



**Ambient Temperature Range:** -10 C to 50 C (14 F to 122 F)  
**Temperature Range, Storage:** -25 C to 60 C (-13 F to 155 F)  
**Operating Humidity Range (% RH):** 85% RH continuous, non-condensing

### Approvals:

**Federal Communications Commission:** FCC Part 15, Class A digital device

**Underwriters Laboratories, Inc.** Component Recognized: File Number MH20613 (MCCZ)

**Canadian Underwriters Laboratories, Inc.** Component Recognized: File Number MH20613 (MCCZ)

### Accessories:

**50036684** Enclosure for S7999B Display

Product Number	Electrical Ratings	Description	Includes	Used With
S7999B1026	+12 Vdc input, maximum of 500 mA current drain	System Operator Interface with Blue Plastic Border	25W power supply with Inputs: 85 to 264 Vac, 47-63 Hz; 120 to 370 Vdc and Output: 12 Vdc; 0 to 2.1 A	R7910/R7911

# SOLA™ Displays

## S7999C SOLA™ Local Operator Interface



The S7999C is a four color touch-screen display module that provides an operator interface for monitoring and configuring parameters in the R7910 SOLA Hydronic or R7911 SOLA Steam system. The S7999C is flush mounted onto a panel by means of a

**Dimensions, Approximate:** 181 mm wide x 127 mm high x 32 mm deep (7-1/8 in. wide by 5 in. high by 1-1/4 in. deep)

**Ambient Temperature Range:** -10 C to 50 C (14 F to 122 F)

**Temperature Range, Storage:** -25 C to 60 C (-13 F to 155 F)

**Operating Humidity Range (% RH):** 85% RH continuous, non-condensing

mounting plate. Wiring connections to the S7999C are through a 4-pin wiring header.

- Individual boiler status, configuration, history, and diagnostics.
- Allows configuration and monitoring of the R7910 SOLA Hydronic or R7911 SOLA Steam system burner control sequence, flame signal, diagnostics, historical files, and faults.
- Locates attached boiler.
- Allows boiler naming.
- Color 3.5 in. x 4.625 in. (5.7 in. diagonal) user interface display.
- Touch screen.
- LED indicators
- Touch screen disable for screen cleaning.
- 12 Vdc power supply (included).
- Screen saver.
- Contrast control.
- Volume control.
- Includes power supply.
- Graphic user interface.

**Approvals:**

**Federal Communications Commission:** FCC Part 15, Class A digital device

**Underwriters Laboratories, Inc.** Component Listed

Product Number	Electrical Ratings	Description	Used With
S7999C1008	+12 Vdc input	Local Operator Interface with White plastic border	R7910/R7911
S7999C1040	+12 Vdc input	Local Operator Interface	R7910/R7911

## PM7910 Program Module



The PM7910 Program Module is an optional plug-in device for the R7910 SOLA HC (Hydronic Control) and R7911 SOLA SC (Steam Control). From the system level the S7999 System Operator Interface can direct the R7910/R7911 to transfer or retrieve parameter information with the Program Module.

- Can be removed or installed while the R7910 or R7911 is powered.
- Facilitate multiple controller setups.
- Backup and restore the R7910 programmable data including:
  - Non-safety parameter values
  - Parameter Control Blocks (information on how the parameter values may be modified)

**Comments:** Indicator LEDs - One (Status LED) Blinking LED indicated the Program Module is properly seated and powered from the R7910/R7911.

Product Number	Application	Description
PM7910A1013	Support backup and restore	Program Module

## SOLA Accessories or Parts

Product Number	Application	Description
32003971-002	Single element sensor with 6 in. Leadwire with Socket	Sensor with 6 in. Leadwire with Socket
32003971-003	Single element sensor with 42 in. leadwires, includes wire nuts (2), #8 mounting screws (3), anchors (2), sensor clip (1), tie strap (2)	Sensor with 6 in. Leadwire with Socket
50001464-006	Dual Element Sensor with 6 in. leadwires with Female Socket	Sensor with 6 in. Leadwire with Socket
50001464-007	Dual Element Sensor with 42 in. leadwires without connector	Sensor with 6 in. Leadwire with Socket
50032893-001	Bag of connectors for R7910 and R7911 Controllers	Bag of connectors for R7910 and R7911 Controllers

# ControlLinks® Fuel Air Control System

## R7999A ControlLinks Fuel Air Controller

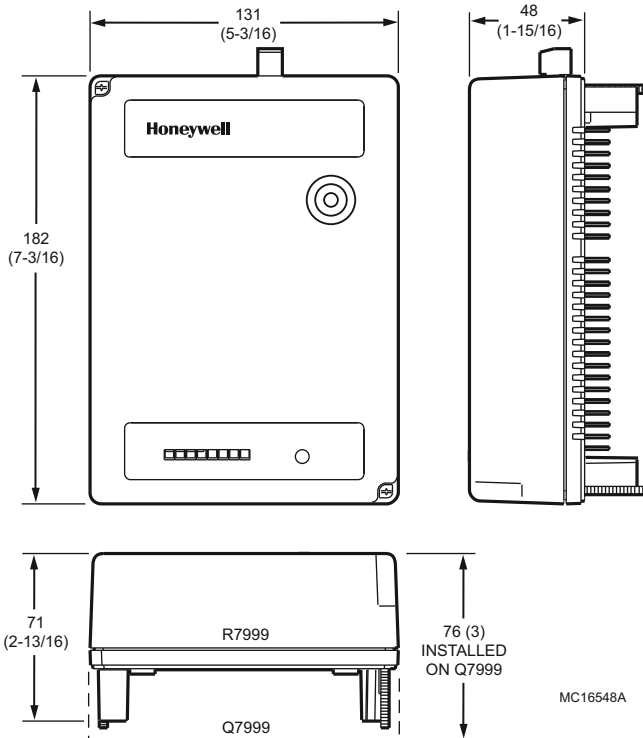


Uses microprocessor-based technology to control the ML7999 Universal Parallel Positioning Actuators. This represents a value-added replacement of mechanical cam and linkage assembly controlling the relationship between fuel, airflow and flue gas recirculation (if used) on a power burner. The ControlLinks™ Fuel Air Control System consists of the R7999 Fuel Air Controller, Q7999 Wiring Subbase, ML7999 Universal Parallel Positioning Actuator and ZM7999 Configuration Software. The R7999, with one

communications port, provides communications capabilities similar to those found in the 7800 SERIES controls.

- Fast burner setup via PC or laptop.
- Fuel, air, FGR profile download capability.
- Two independent fuel profiles with or without FGR.
- 7 to 24 point profiles.
- Programmable behaviors of all actuators during Purge and Standby.
- Programmable behavior of non-selected fuel actuator.
- Independent light off and minimum modulation positions.
- Wide power voltage input range (100 to 120 Vac, 50/60 Hz). Auto/Manual input.
- Manual mode firing rate input.
- Pluggable controller to wiring subbase.
- Multipurpose communications port.
- Field-configurable device.
- Integrated boiler shock protection algorithms: Water temperature low fire hold.
- Stack temperature low fire hold. FGR and low fire hold.
- Selectable FGR hold based on stack temperature.
- Programmable behavior of FGR actuator during purge.
- Maximum modulation limit capability.
- Remote reset input.
- Automated actuator endpoint seeking process.
- CSD-1 and NFPA acceptable.

### Dimensions in millimeters (inches)



**Vibration:** 0.0 to 0.5g continuous

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Operating Humidity Range (% RH):** 90% RH maximum, non-condensing

### Approvals:

Underwriters Laboratories, Inc. Listed: Report No. MH17367

### Replacement Parts:

32002515-001 3 pin electrical connector, for R7999

Product Number	Electrical Ratings	Frequency	Description
R7999A1005	100 to 120 Vac	50 Hz; 60 Hz	Fuel Air Ratio Controller, 100 to 120 Vac, 50/60 Hz.

# ControLinks® Fuel Air Control System

## R7999B ControLinks Fuel Air Controller

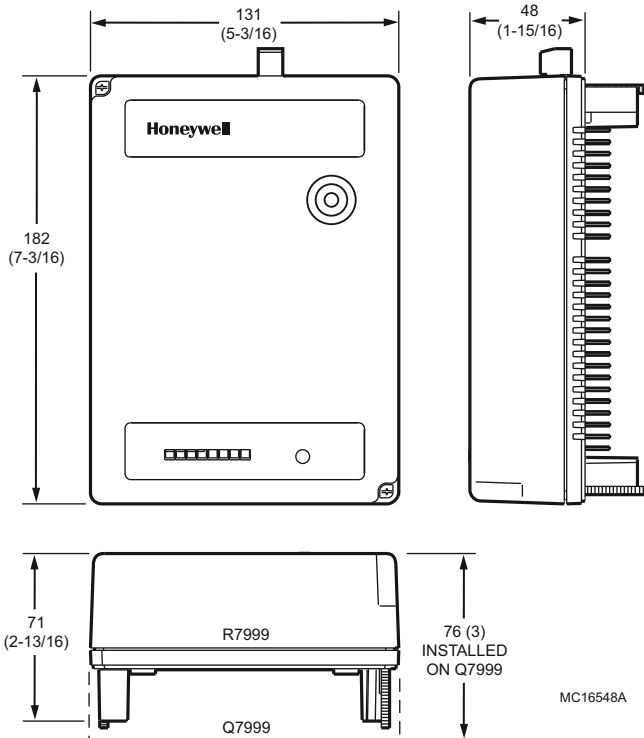


Uses microprocessor-based technology to control the ML7999 Universal Parallel Positioning Actuators. This represents a value-added replacement of mechanical cam and linkage assembly controlling the relationship between fuel, airflow and flue gas recirculation (if used) on a power burner. The ControLinks™ Fuel Air Control System consists of the R7999 Fuel Air Controller, Q7999 Wiring Subbase, ML7999 Universal Parallel Positioning Actuator and ZM7999 Configuration Software. The R7999, with one

communications port, provides communications capabilities similar to those found in the 7800 SERIES controls.

- Fast burner setup via PC or laptop.
- Fuel, air, FGR profile download capability.
- Two independent fuel profiles with or without FGR.
- 7 to 24 point profiles.
- Programmable behaviors of all actuators during Purge and Standby.
- Programmable behavior of non-selected fuel actuator.
- Independent light off and minimum modulation positions.
- Wide power voltage input range (100 to 120 Vac, 50/60 Hz). Auto/Manual input.
- Manual mode firing rate input.
- Pluggable controller to wiring subbase.
- Multipurpose communications port.
- Field-configurable device.
- Integrated boiler shock protection algorithms: Water temperature low fire hold.
- Stack temperature low fire hold. FGR and low fire hold.
- Selectable FGR hold based on stack temperature.
- Programmable behavior of FGR actuator during purge.
- Maximum modulation limit capability.
- Remote reset input.
- Automated actuator endpoint seeking process.
- CSD-1 and NFPA acceptable.

### Dimensions in millimeters (inches)



**Vibration:** 0.0 to 0.5g continuous

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Operating Humidity Range (% RH):** 90% RH maximum, non-condensing

### Approvals:

**CE:** Mark (EN60730-2-5 12)

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: Report No. MH17367

### Replacement Parts:

**32002515-001** 3 pin electrical connector, for R7999

Product Number	Electrical Ratings	Frequency	Description
R7999B1003	200 to 240Vac	50 Hz; 60 Hz	Fuel Air Ratio Controller, 200 to 240Vac, 50/60Hz

# ControLinks® Fuel Air Control System

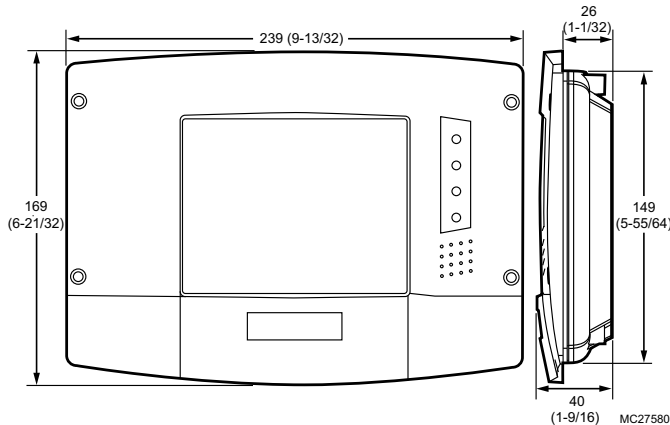
## S7999B ControLinks™ System Display



Up to 99 burner systems connected via Modbus can be monitored with the S7999B. Each burner control, fuel/air ratio control, expanded annunciator other Modbus devices present on the burner system can be viewed individually to determine its status.

- Color 3.5 in. x4.6 in. Touch Screen User Interface.
- Flush Mounting.
- Allows setup and monitoring of R7999 ControLinks.
- Two RS485 communication ports.
- Screen saver, contrast control and volume control.
- Modbus communication allows monitoring up to 99 different controls.
- Allows Programmable Expanded Annunciator terminal naming.
- Allows R7999 ControLinks EEPROM backup and restore.

### Dimensions in millimeters (inches)



**Ambient Temperature Range:** -10 C to 50 C (14 F to 122 F)  
**Storage Temperature Range:** -25 C to 60 C (-13 F to 155 F)  
**Operating Humidity Range (% RH):** 85% RH continuous, non-condensing

**Approvals:**  
**Federal Communications Commission:** FCC Part 15, Class A digital device  
**Underwriters Laboratories, Inc.** Component Listed

**Accessories:**  
**S7810M1003** ControlBus™ Module-MODBUS

Product Number	Electrical Ratings	Description	Used With
S7999B1000	+12 Vdc input, maximum of 500 mA current drain	S7999B System Display for R7999 ControLinks Configuration and System (7800 Series, EA and certain UDC Devices) Monitoring (English Language)	R7999

## Q7999A ControLinks Fuel Air Control Wiring Subbase



Provides terminals for field wiring for the R7999A ControLinks™ Fuel Air Controller. Terminals on the R7999A,B Controller engage the Q7999 contacts to make electrical connections. The Q7999A Subbase is panel-mounted.

- Quick-mount wiring subbase for R7999A,B Fuel Air Ratio Controllers.
- Allows wiring of control system before installation of controller.
- Panel-mounted.
- NEMA 1 enclosure.

**Vibration:** 0.0 to 0.5g continuous

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Weight:** 0.28 kg (10 oz)

**Approvals:**  
**Underwriters Laboratories, Inc.** Listed: Report No. MH17367

Product Number	Electrical Ratings	Frequency	Description
Q7999A1006	100 to 120 Vac	50 Hz; 60 Hz	Fuel Air Ratio Controller Wiring Subbase

# ControLinks® Fuel Air Control System

## ML7999A Universal Parallel-Positioning Actuator



Provides 100 lb-in. torque, pulse-width-modulating (PWM) control of combustion air dampers, butterfly gas valves, oil modulation

**Vibration:** 0.0 to 0.5g continuous

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

valves, and flue gas recirculation systems. The actuator includes a precision feedback potentiometer and integral power supply. The ML7999A Actuator is part of the ControLinks™ Fuel Air Control System, and must be used with the R7999 Fuel Air Controller.

- Password protected with an eight-digit hexadecimal identification signal.
- Separate wiring compartment between line voltage power wiring and low voltage control.
- Couples directly to a 1/2 in. (13 mm) shaft with no additional parts required.
- Couples directly to 5/16 in. (8 mm) and 3/8 in. (9 mm) shafts using available self-centering shaft reduction accessories.
- Shaft coupler assembly available for shafts larger than 1/2 in.
- Bracket Accessory Kit available for mounting to Honeywell V51 Butterfly Gas Valves.
- NEMA 2.
- IP54 with weatherproof kit (see Accessories).
- Visual indication of actuator position.

**Approvals:**

**Canadian Standards Association:** Certified

**CE:** Certified

**Underwriters Laboratories, Inc.** Meets UL873

Product Number	Electrical Ratings	Frequency	Description
ML7999A2001	15VA; 100 to 240 Vac	50 Hz; 60 Hz	Universal Parallel-Positioning Actuator. Medium torque electronic actuator with a precision feedback potentiometer and integral power supply capable of direct line voltage connection. Must be used with a Series 2 R7999.

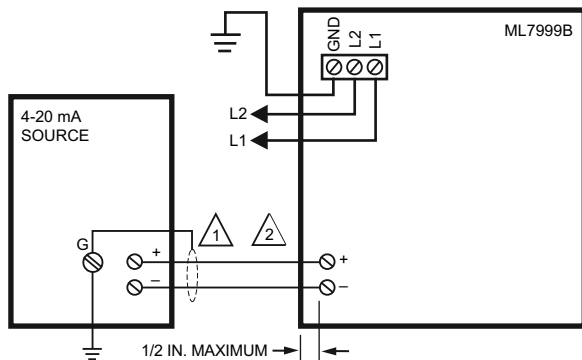
# ControlLinks® Fuel Air Control System

## ML7999B Universal Direct Coupled Actuator



ML7999B Universal Direct Coupled Actuator provides 100 lb-in. torque, 4 to 20 mA control input to control combustion air dampers and modulation valves. The actuator includes precision drive shaft control and integral power supply capable of direct line voltage connection.

- Separate wiring compartment between line voltage power wiring and low voltage control.
- Programmable actuator stroke against 4 to 20 mA input.
- Couples directly to a 1/2 in. (13 mm) shaft with no additional parts required.
- Couples directly to 5/16 in. (8 mm) and 3/8 in. (9 mm) shafts using available self-centering shaft reduction accessories.
- Shaft coupler assembly available for shafts larger than 1/2 in.
- Bracket Accessory Kit available for mounting to Honeywell V51E Butterfly Gas Valves.
- NEMA 2.
- IP54 with weatherproof kit (see Accessories).
- Visual indication of actuator position.



1 TERMINATE WIRE SHIELD AT THE CONTROLLER.

2 RUN LOW/LINE VOLTAGE WIRES IN SEPARATE CONDUIT. M20294B

**Vibration:** 0.0 to 0.5g continuous

**Ambient Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Storage Temperature Range:** -40 C to +65 C (-40 F to +150 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** Certified

**CE:** Certified

**Underwriters Laboratories, Inc.** Meets UL873

**Accessories:**

**32002935-001** Weather Proofing kit for ML7999 ControlLinks Actuator (includes (1) Corner stop and (2) gaskets)

Product Number	Electrical Ratings	Frequency	Description
ML7999B1002	15VA; 100 to 240 Vac	50 Hz; 60 Hz	Universal Parallel-Positioning Actuator. Medium torque electronic actuator with a precision feedback potentiometer and integral power supply capable of direct line voltage connection.

## ML7999 Accessories

Product Number	Description
201391	Shaft Adapter for 3/8 in. round or square valve shaft
32002935-001	Weatherproofing kit for actuator, ML7999 ControlLinks (NEMA 3).
32003167-001	Shaft Adapter for 5/16 in. round or square shaft
32003168-001	Shaft Adapter for 3/4 in. round shaft only
32003168-002	Shaft Adapter for 5/8 in. round shaft only
32003396-001	V51E Mounting Kit for ML7999 Actuator (1-1/2 & 2 in. valves). Includes angle bracket, mounting bracket, screws, nuts and washers, and instructions.
32003396-002	V51E Mounting Kit for ML7999 Actuator (2-1/2, 3 & 4 in. valves). Includes angle bracket, mounting bracket, screws, nuts and washers, and instructions.
50036542-001	Auxiliary Switch Mounting Plate for ML7999B for 201052A or 201052B Auxiliary switch assembly

# ControLinks® Fuel Air Control System

## ZM7999A ControLinks Fuel Air Control System Configuration Software

The ZM7999 Software Configuration Tool reduces burner setup time by letting you create a burner modulation curve (profile) for the burner that allows for safe and efficient operation at all points along the modulation curve. The software uses a wizard-like process to assist you through the commissioning process. It also lets you save curves in standard PC files so that you can commission similar systems rapidly and safely. Once the burner is commissioned, real-time monitoring of the system can be done via the monitoring tool.

- Minimum Hardware Requirements: PC or laptop with a Pentium® processor.
- Windows® 95 or Windows® 98.
- 16 MB of RAM.
- 1G hard drive with 100 MB of free memory.
- 4X (or higher) CD-ROM drive.
- Mouse.
- Super VGA color monitor (800 x 600 resolution suggested).

### Accessories:

**QM4520A1004** Isolated RS-232 to RS-485 Converter Module

Product Number	Description	Used With
ZM7999A1006	Configuration Software	R7999

## A7999 ControLinks Portable Combustion Analyzer



The portable Combustion Analyzer (PCA) is a commercial grade, hand held, combustion efficiency analyzer that is designed for continuous (on demand) sampling of light industrial and residential furnaces, appliances, and boilers.

- The basic instrument is supplied with a probe, instruction manual, batteries, and carrying case.

Product Number	Description
A7999A1003	Portable combustion Analyzer for ControLinks Fuel Air Control System

## ControLinks Accessories

Product Number	Description	Used With
32002515-001	3 pin electrical connector, for R7999	R7999
50020034-001	9 pin electrical connector, for S7999B	S7999B



## YP900 Delphi Combustion Efficiency Panel



Delphi Combustion Efficiency Panel is a packaged, pre-wired panel with integrated color touchscreen display, flame safeguard control, linkageless fuel/air ratio control, oxygen trim and VFD capability. MF020-1-LC3 Oxygen sensor with mounting fitting and electrical connector and a Hall-effect sensor which monitors VFD driven blower and provides feedback to the control are included. System is set-up entirely via the touchscreen interface.

- Works with a variety of burners and boilers.
- Components housed in one panel.
- Integrated flame safeguard control and linkageless fuel/air ratio control with oxygen trim.
- Dual Fuels allowed with independent profiles.
- Oxygen trim compensates for variable combustion air.
- High accuracy O<sub>2</sub> sensor with quick response and open air calibration (MF020-1-LC3).
- VFD control capability (Honeywell NXL or NXS Series).
- Large color touchscreen interface.
- Available actuators from 100 to 400 lb-in. (ML7999B or Herculine 2001)
- Embedded software for commissioning, control and monitoring.
- VPS (Valve Proving System) capability via flame safeguard control.
- Dedicated actuator and VFD channels with feedback.
- Up to 4 independently controlled actuators.
- Firing rate/load control via temperature, pressure or manual operation.
- 24 Vdc industrial panel PC control.

**Vibration:** 0.0 to 0.5g continuous

**Operating Humidity Range (% RH):** 90% RH maximum, non-condensing

**Approvals:**

**Underwriters Laboratories, Inc.** Panel-UL508 Industrial Control Panel

Product Number	Electrical Ratings	Frequency	Description
YP900A1004	120 Vac	50 Hz; 60 Hz	Combustion Efficiency Panel

## Herculine Actuator



Honeywell's HecuLine® 2001 actuators are smart actuators used in applications requiring current proportional control or digital control. They offer digital electronics providing for precision positioning control, easy set-up and configuration, on board monitoring and network communications.

- 90 degree stroke.
- 4-20mA or 0-10vdc input.
- 4-20mA or 0-10vdc output.
- CCW rotation.
- Modbus RTU RS485

**Vibration:** 0.0 to 0.5g continuous

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

Product Number	Electrical Ratings	Frequency	Description	Used With
2001-100-090-EC	100 to 130 Vac; 120 Vac	50 Hz; 60 Hz	Herculine Actuator 100 lb-in torque, 12 second/90 degree	YP900
2001-200-090-EC	120 Vac	50 Hz; 60 Hz	Herculine Actuator 200 lb-in torque, 25 second/90 degree	YP900
2001-400-090-EC	120 Vac	50 Hz; 60 Hz	Herculine Actuator 400 lb-in torque, 50 second/90 degree	YP900

# Delphi Combustion System

## Delphi Accessories

Product Number	Description	Used With
51452354-501EC	Mounting plate adapter for Barber Colman Series MP495 actuator to Herculine 2001	Herculine 2001/YP900
51452354-502EC	Mounting plate adapter to replace Landis & Staefa SQM53/56 actuator to Herculine 2001.	Herculine 2001/YP900
51452354-503EC	Allows Herculine 2001 actuator to be directly coupled to a variety of gas and oil valves.	Herculine 2001/YP900
51452354-504EC	Linkage Assembly ball joint for 5/16" pushrod used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-505EC	Push Rod, 5/16" diameter, 12" long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-506EC	Push Rod, 5/16" diameter, 18" long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-507EC	Push Rod, 5/16" diameter, 24" long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-508EC	Push Rod, 5/16" diameter, 48" long, used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-511EC	North American valve retrofit kit, replaces Honeywell Actionator Actuator with Herculine 2001 actuator	Herculine 2001/YP900
51452354-513EC	V51 valve mounting kit for 2.5 to 3 in. valves. Adapter plate and linkage. Used with Herculine 2001 actuators	Herculine 2001/YP900
51452354-514EC	V51 valve mounting kit for 4 in. valves. Adapter plate and linkage. Used with Herculine 2001 actuators	Herculine 2001/YP900

## Delphi Replacement Parts



Product Number	Description	Used With
LCZ460-30-ECC	Hall-effect zero speed sensor, 5/8-18UNF-2A thread	YP900
SNDJ-CNT-G02-ECC	Tachometer with single channel, relay and 0/2-10Vdc output	YP900

## Advanced Burner Controls



ABC900A



ABC900B

The ABC900 Advanced Burner Control is a process and logic control that can be programmed for burner and boiler applications. This flexible platform can be programmed to provide all of the control functions required for fuel/air ratio control and O<sub>2</sub> trim. Programming of the ABC900 is completed using the HC900 Designer Software. Additional programming can provide:

- Optional drum level control
- Boiler feedwater control
- Draft damper control
- Fuel selection inputs
- Mass fuel flow monitoring
- Dedicated actuator channels
- Dedicated VFD channels
- Interface with 7800 SERIES primary safety controls
- Interface with third party displays
- Communication with building automation systems via Modbus

**Power Supply:** 120 to 240 VAC

**Operating Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Operating Humidity Range (% RH):** 10 to 90%

**Approvals:**

CE: CE

Canadian Standards Association: Certified

Canadian Underwriters Laboratories, Inc. Listed

Factory Mutual: Approved

Underwriters Laboratories, Inc. Listed

Product Number	Description	Dimensions, Approximate	
		(mm)	(inch)
ABC900A1000	C30 CPU (4) I/O Modules (1 analog input module, 1 analog output module, 1 digital input module, 1 digital output module with shield kit, power supply and resistor kit).	267 mm wide x 137 mm high x 152 mm deep	10-1/2 in. wide x 5-3/8 in. high x 6 in. deep
ABC900B1009	C30 CPU (8) I/O Modules (2 analog input modules, 1 analog output module, 1 digital input module, 2 digital output modules with shield kit, power supply).	419 mm wide x 137 mm high x 152 mm deep	16-1/2 in. wide x 5-3/8 in. high x 6 in. deep

# Advanced Burner Controls

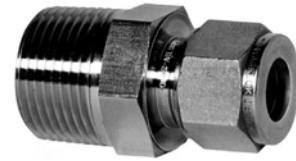
## Advanced Burner Controls - Oxygen Sensor



99-4218-14-07



MF020



SS-810-1-12BT

Product Number	Description	Dimensions, Approximate		NEMA Rating	Power Supply	Temperature Range, Operating		Used With
		(mm)	(inch)			(C)	(F)	
99-4218-14-07	Cable Connector for MF020	—	—	—	—	—	—	MF020
MF020-0-LC3	High Temperature Oxygen Sensor 1 to 250 mbar (0.4 to 200" w.c.) 220mm/ 8.7 in. Probe, 4-20ma output, 0.1 to 25 volume % O <sub>2</sub>	42 mm wide x 60 mm high x 325 mm deep	1 5/8 in. wide x 2 7/16 in. high x 12 13/16 in. deep	IP65	24 Vdc	-100 C to 400 C at probe tip	-148 F to 752 F at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-0-LC4	High Temperature Oxygen Sensor 1 to 1000 mbar (0.4 to 401" w.c.) 220mm/ 8.7 in. Probe, 4-20ma output, 0.1 to 100 volume % O <sub>2</sub>	42 mm wide x 60 mm high x 325 mm deep	1 5/8 in. wide x 2 7/16 in. high x 12 13/16 in. deep	IP65	24 Vdc	-100 C to 400 C at probe tip	-148 F to 752 F at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-1-LC3	High Temperature Oxygen Sensor 1 to 250 mbar (0.4 to 200" w.c.) 400mm/ 15.7 in. Probe, 4-20mA output, 0.1 to 25 volume % O <sub>2</sub>	42 mm wide x 60 mm high x 503 mm deep	1 5/8 in. wide x 2 -13/32 in. high x 19 13/16 in. deep	IP65	24 Vdc	-100 C to 400 C at probe tip	-148 F to 752 F at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-1-LC4	High Temperature Oxygen Sensor 1 to 1000 mbar (0.4 to 401" w.c.) 400mm/ 15.7 in. Probe, 4-20ma output, 0.1 to 100 volume % O <sub>2</sub>	42 mm wide x 60 mm high x 503 mm deep	1 5/8 in. wide x 2 -13/32 in. high x 19 13/16 in. deep	IP65	24 Vdc	-100 C to 400 C at probe tip	-148 F to 752 F at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-2-LC3	High Temperature Oxygen Sensor 1 to 250 mbar (0.4 to 200" w.c.) 600mm/ 23.6 in. Probe, 4-20mA output, 0.1 to 25 volume % O <sub>2</sub>	42 mm wide x 60 mm high x 706 mm deep	1 5/8 in. wide x 2 -13/32 in. high x 27-13/16 in. deep	IP65	24 Vdc	-100 C to 400 C at probe tip	-148 F to 752 F at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
MF020-2-LC4	High Temperature Oxygen Sensor 1 to 1000 mbar (0.4 to 401" w.c.) 600mm/ 23.6 in. Probe, 4-20ma output, 0.1 to 100 volume % O <sub>2</sub>	42 mm wide x 60 mm high x 706 mm deep	1 5/8 in. wide x 2 -13/32 in. high x 27-13/16 in. deep	IP65	24 Vdc	-100 C to 400 C at probe tip	-148 F to 752 F at probe tip	99-4218-14-07; SS-810-1-12BT; ABC900A,B
SS-810-1-12BT	Compression tube fitting 1/2 in. Bore through, 3/4 in. NPT for MF020	—	—	—	—	—	—	MF020

# Network Communications Interface

## QM4520A Data Acquisition Module



The QM4520A RS-232 to RS485 Converter allows a PC to communicate with multiple devices on a single bus, over greater distances.

- Mount on DIN rail, panel or in a piggyback stack.
- Uses unregulated power between +10 Vdc and +30 Vdc.
- Transmit data on single twisted pair (RS-485).
- Plug-in screw terminal blocks assure simple installation, maintenance and modification.
- Clean and reliable communications assured by noise-suppressing special circuitry.
- RS-485 communications reduce the number of required cables, connectors and conditioners.
- Modules can be remotely mounted up to 4,000 ft (1.2 km) away.

**Dimensions, Approximate:** 60 mm x 122 mm x 30 mm  
(2 11/32 in. x 4 13/16 in. x 1 3/16 in.)

**Electrical Connections:** Plug-in screw terminal block.

**Voltage:** Unregulated +10 Vdc to +30 Vdc - Power supply not provided..

**Ambient Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

Product Number	Input	Description	Used With
QM4520A1004	RS-232 (4-wire: TX, RX, RTS, GND) (Null modem may be required.)	RS-232 to RS-485 Converter	ZM7850 or ZM7999 software; BCS7700 and 7800 SERIES Points

## QS460MMDS ModBus™ RTU to DeviceNet™ Gateway



The QS460 ModBus™ to DeviceNet™ Gateway provides connection from ModBus of RM78XX devices, S7830 Expanded Annunciator or Controlinks to DeviceNet.

- Mount on DIN rail
- Uses 12 Vdc unregulated power.
- Clean and reliable communications assured by
- noise-suppressing special circuitry.

**Electrical Connections:** 2 pin barrel

**Voltage:** 12 Vdc from DeviceNet network

**Ambient Temperature Range:** 0 C to 70 C (32 F to 158 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

Product Number	Input	Description	Includes
QS460MMDS1000	RJ45 Ethernet and two DB-9 Connectors	ModBus™ RTU to DeviceNet™ Gateway	Data Access for 7800 Series, Controlinks and S7830

## Network Interface Accessories

Product Number	Description	Used With
206610A	Accessory Disk for QS7850A1006-contains BCS7700 and 7800 Series points	QS7850A1006

# Flame Amplifiers

## 7800 SERIES and R7140 Flame Signal Amplifiers



Dynamic Self-Check



Standard

Solid state plug-in amplifiers that respond to flame detector inputs to indicate the presence of flame when used with 7800 SERIES relay modules.

- Flame failure response time of 0.8 or 3.0 seconds.
- Flame signal strength ranges from 0.0 to 5.0 Vdc.
- Plug into 7800 relay module through printed circuit board edge connector keyed for proper orientation.
- Flame signal test jacks to measure amplifier flame signal voltage.
- Color-coded labels identify flame detection type. Dynamic Self-Check Amplifier test the detectors and all electronic components in the flame detection system 7800 SERIES relay module locks out on safety shutdown with flame detection system failure.
- Compatible with existing Honeywell flame detectors (order separately).

### Approvals:

Canadian Standards Association: Certified: File No. LR95329-3

Factory Mutual: Approved: Report No. 1V9A0.AF

Swiss RE (formerly IRI): Acceptable

Underwriters Laboratories, Inc. Listed: File No. MP268, Guide No. MCCZ

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7824C1002	3.0 sec	Dynamic Self-Check	C7024E, F Flame Detector	RM7824	Color: Green
R7847A1025	0.8 sec or 1.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179	7800 SERIES Relay Modules	Color: Green
R7847A1033	2.0 sec or 3.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179 Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847A1074	0.8 sec or 1.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847A1082	2.0 sec or 3.0 sec	None (standard)	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847B1023	0.8 sec or 1.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179	7800 SERIES Relay Modules	Color: Green
R7847B1031	2.0 sec or 3.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179 Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847B1064	0.8 sec or 1.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847B1072	2.0 sec or 3.0 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004,5,7,8, or 9, Q179 for impedance matching for leadwire runs > 50' or Ultraviolet Flame Sensor C7012A, C	7800 SERIES Relay Modules	Color: Green
R7847C1005	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	7800 SERIES Relay Modules	Color: Green
R7848A1008	2.0 sec or 3.0 sec	None (standard)	Gas, oil, coal: Infrared ( lead sulfide) C7015	7800 SERIES Relay Modules	Color: Red
R7848B1006	2.0 sec or 3.0 sec	Ampli-Check	Gas, oil, coal: Infrared ( lead sulfide) C7015	7800 SERIES Relay Modules	Color: Red
R7849A1015	0.8 sec or 1.0 sec	None (standard)	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7849A1023	2.0 sec or 3.0 sec	None (standard)	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7849B1013	0.8 sec or 1.0 sec	Ampli-Check	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7849B1021	2.0 sec or 3.0 sec	Ampli-Check	Gas, Oil: Minipeeper C7027A, C7035A, C7044	7800 SERIES Relay Modules	Color: Purple
R7851B1000	2.0 sec or 3.0 sec	Ampli-Check	Gas, Oil, Coal: Optical (UV, Visible Light) C7927, C7962	7800 SERIES Relay Modules	Color: White
R7851B1018	0.8 sec or 1.0 sec	Ampli-Check	Gas, Oil, Coal: Optical (UV, Visible Light) C7927, C7962	7800 SERIES Relay Modules	Color: White
R7851C1008	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: optical (UV only) C7961E,F	7800 SERIES Relay Modules	Color: White
R7852A1001	2.0 sec or 3.0 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7915	7800 SERIES Relay Modules	Color: Red/ White

# Flame Amplifiers

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7852B1009	2.0 sec or 3.0 sec	Ampli-Check	Gas, oil, coal: Infrared (lead sulfide) C7915	7800 SERIES Relay Modules	Color: Red/White
R7861A1026	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7061	7800 SERIES Relay Modules	Color: Purple
R7861A1034	0.8 sec or 1.0 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7061	7800 SERIES Relay Modules	Color: Purple
R7886A1001	2.0 sec or 3.0 sec	Dynamic Self-Check	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	7800 SERIES Relay Modules	Color: Blue

## R7247; R7248; R7249; R7476 Flame Amplifiers



R7249



R7248



R7247

**Solid state plug-in units respond to flame detector signal and indicate presence of flame.**

- Use with BC7000; R4140; R4075C,D,E; R4138C,D Flame Safeguard controls and appropriate flame detector and FSP5075A1, FSP5075A3 Flame Amplifier Modules.

### Approvals:

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 140-A-2

**Control Safety Devices:** Acceptable (CSD-1)

**Factory Mutual:** Approved: Report No. 24181.01

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ2

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7247A1005	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Green
R7247B1003	2 to 4 sec	Ampli-Check	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179 Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Green
R7247C1001	2 to 4 sec	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	R4140, BC7000, R4075C, D, E, R4138C, D, FSP5075	Color: Green
R7247C1019	2 sec max.	Dynamic Self-Check	Gas, oil, coal: Ultraviolet Flame Sensor C7012E, F	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Green
R7248A1004	2 to 4 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7015	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Red
R7248A1046	2 to 4 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7015	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Red
R7248B1028	2 to 4 sec	Ampli-Check	Gas, oil, coal: Infrared (lead sulfide) C7015	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Red
R7249A1003	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Purple
R7249A1037	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Purple
R7476A1007	2 to 4 sec	Dynamic Self-Check	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	R4140; BC7000; R4075C,D,E; R4138C,D; FSP5075	Color: Blue
R7476A1015	2 sec max.	Dynamic Self-Check	Gas, oil, coal: Adjustable Sensitivity Ultraviolet Flame Sensor C7076	R4140, BC7000, R4075C, D, E, R4138C, D, FSP5075	Color: Blue

# Flame Amplifiers

## R7258; R7259 Flame Safeguard Amplifiers

Solid state, plug-in units allow use of rectification, infrared and ultraviolet flame detections.

- Use with Q518, Q519 and W688A Flame Safeguard multi-burner modules and appropriate flame detector.

Approvals:

**Canadian Standards Association:** Certified: File No. LR95329-3

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ2

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7258A1001	2 to 4 sec	None (standard)	Gas, oil, coal: Infrared (lead sulfide) C7015	Q518, Q519, W688A	Color: Red
R7259A1000	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	Q518, Q519, W688A	Color: Purple

## R7289, R7290 Flame Safeguard Amplifiers (for R4795)

Solid state, plug-in units allow use of rectification or ultraviolet flame detection.

- Use with R4795A,D Flame Safeguard primary controls and appropriate flame detector.

Approvals:

**Canadian Standards Association:** Certified: File No. 158158-1120040

**Factory Mutual:** Approved: Report No. 19608.1

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Vol 7, Sec. 2

Product Number	Flame Failure Response Time (sec)	Self Checking	Use With Flame Sensor	Use With Primary Safety Control	Comments
R7289A1004	2 to 4 sec	None (standard)	Gas: Rectifying Flame Rods C7004, C7005, C7007, C7008, C7009, Q179 Gas, oil, coal: Ultraviolet Flame Sensor C7012A, C	R4795A, D	Color: Green
R7290A1001	2 to 4 sec	None (standard)	Gas, oil, coal: Ultraviolet (Minipeeper) C7027, C7035	R4795A, D	Color: Purple

## Flame Amplifier Accessories

Product Number	Description	Used With
32005301-001	T Filter for Rectification Amplifiers	R7847, R7247



# Flame Rods and Flame Rod Holders

## C7007 Flame Rod Holder



**Description:** Flame Rod Holder  
**Application:** Gas fired pilot or gas fired system.  
**Dimensions, Approximate:** 49 mm high x 56 mm diameter x 81 mm long (1 15/16 in. high x 2 3/16 in. diameter x 3 3/16 in. long)  
**Mounting:** 1/2 in.-14 NPT male  
**Electrical Connections:** Terminal screw

**Used to apply flame rod in gas-fired system controlled by rectification type flame safeguard control.**

- Use with pressurized fire boxes.
- Hold flame rods firmly over the pilot or burner with a chuck and setscrew arrangement.
- Provide electrical connection through a terminal screw.
- Allow ventilation to cool the unit or to minimize soot deposit through a 1/2 in.
- NPT tapping.
- Mount easily with sleeve or thread type mounting adapters, and a straight or angle body.

**Approvals:**  
**Canadian Standards Association:** Certified: File No. L95329-1  
**Factory Mutual:** Approved: Report No. 24181.03  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Required Parts	Comments	Used With
C7007A1001	Flame Rod	102709E (1219 mm, 48 in.); 102709D (36 in., 914 mm); 102709C (610 mm, 24 in.); 102709B (457 mm, 18 in.); 102709A (305 mm, 12 in.)	Holder only, order Kanthal flame rod separately.	Flame Amplifiers: R7247A, B; R7847A, B; R7257; R7289

## C7008 Flame Rod Holder



The small size of these devices enable their application to flame detection in installations where space is limited. The holder and flame rod assemblies facilitate flame proving on gas burners or gas-ignited oil burners which are controlled by electronic flame safeguard systems.

**Description:** Flame Rod Assembly  
**Application:** Gas fired pilot or gas fired system.  
**Dimensions, Approximate:** Holder: 22 mm diameter x 95 mm long (Holder: 7/8 in. diameter x 3 3/4 in. long)  
**Electrical Connections:** Rajah electrical connector

- Use with Honeywell Flame Safeguard controls requiring rectification-type flame detection.
- Use only with gas.
- Install with or without cover.
- Comes in several different lengths and can be cut to exact desired length.
- Uses Rajah electrical connector.

**Approvals:**  
**Canadian Standards Association:** Certified: File No. L95329-1  
**Factory Mutual:** Approved: Report No. 24181.03  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Mounting	Includes	Used With
C7008A1000	Flame Rod	1/4 in. NPT male	6" Flame rod and holder	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289
C7008A1018	Flame Rod	1/4 in. NPT male	12" Flame rod and holder	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289
C7008A1174	Flame Rod	1/4 in. NPT male	12" Flame rod and holder	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289
C7008A1182	Flame Rod	1/4 in. NPT male	24" Flame rod and holder	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289

## C7009 Flame Rod Holder



The small size of these devices enable their application to flame detection in installations where space is limited. The holder and flame rod assemblies facilitate flame proving on gas burners or

**Description:** Flame Rod Assembly  
**Application:** Gas fired pilot or gas fired system.  
**Dimensions, Approximate:** Holder: 10 mm diameter x 60 mm long (Holder: 3/8 in. diameter x 2 3/8 in. long)  
**Mounting:** 1/8 in. NPT male  
**Electrical Connections:** Rajah electrical connector

**gas ignited oil burners which are controlled by electronic flame safeguard systems.**

- Use on industrial flame-retention gas burner nozzles.
- Works with Honeywell Flame Safeguard controls requiring rectification type flame detector.
- Mounts in areas with limited space because flame rod can be cut to desired length.
- Uses Rajah electrical connector.

**Approvals:**  
**Canadian Standards Association:** Certified: File No. L95329-1  
**Factory Mutual:** Approved: Report No. 24181.03  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

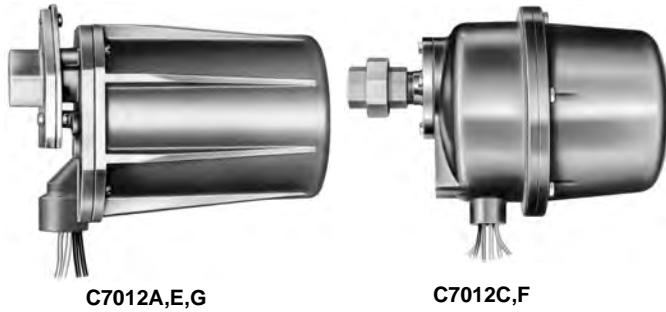
Product Number	Type	Includes	Comments	Used With
C7009A1009	Flame Rod	Flame rod and holder	4 in. (102 mm) flame rod	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289
C7009A1025	Flame Rod	Flame rod and holder	12 in. (305 mm) flame rod	Flame Amplifiers: R7247A, B, R7847A, B, R7257, R7289

# Flame Rods and Flame Rod Holders

## Flame Rod Detector Accessories or Parts

Product Number	Description
102709A	Kanthal Flame Rod - 12 in. (.182" Diameter) for C7004B, C7007A, C7011A
102709B	Kanthal Flame Rod - 18 in. (.182" diameter) for C7004B, C7007A, C7011A
102709C	Kanthal Flame Rod - 24 in. (.182" diameter) for C7004B, C7007A, C7011A
102709D	Kanthal Flame Rod - 36 in. (.182" diameter) for C7004B, C7007A, C7011A
102709E	Kanthal Flame Rod - 48 in. (.182" diameter) for C7004B, C7007A, C7011A
105478A	Kanthal Flame Rod - 6 in. (.182" diameter -threaded 6-32) for C7008
105478B	Kanthal Flame Rod - 12 in. (.182" diameter-threaded 6-32) for C7008
105478D	Kanthal Flame Rod - 24 in. (.182" diameter-threaded 6-32) for C7008

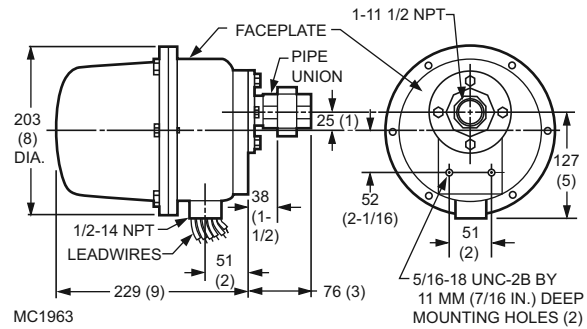
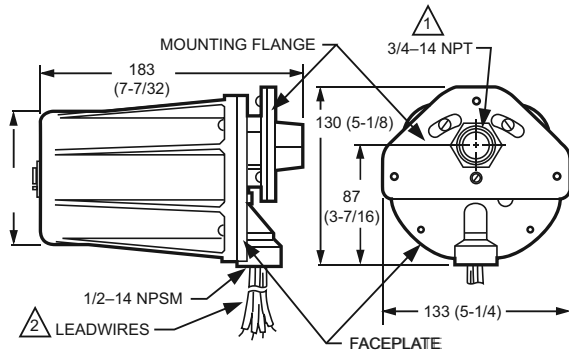
## C7012 Solid State Purple Peeper® Ultraviolet Flame Detector



Solid state electronic flame detectors for use with Honeywell Flame Safeguard controls and amplifiers. Sense ultraviolet radiation produced by combustion of gas, oil, coal or other fuels.

- Mount horizontally, vertically or at any angle in between.
- Provide quick electrical hookup with threaded conduit fitting and color-coded leadwires.
- Reduced nuisance shutdowns by wiring two in parallel.
- C7012E1278 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- C7012A,E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7012C,F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

### Dimensions in millimeters (inches)



① C7061A1046: 1 INCH NPT

② C7061A1038 AND C7061A1046: BRAD HARRISON® CONNECTOR.  
MC10167A

**Description:** Ultraviolet Flame Detector (Purple Peeper)

**Application:** Gas, Oil or Coal fired burners

**Lead Length:** 2438 mm (96 in.)

**Power Consumption:** 2.5 W

**Electrical Ratings:** 120 Vac

**Frequency:** 50 Hz; 60 Hz

**Weight:** 1.9 kg (4.25 lb)

### Approvals:

**Canadian Standards Association:** Certified: Master Report LR95329-1

**Factory Mutual:** Approved: Report No. 14740.01

**Swiss RE (formerly IRI):** Acceptable

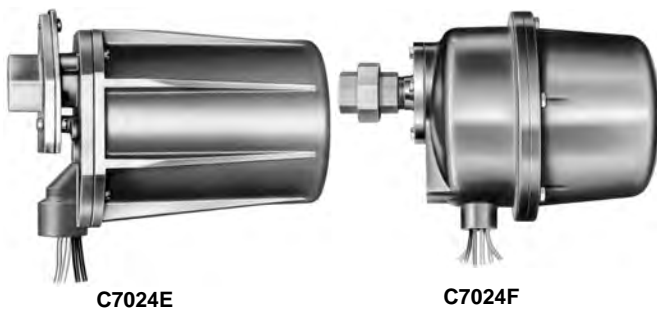
**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Electrical Connections	Mounting	NEMA Rating	Ambient Temperature Range		Includes	Comments	Used With
					(C)	(F)			
C7012A1145	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	3/4 in. NPT	NEMA 4	-4 C to +79 C	25 F to 175 F	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257; R7847A, R7257
C7012A1160	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	1 in. NPT	NEMA 4	-40 C to +79 C	-40 F to +175 F	Cast case and cover	For use with rectification flame signal amplifiers	Flame Amplifiers: R7247A,B; R7847A,B; R7257
C7012C1042	Ultraviolet, Purple Peeper	4 NEC Class 1 Color-coded leadwires.	1 in. NPT	Explosion Proof	-4 C to +79 C	25 F to 175 F	—	Explosion-proof, two piece, violet, cast aluminum enclosure	Flame Amplifiers: R7247A,B; R7847A,B; R7257
C7012E1104	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	3/4 in. NPT	NEMA 4	-20 C to +79 C	-20 F to +175 F	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1112	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	1 in. NPT	NEMA 4	-20 C to +79 C	-20 F to +175 F	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1120	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	1 in. NPT	NEMA 4	-40 C to +79 C	-40 F to +175 F	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C

# Flame Detectors

Product Number	Type	Electrical Connections	Mounting	NEMA Rating	Ambient Temperature Range		Includes	Comments	Used With
					(C)	(F)			
C7012E1153	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	3/4 in. NPT	NEMA 4	-20 C to +79 C	-20 F to +175 F	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012E1278	Ultraviolet, Purple Peeper, Self-Checking	Brad Harrison type number 41310 connector	1 in. NPT	NEMA 4	-20 C to +79 C	-20 F to +175 F	Cast case and cover	Dynamic self-checking flame detector	Flame Amplifiers: R7247C, R7847C
C7012F1052	Ultraviolet, Purple Peeper, Self-Checking	6 NEC Class 1 Color-coded leadwires.	1 in. NPT	Explosion Proof	-20 C to +79 C	-20 F to +175 F	—	Dynamic self-checking flame detector, explosion-proof, two piece, violet, cast aluminum enclosure	Flame Amplifiers: R7247C, R7847C

## C7024 Solid State Purple Peeper® Ultraviolet Flame Detector



24 Vdc solid state electronic flame detectors for sensing the ultraviolet radiation emitted by the combustion of most carbon containing fuels, such as natural gas, LP gases, and oil.

- Use with R7824C Dynamic Self-Check Flame Signal Amplifier.
- Circuitry provides low power consumption and high reliability.
- Mount horizontally, vertically or at any angle in between.
- Field-replaceable UV radiation sensing tube and quartz viewing window.
- Quick electrical installation with threaded conduit fitting and color-coded leadwires.
- Reduce nuisance shutdowns by wiring two in parallel.
- Oscillating shutter interrupts UV radiation using the R7824C amplifier.
- C7024E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7024F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

Dimensions Diagrams: See page 877

**Description:** Self-Checking Ultraviolet Flame Detector  
**Application:** Coal fired burners; Gas fired burners; Oil fired burners  
**Electrical Connections:** Six NEC CLASS 1 color-coded leaders  
**Power Consumption:** 7.8 W maximum.  
**Electrical Ratings:** 24 Vdc  
**Lead Length:** 2438 mm (96 in.)  
**Ambient Temperature Range:** -20 C to +79 C (-20 F to +175 F)  
**Used With:** Flame Amplifiers: R7824C  
**Weight:** 1.9 kg (4.25 lb)

### Approvals:

**Canadian Standards Association:** Certified: Master Report LR95329-3

**Underwriters Laboratories, Inc.** Component Recognized: File No. MP268

### Accessories:

**190971G** 24 Vdc Coil and Shutter Assembly for C7024E, F; C7961

Product Number	Type	Mounting	NEMA Rating	Includes	Comments	Used With
C7024E1001	Ultraviolet, Purple Peeper, Self-Checking	3/4 in. NPT	NEMA 4	Cast case and cover	Works with 24 Vdc only	Flame Amplifiers: R7824C
C7024F1009	Ultraviolet, Purple Peeper, Self-Checking	1 in. NPT	Explosion Proof	—	Works with 24 Vdc only, explosion-proof, two piece, violet, cast aluminum.	Flame Amplifiers: R7824C

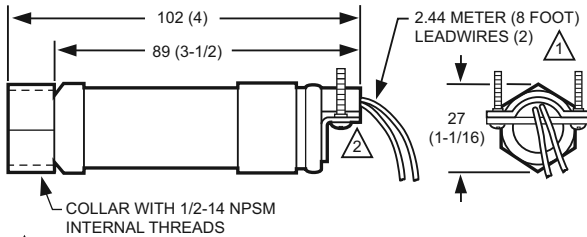
## C7027; C7044 Minipeeper Ultraviolet Flame Detector



**Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.**

- Use with Honeywell Flame Safeguard primary safety controls and burners requiring ultraviolet flame detection.
- C7027 mounts on a 1/2 in. sighting pipe by using an integral collar.
- Detectors can be wired in parallel for difficult sighting applications.
- C7027 seals against pressures up to 5 psi (34.5kPa) when correctly installed.
- Allows for blast tube mounting due to compact size.
- C7044 mounts with a two screw bracket.
- The C7044 UV sensor tube is enclosed in a stainless steel housing.
- C7044 has the capability of side or end viewing in flame monitoring applications.

### Dimensions in millimeters (inches)



▲ C7027A1064 HAS 7.32 M (24 FT.) LEADWIRES.  
C7027A1114 HAS 1.118 M (44 IN.) LEADWIRES WITH 558 MM (22 IN.) FLEXIBLE CONDUIT.

▲ MODELS AVAILABLE WITH SPUD CONNECTOR (1/2-14 NPSM INTERNAL THREADS) INSTEAD OF CLAMP TYPE CONNECTOR.

**C7027**

MC1943F

**Application:** Coal fired burners; Gas fired burners; Oil fired burners

**Vibration:** 0.5 G max

**Electrical Connections:** 2 NEC Class 1 leadwires

**Comments:** Detects ultraviolet radiation in flames

**Used With:** Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290

**Approvals:**

**Canadian Standards Association:** Certified: Master Report LR95329-1

**Factory Mutual:** Approved: Report No. 24181.03

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Type	Lead Length		Mounting	Ambient Temperature Range		Includes	Comments
		(mm)	(inch)		(C)	(F)		
C7027A1023	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-18 C to 102 C	0 F to 215 F	—	Detects ultraviolet radiation in flames
C7027A1031	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-40 C to 102 C	-40 F to 215 F	—	Detects ultraviolet radiation in flames
C7027A1049	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-18 C to 102 C	0 F to 215 F	1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1056	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-18 C to 102 C	0 F to 215 F	—	Detects ultraviolet radiation in flames
C7027A1064	Ultraviolet, Minipeeper	7315 mm	288 in.	Integral nut for 1/2 in. sighting pipe.	-40 C to 102 C	-40 F to 215 F	1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1072	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-40 C to 102 C	-40 F to 215 F	1/2 in. NPT threaded spud connector.	Detects ultraviolet radiation in flames
C7027A1080	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-18 C to 102 C	0 F to 215 F	136733 Heat Block and 390427B bushing	Detects ultraviolet radiation in flames
C7027A1098	Ultraviolet, Minipeeper	2438 mm	96 in.	Integral nut for 1/2 in. sighting pipe.	-18 C to +102 C	0 F to 215 F	—	Detects ultraviolet radiation in flames
C7027A1114	Ultraviolet, Minipeeper	1118 mm	44 in.	Integral nut for 1/2 in. sighting pipe.	-18 C to 102 C	0 F to 215 F	installed 22" flexible conduit	Detects ultraviolet radiation in flames
C7044A1006	Ultraviolet Flame Sensor	1829 mm	72 in.	Mounting Bracket provided	-18 C to 102 C	0 F to 215 F	Mounting bracket	Detects ultraviolet radiation in flames - Side Viewing

# Flame Detectors

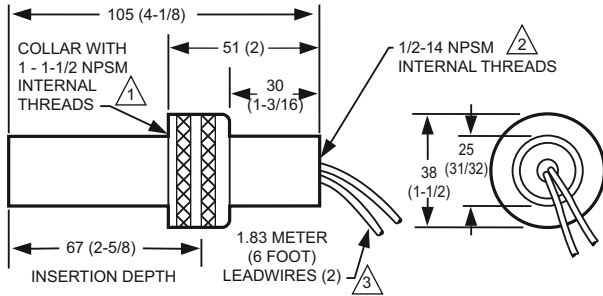
## C7035 Minipeeper Ultraviolet Flame Detector



**Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.**

- Use with Honeywell Flame Safeguard primary safety controls and burners requiring ultraviolet flame detection.
- Mounts on a 1 in. sighting pipe by using an integral collar.
- Protects the sensing tube with a shield.
- Meets outdoor rain tight requirements of Underwriters Laboratories Inc., NEMA 4 and NEMA 4X.
- Wires in parallel for difficult sighting applications.
- Seals against pressures as high as 5 psi (34.5 kPa) when correctly installed.
- Field-replaceable ultraviolet sensing tube.

### Dimensions in millimeters (inches)



- 1 DIN APPROVED C7035A1064 HAS 1-11 BSP.P1 INTERNAL MOUNTING THREADS.  
 2 DIN APPROVED C7035A1064 HAS 1/2-14 BSP-F INTERNAL MOUNTING THREADS.  
 3 C7035A1056 HAS 3.66 METER (12 FOOT) LEADWIRES.

**C7035**

MC1945D

**Description:** Minipeeper

**Application:** Coal fired burners; Gas fired burners; Oil fired burners

**Mounting:** Integral nut for 1 in. sighting pipe.

**Vibration:** 0.5 G max

**NEMA Rating:** NEMA 3 and NEMA 4

**Electrical Connections:** 2 NEC Class 1 leadwires

**Type:** Ultraviolet, Minipeeper

**Comments:** Detects ultraviolet radiation in flames

**Weight:** 0.17 kg (6 oz)

**Approvals:**

**Canadian Standards Association:** Certified: Master Report LR95329-1

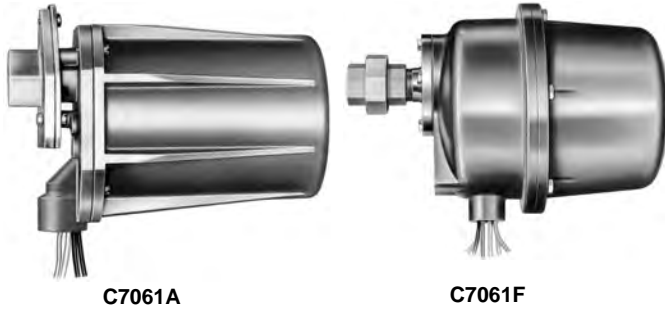
**Factory Mutual:** Approved: Report No. 24181.03

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc. Listed:** File No. MP268, Guide No. MCCZ

Product Number	Type	Lead Length		Ambient Temperature Range		Includes	Used With
		(mm)	(inch)	(C)	(F)		
C7035A1023	Ultraviolet, Minipeeper	1829 mm	72 in.	-18 C to +121 C	0 F to 250 F	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1031	Ultraviolet, Minipeeper	1829 mm	72 in.	-40 C to +121 C	-40 F to +250 F	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1049	Ultraviolet, Minipeeper	1829 mm	72 in.	-18 C to +121 C	0 F to 250 F	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1056	Ultraviolet, Minipeeper	3658 mm	144 in.	-40 C to +121 C	-40 F to +250 F	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1064	Ultraviolet, Minipeeper	1829 mm	72 in.	-40 C to +121 C	-40 F to +250 F	—	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290
C7035A1080	Ultraviolet, Minipeeper	1829 mm	72 in.	-18 C to +121 C	0 F to 250 F	600F leads	Flame Amplifiers: R7249A, B, R7849A, B, R7749B, R7259, R7290

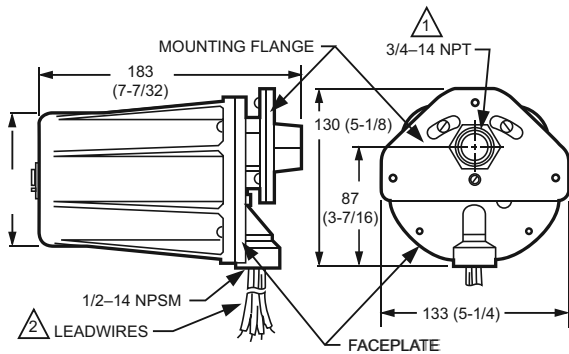
## C7061 Dynamic Self-Check Ultraviolet Flame Detector



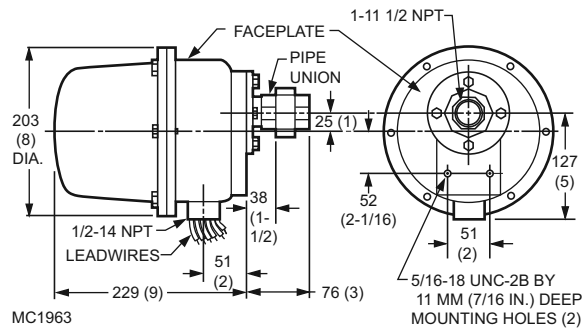
- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the UV sensor tube checking function.
- Can be mounted horizontally, vertically or at any angle in between.
- The detector requires faceplate alignment and has integral locating reference points to assure proper operation of the shutter mechanism.
- Field replaceable ultraviolet sensing tube and quartz viewing window.
- Models with threaded conduit fitting and color-coded leadwires allow rapid electrical installation.
- C7061A1038 or A1046 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- Two detectors can be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- Protective heat block built into mounting flange.
- -40 C (-40 F) rated ultraviolet sensing tube is supplied.
- C7061E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7061F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

Dynamic self-checking flame detector used with R7861 Dynamic Self-check Amplifiers for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.

Dimensions in millimeters (inches)



- 1 C7061A1046: 1 INCH NPT  
 2 C7061A1038 AND C7061A1046: BRAD HARRISON® CONNECTOR.  
 MC10167A



**Type:** Ultraviolet, Purple Peeper, Self-Checking  
**Description:** Ultraviolet Flame Detector with shutter  
**Application:** Gas fired burners; Oil fired burners  
**Frequency:** 50 Hz; 60 Hz  
**Ambient Temperature Range:** -40 C to +79 C (-40 F to +175 F)  
**Comments:** Dynamic self-checking flame detector

**Approvals:**  
**Canadian Standards Association:** Certified: Master Report LR95329-1  
**Factory Mutual:** Approved: Report No. 14740.01  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Electrical Connections	Lead Length		Mounting	NEMA Rating	Electrical Ratings	Used With
		(mm)	(inch)				
C7061A1012	Color-coded lead wires	2438 mm	96 in.	3/4 in. NPT	NEMA 4	120 Vac	Flame Amplifiers: R7861
C7061A1020	Terminal block	—	—	3/4 in. NPT	NEMA 4	120 or 230 Vac	Flame Amplifiers: R7861
C7061A1038	Brad Harrison type number 41310 connector	—	—	3/4 in. NPT	NEMA 4	120 Vac	Flame Amplifiers: R7861
C7061A1046	Brad Harrison type number 41310 connector	—	—	1 in. NPT	NEMA 4	120 Vac	Flame Amplifiers: R7861
C7061A1053	Color-coded lead wires	2438 mm	96 in.	1 in. NPT	NEMA 4	120 Vac	Flame Amplifiers: R7861
C7061F2001	Color-coded lead wires	2438 mm	96 in.	1 in. NPT	Explosion Proof	120 Vac	Flame Amplifiers: R7861

# Flame Detectors

## C7076 Adjustable Sensitivity Ultraviolet Flame Detector



C7076A

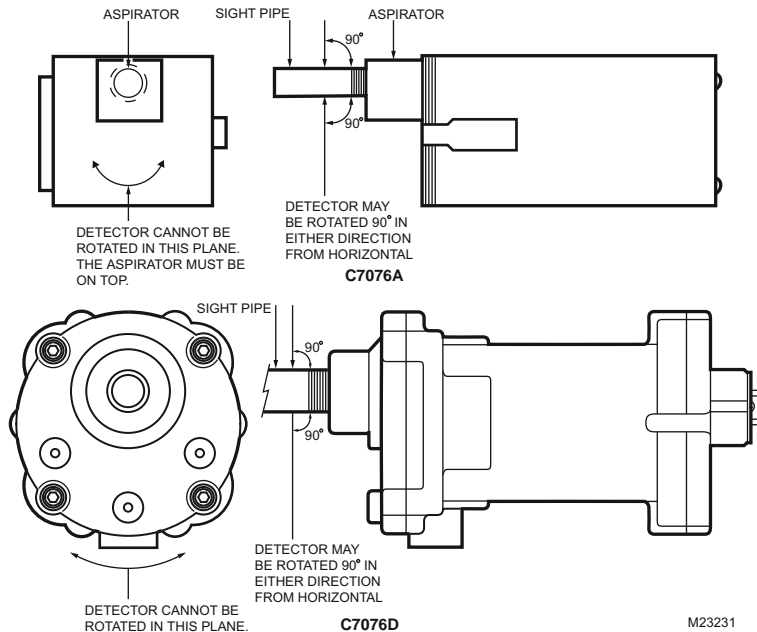


C7076D

Solid state dynamic self check flame detectors for use with BC7000, R4140 or FSP5075 with R7476 Amplifier and 7800 SERIES with R7886 Amplifier.

- Use Honeywell Flame Safeguard primary safety controls requiring adjustable sensitivity ultraviolet flame detection.
- Detect ultraviolet radiation from flames.
- Include dual sensitivity adjustment.
- C7076A meets NEMA 4 standards with viewing window rated to 20 psi.
- C7076D has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

### Dimensions in millimeters (inches)



**Description:** Adjustable Sensitivity Ultraviolet Flame Detector

**Application:** Gas fired burners; Oil fired burners

**Type:** Ultraviolet, Adjustable Sensitivity

**Mounting:** 1 in. NPT

**Vibration:** 0.5 G max

**NEMA Rating:** NEMA 4

**Electrical Connections:** Terminal block

**Power Consumption:** 7.0 W

**Electrical Ratings:** 120 Vac

**Ambient Temperature Range:** -40 C to +71 C (-40 F to +160 F)

**Used With:** Flame Amplifiers: R7476, R7886

**Weight:** 3 kg (6.6 lb)

**Approvals:**

**Canadian Standards Association:** Certified: Master Report LR1620

**Factory Mutual:** Approved: Report No. FM26980

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

### Replacement Parts:

**190971E** 120 Vac Coil and Shutter Assembly for C7076A, D

**190971F** 100 Vac Coil and Shutter Assembly for C7076A, D

**190998A** Aspiration assembly for C7076A

**191050** Quartz Viewing Window for C7076

**191053** UV Sensing Tube for C7076

**191002B** 120Vac Plug in Electronics less UV Sensing Tube for C7076A

**191002R** 120Vac Plug in Electronics less UV Sensing Tube for C7076D

Product Number	NEMA Rating	Electrical Ratings	Frequency	Comments
C7076A1007	NEMA 4	120 Vac	60 Hz	Dynamic self-checking flame detector with adjustable sensitivity
C7076A1015	NEMA 4	100 Vac	50 Hz; 60 Hz	Dynamic self-checking flame detector with adjustable sensitivity
C7076A1031	NEMA 4	220 Vac; 240 Vac	50 Hz; 60 Hz	Dynamic self-checking flame detector with adjustable sensitivity
C7076D1027	NEMA 7	120 Vac	60 Hz	Dynamic self-checking flame detector with adjustable sensitivity



## C7915 Infrared (Lead Sulfide) Flame Detector



The C7915 Flame Detectors include a lead sulfide photocell that is sensitive to the infrared radiation emitted by the combustion of fuels such as natural gas, oil, and coal.

- Used for combination or dual-fuel applications.
- Detects pilot and main flame.
- Mounts quickly and easily on a standard 3/4 in. sighting pipe.
- Works where flame rod or rectifying photocell mounts are difficult to apply.
- The C7915 includes 50019469-001 Bushing with magnifying lens.
- The C7915 uses photoconductive lead sulfide cells 32007255-001.

**Description:** Infrared (Lead Sulfide) Flame Detector

**Application:** Used for combination or dual-fuel applications

**Dimensions, Approximate:** 32 mm diameter x 58 mm long  
(1 1/4 in. diameter x 2 1/4 in. long)

**Mounting:** 3/4 in. NPT

**Electrical Connections:** Two no.18 AWG wires

**Ambient Temperature Range:** -18C to 52 operating range  
(-20F to 125F operating range)

**Comments:** Infrared (Lead Sulfide) Flame Detector

**Approvals:**

**Canadian Standards Association:** Certified: Master Report  
LR95329-1

**Factory Mutual:** Approved: Report No. 24181.03

**Industrial Risk Insurers:** Acceptable

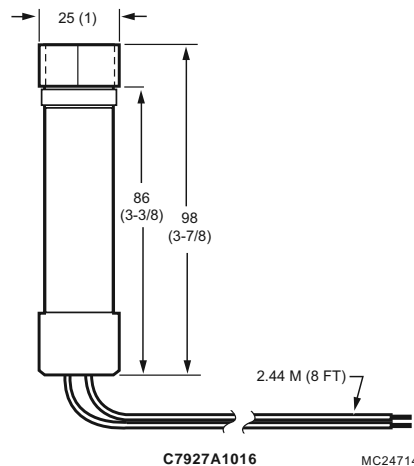
**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No.  
MCCZ

Product Number	Type	Lead Length		Includes	Used With
		(mm)	(inch)		
C7915A1010	Infrared (Lead Sulfide)	762 mm	30 in.	With magnifying lens, 32007255-001 Cell	Flame Amplifiers: R7852
C7915A1028	Infrared (Lead Sulfide)	1219 mm	48 in.	With magnifying lens, 32007255-001 Cell, Orifice, heat block, and reducer bushing	Flame Amplifiers: R7852
C7915A1036	Infrared (Lead Sulfide)	2438 mm	96 in.	With magnifying lens, 32007255-001 Cell	Flame Amplifiers: R7852

## C7927 Solid State Ultraviolet Flame Detector



Dimensions in millimeters (inches)



The Solid State Ultraviolet Flame Detectors detect the ultraviolet radiation emitted by combustion flames. The flame detectors are used with Honeywell flame safeguard controls to provide flame supervision for gas, oil, or combination gas-oil burners.

- Properly installed the flame detectors are pressure rated for 5 psi.
- Flame detector is used with only the R7851B Flame Amplifier and the 7800 SERIES controls.
- Has an integral collar threaded (internal 1/2-14 NPSM) for mounting on a one-half inch sight pipe.

**Application:** Gas, Oil, or combination burners-intermittent operation only (burner cycled at least once each 24 hours).

**Type:** I Ultraviolet, Minipeeper

**Mounting:** 1/2 in NPT pipe mounting

**NEMA Rating:** NEMA 1

**Electrical Connections:** 2 NEC Class 1 leadwires

**Ambient Temperature Range:** -40 C to +93 C (-40F to +200F)

**Approvals:**

**Canadian Standards Association:** Report 158158

**Factory Mutual:** Approved: Report No. 3011020

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized: File No.  
MP268

Product Number	Description	Lead Length		Comments	Used With
		(mm)	(inch)		
C7927A1016	Ultraviolet Flame Detector	2438 mm	96 in.	Detects ultraviolet radiation in flames	Flame Amplifiers: R7851B

# Flame Detectors

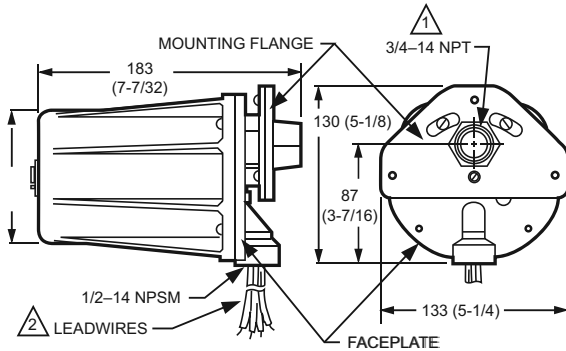
## C7961 Dynamic Self-checking Solid State Ultraviolet Flame Detector



- Designed for use with 7800 series controls with the R7851C flame amp.
- Oscillating shutter interrupts ultraviolet radiation reaching the UV sensor to provide the solid state UV sensor checking function.
- Can be mounted horizontally, vertically or at any angle in between.
- The detector requires faceplate alignment and has integral locating reference points to assure proper operation of the shutter mechanism.
- Models available with threaded conduit fitting and color-coded leadwires allow rapid electrical installation.
- C7961E1022 or E1030 5 pin Brad Harrison type (formally 41307N) mating connector not supplied nor available through Honeywell.
- Incorporates UV sensor tube checking feature; used with R7851C1008 Dynamic Self-check Amplifiers.
- Protective heat block built into mounting flange.
- -40 C (-40 F) rated ultraviolet sensing cell is supplied.
- C7961E meets NEMA 4 standards with viewing window rated to 20 psi.
- C7961F has an explosion-proof housing for use in hazardous atmospheres with a viewing window rated to 100 psi.

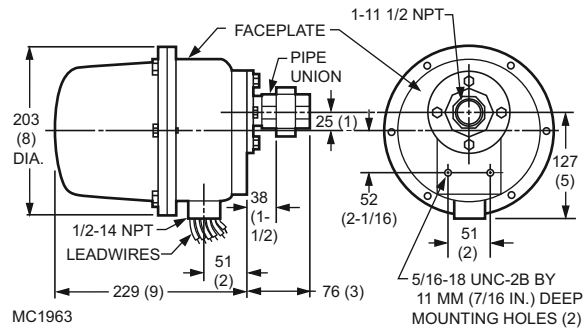
A self-checking flame detector using a solid state UV sensor to detect ultraviolet radiation in flames for supervision of gas, oil or combination gas-oil burners.

### C7961E Dimensions in millimeters (inches)



- ① C7061A1046: 1 INCH NPT  
 ② C7061A1038 AND C7061A1046: BRAD HARRISON® CONNECTOR.  
 MC10167A

### C7961F Dimensions in millimeters (inches)



**Description:** Dynamic Self-checking Ultraviolet Flame Detector  
**Application:** Gas, Oil or other fuels  
**Type:** Ultraviolet, Self-Checking  
**Electrical Ratings:** 120 Vac (-15% +10%)  
**Frequency:** 50 Hz; 60 Hz  
**Ambient Temperature Range:** -40 C to +80 C (-40 F to +175 F)  
**Comments:** Detects ultraviolet radiation generated by combustion of gas, oil, or other fuels  
**Used With:** R7851C Dynamic Self-Check Amplifier

**Weight:** 1.2 kg (2.6 lb)  
**Approvals:**  
**Canadian Standards Association:** Certified: Pending  
**Factory Mutual:** Pending  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Component Recognized: File No. MP268

Product Number	Electrical Connections	Lead Length		Mounting	NEMA Rating	Includes
		(mm)	(inch)			
C7961E1006	NEC Class 1 color-coded	2438 mm	96 in.	3/4 in. NPT	NEMA 4	Quartz Viewing Window rated for 20 psi (138 kPa)
C7961E1022	5 pin Brad Harrison Type Connector	—	—	1 in. NPT	NEMA 4	Quartz Viewing Window rated for 20 psi (138 kPa)
C7961F1004	NEC Class 1 color-coded	2438 mm	96 in.	1 in. NPT	Explosion Proof	Quartz Viewing Window rated for 100 psi

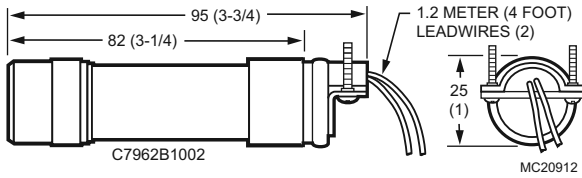
## C7962 Visible Light Flame Detector



The C7962B Visible Light Flame Detector detects the visible light emitted by fuel oil combustion flames. The C7962B Detector is used with Honeywell Flame Safeguard controls to provide fuel oil flame supervision in commercial and industrial burners.

- Used with 7800 SERIES Flame Safeguard controls.
- Used with R7851B Flame Amplifier.
- Has an integral collar threaded (internal 1/2-14 NPSM) for mounting on 1/2 inch sight pipe.

### Dimensions in millimeters (inches)



**NEMA Rating:** NEMA 1

**Electrical Connections:** 2 NEC Class 1 leadwires

**Ambient Temperature Range:** -40 C to +71 C (-40 F to +160 F)

**Used With:** Flame Amplifiers: R7851B

**Approvals:**

**Canadian Standards Association:** Report 158158

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized: File No. MP268

**Application:** Commercial, industrial oil burners

**Type:** Visible Light Flame Detector

**Mounting:** 1/2 in NPT pipe mounting

**Vibration:** 0.5 G max

**Accessories:**

**32007439-001** Mounting Bracket and screws for C7962B (3/8 in. NPT to 1/2 in. NPT)

Product Number	Description	Lead Length		Includes
		(mm)	(inch)	
C7962B1002	Solid State Flame Detector to Site Visible Light of an Oil flame	2438 mm	96 in.	—
C7962B1010	Solid State Flame Detector to Site Visible Light of an Oil flame	2438 mm	96 in.	32007439-001 Mounting Bracket and screws

## Optical Flame Detector Accessories or Parts

Product Number	Description	Used With
105061	3/4 in. Heat Block for C7015, C7915	C7015, C7915
105172A	Pressure Seal-off Adapter (3/4 NPT) for C7015, C7915	C7015, C7915
105172C	Pressure Seal-off Adapter (3/4 NPT) w/UV Quartz window for C7012, C7024, C7027, C7061	C7012, C7024, C7027, C7061
113228	UV Sensing Tube (-20 F to 175 F) for C7012; C7024	C7012; C7024
114372	20 PSI window for C7012E, F; C7024; C7061	C7024; C7012; C7061
114465	Window Gasket for C7012A, E; C7024A; C7061A	C7024; C7012; C7061
114638	Rubber Washer (Red) for C7012A, E; C7024A; C7061A; C7961A	C7012; C7061; C7024
118367A	Swivel Mount for C7012, C7015, C7024, C7027, C7035, C7061, C7076	C7024; C7012; C7061
120739	Flange Gasket for C7012, C7024, C7061	C7024; C7012; C7061
120934/520	Mounting Flange (3/4") for C7012A, E; C7024A; C7061A; C7961E	C7012A, G, C7024E, C7061A, C7961E
122037	100 PSI Quartz Window for C7012C, F; C7061F	C7012C, F; C7061F
122748	50 PSI Quartz Window for C7012, C7061	C7012; C7061; C7024
123539	Anti-Vibration Mount for C7012, C7024 or C7061	C7012; C7061; C7024
124204	Quartz Magnifying Lens for C7012, C7024 or C7061	C7024; C7012; C7061
129464M	UV Power Tube (0 to 250F) for C7035	C7035
129464N	UV Power Tube (-40 to 250F) for C7035, C7061	C7061; C7035
136733	Heat Block for C7027, C7015, C7915 (laminated plastic)	C7027, C7015, C7915
190971B	120 Vac 50/60 Hz Coil and Shutter Assembly for C7012E, F, C7061A, F	C7012E, F; C7061A, F
190971E	120 Vac Coil and Shutter Assembly for C7076A, D	C7076; C7076A, D
190971F	100 Vac Coil and Shutter Assembly for C7076A, D	C7076A, D
190998A	Aspiration assembly for C7076A	C7076A
190999	Grommet for C7076 Sensors	C7076
191002B	120Vac Plug in Electronics less UV Sensing Tube for C7076A	C7076A
191050	Quartz Viewing Window for C7076	C7076
191053	UV Sensing Tube for C7076	C7076
191286	UV Sensing Tube (-40F to 175F) for C7012, C7024	C7024; C7012
32007255-001	Lead Sulfide Cell for C7915	C7915
32007439-001	Mounting Bracket and screws for C7962B (3/8 in. NPT to 1/2 in. NPT)	C7962B
390427B	Reducer Bushing (1/2" NPT to 3/8" NPT)	C7027; C7015

# Pilot Burners

## C7005 Flame Rectifier Pilots



**Type of Gas:** Natural

**Dimensions, Approximate:** 76 mm diameter x 343 mm deep  
(3 in. diameter x 3 1/2 in. deep)

**Gas Fitting:** 1/2 in. NPT male thread

**Gas Pilot Burner Assemblies include a flame rod to prove the pilot flame. The assemblies are used with a suitable flame safeguard control on industrial or commercial gas burners or oil burners with gas pilots.**

- Used with Honeywell controls using the flame rectification principle.
- C7005A is for continuous pilot applications.
- It includes an insulated flame rod, properly positioned relative to the flame retention type nozzle. C7005B is similar to C7005A, but includes an ignition electrode suitable for automatic, electric-spark ignition, gas pilot applications.
- Individually mounted flame rod and ignition electrode in ceramic insulators allow the head assembly to fit inside a 3-inch pipe.
- Stainless steel fins on the flame retention type pilot head provide the correct ratio of flame rod area to ground area for maximum flame signal, and are beneficial in stabilizing the pilot flame.
- Pilot flame retention nozzle and mixing tube are threaded internally, 1/2-14 NPT and 3/8-18 NPT, respectively, and can be assembled with standard pipe fittings.
- Pilot can be installed in vertical, horizontal, or inclined position.
- Rajah connectors facilitate electrical connections.

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 140-A-2

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Application	Type of Gas	Orifice	Description	Includes	Used With
C7005A1037	For Continuous (Standing) pilot	Natural	0.052 in. dia.	Flame Rectifier Pilot with a 0.052 in. dia. Orifice	—	—
C7005B1035	For automatic electrically ignited pilot	Natural	0.052 in. dia.	Flame Rectifier Pilot with a 0.052 in. dia. Orifice	Ignition electrode	Q624 or other suitable ignition transformer.
C7005B1050	For automatic electrically ignited pilot	LP	0.028 in. dia. (0.711 mm dia.)	Flame Rectifier Pilot with a 0.028 in. dia. Orifice	Ignition electrode	Q624 or other suitable ignition transformer.

## Q179A,B Flame Rectifier Gas Pilots



Q179A

**Q179A,B Gas Pilot Burner Assemblies use the flame rectification principle to prove the flame. Q179A,B are used in conjunction with a suitable electronic flame safeguard control on industrial or commercial gas and gas pilot ignited oil burners.**

- Q179A is a gas pilot assembly (with a flame electrode rod) and ignition electrode, making it suitable for applications requiring an interrupted or intermittent electrically ignited gas pilot burner.
- Q179B has only the flame electrode and is suitable for use in continuous pilot applications.
- Primary aerated type burner is equipped with stainless steel fins that provide the proper flame rod area to ground area ratio for maximum flame signal and flame stabilization.
- Stainless steel electrode(s) are mounted in ceramic insulators, which permit electrode adjustment.
- Rajah connectors facilitate disconnecting (A1126 has terminal screws).
- Bracket permits side or end mounting.

**Type of Gas:** Natural

**Dimensions, Approximate:** 118 mm high x 43 mm wide x 76 mm deep  
(4 5/8 in. high x 1 11/16 in. wide x 3 in. deep)

**Aeration:** Primary

**Mounting Bracket:** side/end

**Type of Gas:** Natural

**Gas Consumption:** 2.0 cfh (0.06 m<sup>3</sup>/hr)

**Gas Fitting:** 6.4 mm compression coupling  
(1/4 in. compression coupling)

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 140-A-2

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Application	Port and Burner Tip Style	Orifice	Includes	Used With
Q179A1001	For Intermittent or Interrupted Ignition	I	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1035	For Intermittent or Interrupted Ignition	45 degree right hand	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1050	For Intermittent or Interrupted Ignition	T	0.028 in. dia. (0.711 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1076	For Intermittent or Interrupted Ignition	45 degree Y	0.028 in. dia. (0.711 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1092	For Intermittent or Interrupted Ignition	45 degree T	0.028 in. dia. (0.711 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1118	For Intermittent or Interrupted Ignition	45 degree left hand	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179A1126	For Intermittent or Interrupted Ignition	I	0.025 in. dia. (0.635 mm dia.)	Flame electrode and ignition electrode with screw terminal connections	Q624 or other suitable ignition transformer.
Q179A1183	For Intermittent or Interrupted Ignition	I	0.025 in. dia. (0.635 mm dia.)	Ignition Electrode Only	Q624 or other suitable ignition transformer.
Q179B1042	For Continuous (Standing) pilot	T	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—
Q179B1109	For Continuous (Standing) pilot	45 degree left hand	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—
Q179B1117	For Continuous (Standing) pilot	45 degree I	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—
Q179B1182	For Continuous (Standing) pilot	T	0.025 in. dia. (0.635 mm dia.)	Flame electrode	—

# Pilot Burners

## Q179C,D Miniature Rectifier Pilots



Q179C



Q179D

**Q179C,D Gas Pilot Burner Assemblies use the flame rectification principle to prove the flame. Q179C,D are used in conjunction with a suitable electronic flame safeguard control on industrial or commercial gas and gas pilot ignited oil burners.**

- Q179C is a gas pilot assembly (with a flame electrode rod) and ignition electrode, making it suitable for applications requiring an interrupted or intermittent electrically ignited gas pilot burner.
- Q179D has only the flame electrode and is suitable for use in continuous pilot applications.
- Primary aerated type burner is equipped with stainless steel fins that provide the proper flame rod area to ground area ratio for maximum flame signal and flame stabilization.
- Stainless steel electrode(s) are mounted in ceramic insulators, which permit electrode adjustment.
- Rajah connectors facilitate disconnecting.

**Type of Gas:** Natural

**Dimensions, Approximate:** 79 mm high x 62 mm wide x 25 mm deep  
(3 1/8 in. high x 2 7/16 in. wide x 1 in. deep)

**Aeration:** Primary

**Gas Fitting:** 6.4 mm compression coupling  
(1/4 in. compression coupling)

**Includes:** Flame electrode and ignition electrode

**Used With:** Q624 or other suitable ignition transformer.

**Approvals:**

**Canadian Standards Association:** Certified: Master Report  
LR95329-1

**Underwriters Laboratories, Inc.** Component Recognized: File No.  
MH9928, Guide No. MCUR2

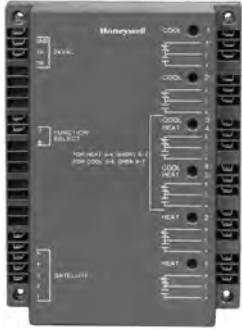
Product Number	Application	Type of Gas	Mounting Bracket	Port and Burner Tip Style	Target Mount	Orifice	Includes	Used With
Q179C1009	For Intermittent or Interrupted Ignition	Natural	rear	D	Dual Wing-Rear	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1025	For Intermittent or Interrupted Ignition	Natural	rear	L	Single Wing-Rear	0.024 in. dia. (0.60 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1033	For Intermittent or Interrupted Ignition	Natural	left side	D	Dual Wing-Left Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1041	For Intermittent or Interrupted Ignition	Natural	right side	D	Dual Wing-Right Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1058	For Intermittent or Interrupted Ignition	Natural	left side	L	Single Wing-Left Side	0.024 in. dia. (0.60 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1066	For Intermittent or Interrupted Ignition	Natural	right side	K	Single Wing-Right Side	0.024 in. dia. (0.60 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1090	For Intermittent or Interrupted Ignition	LP	rear	D	Dual Wing-Rear	0.016 in. dia. (0.40 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179C1108	For Intermittent or Interrupted Ignition	Natural	rear	D	Dual Wing-Rear	0.026 in. dia. (0.66 mm dia.)	Flame electrode and ignition electrode	Q624 or other suitable ignition transformer.
Q179D1008	For Continuous (Standing) pilot	Natural	rear	D	Dual Wing-Rear	0.026 in. dia. (0.66 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1016	For Continuous (Standing) pilot	Natural	left side	D	Dual Wing-Left Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1024	For Continuous (Standing) pilot	Natural	right side	D	Dual Wing-Right Side	0.026 in. dia. (0.66 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1057	For Continuous (Standing) pilot	Natural	left side	L	Single Wing-Left Side	0.024 in. dia. (0.60 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.
Q179D1925	For Continuous (Standing) pilot	LP	rear	D	Dual Wing-Rear	0.016 in. dia. (0.40 mm dia.)	Flame electrode and thermocouple adapter	Q340 Thermocouple or Q313A Thermopile Generator.

## Commercial Pilot Burners Parts or Accessories

Product Number	Description	Used With
100204B	Natural Gas Venturi Mixing Tube for C7005A, B	C7005A, C7005B
101738	Insulator for Flame rod or Ignitor	C7005A, C7005B
101738A	Ignition Assembly	C7005A, C7005B
101738B	Flame Rod Assembly	C7005A, C7005B
101739	Ignition Electrode, 4", Kanthal	C7005A, C7005B
101741/0020	7/8 in. long Rajah Connector with plug end for C7005A or C7005B	C7005A, C7005B
103534	Kanthal flame electrode 8 in. used with C7005A, C7005B	C7005A, C7005B
131065	Adapts Q340 Thermal Couple to Q179B w/102462	Q179A, Q179B
133451A	T Port or LH 90 degree Flame Rod & Insulator for Q179A, B	Q179A, Q179B
37356/520	Rajah connector for ignition electrode for Q179A, Q179B, Q179C, or Q179D.	Q179A, Q179B, Q179C, Q179D
388146KD	LP Gas spud orifice, .016" dia. for Q179C, D	Q179C, Q179D
395390-13	LP Gas Orifice .013" dia. for Q179A, B	Q179A, Q179B
R1061012	Ignition cable or Flame Rod Cable. Rated at 350 F, 20,000 volts R.M.S.	C7005B, Q179A, Q179C
R1298020	Cable Flame Rod Lead. Rated at 400 F, 600 volts R.M.S. For use with Q179	Q179

# Commercial Hydronic Controllers

## Satellite Sequencer



Provides up to 6 additional stages of heating/cooling control for W7100 Discharge air controller applications.

- Extends capacity of W7100 Discharge Air system.
- Advanced microprocessor control algorithm minimizes droop.
- For system with or without economizer.
- Jumper selectable between 4 cool/2 heat or 2 cool/4 heat stages. LED's indicate operation of each output stage relay.

**Dimensions, Approximate:** 219 mm high, 165 mm wide, 76 mm deep  
(8 5/8 in. high, 6 1/2 in. wide, 3 in. deep)

**Frequency:** 60 Hz

**Operating Temperature Range:** -40 F to +150F

Product Number	Application	Supply Voltage	Used With
W7101A1003	Satellite Sequencer	20 to 30 Vac	W7100

## Commercial Hydronic Controller Accessories

Product Number	Description	Used With
4074EDJ	Bag Assembly including Test Plug and Resistors for W7100	W7100
4074EFV	Bag Assembly including Resistors for Number of Stages for W7100J	W7100J



## Q624 Solid State Ignition Transformer



### Used to ignite pilots on commercial or industrial gas burners.

- Ignite gas pilots with spark gaps up to 1/4 in. (6.5 mm).
- Reliable light off with 15,000 peak voltage.
- Prevent detection of the ignition spark when properly applied in a flame detection system with the C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector.
- For use only in interrupted ignition applications.
- Mount in same space used by conventional ignition transformer.
- Light weight, 3 lbs. (1.4 kg) versus 8-1/2 lbs. (3.9 kg) for standard transformers.

**Ambient Temperature Range:** -40 C to +52 C (-40 F to +125 F)

**Operating Humidity Range (% RH):** 95% RH

**Weight:** 3 lb

### Approvals:

**Canadian Standards Association:** Certified: File No. LR95329

**Underwriters Laboratories, Inc.** Component Recognized

### Accessories:

**32004766-001** 24 inch Ignition Cable for Q624 and Q652

**32004766-002** 120 inch Ignition Cable used with Q624 and Q652

**32004766-003** Ignition Cable for Q624 and Q652 (order per foot)

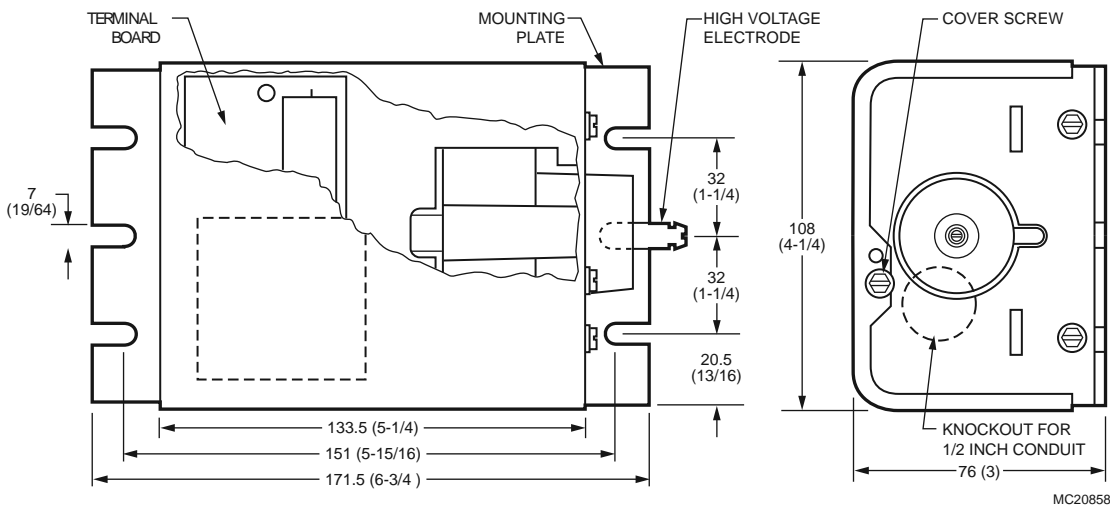
**32004766-004** 60 inch Ignition Cable used with Q624 and Q652

**32004766-005** 8 inch Ignition Cable used with Q624 and Q652

**32004766-006** 36 inch Ignition Cable used with Q624 and Q652

Product Number	Application	Electrical Ratings	Frequency	Description
Q624A1014	Gas Ignition Transformer	120 Vac	50 Hz; 60 Hz	120 Vac, 50/60 Hz Gas Ignition Transformer

### Dimensions in millimeters (inches)



# Ignition Transformers

## Q652 Solid State Spark Generator



Used to ignite gas burners in commercial and industrial applications.

- Lightweight, 1 lb. (0.4 kg).
- Include single high voltage electrode for gas applications.
- For use with gas pilots with electrode spacings between 0.029 and 0.125 in.
- Secondary Peak Voltage: 14Kv rms at 21Khz.
- Mount in same space used by conventional ignition transformer.
- For use only in interrupted ignition applications.
- Prevent detection of the ignition spark when properly applied in a flame detection system with the C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector.

**Ambient Temperature Range:** -10 C to +45 C (14 F to 113 F)  
**Operating Humidity Range (% RH):** 90% RH  
**Weight:** 1 lb

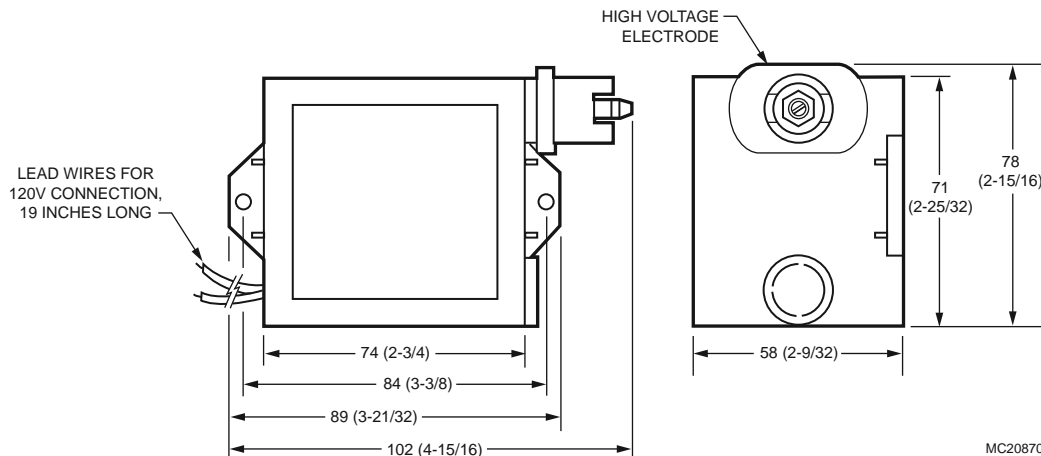
**Approvals:**  
**Canadian Standards Association:** LA66894  
**Underwriters Laboratories, Inc.** Component Recognized File MH14381

### Accessories:

- 32004766-001** 24 inch Ignition Cable for Q624 and Q652
- 32004766-002** 120 inch Ignition Cable used with Q624 and Q652
- 32004766-003** Ignition Cable for Q624 and Q652 (order per foot)
- 32004766-004** 60 inch Ignition Cable used with Q624 and Q652
- 32004766-005** 8 inch Ignition Cable used with Q624 and Q652
- 32004766-006** 36 inch Ignition Cable used with Q624 and Q652

Product Number	Application	Electrical Ratings	Frequency
Q652B1006	Gas Ignition Transformer	120 Vac	60 Hz
Q652B1014	Solid State Ignitor Spark Generator-Gas Applications; 220V 60 Hz	220 Vac	60 Hz

Dimensions in millimeters (inches)



## Ignition Transformer Accessories or Parts

Product Number	Description	Used With
134666/510	High voltage terminal insulator for Q652 and Q624	Q652;Q624
32004766-001	24 inch Ignition Cable for Q624 and Q652	Q652;Q624
32004766-003	Ignition Cable for Q624 and Q652 (order per foot)	Q652;Q624
32004766-004	60 inch Ignition Cable with straight boots	Q652;Q624

## M9484D,E,F Modutrol™ IV Motors



Reversing, proportional motors used to drive burner firing rate valves, dampers or auxiliary equipment. Replace M941A,C,D motors.

- Designed for flame safeguard applications in commercial/industrial oil or gas burner system.
- Vibration resistant electronic drive circuit.
- Regulated by three-wire proportional controller.
- Stroke is field-adjustable to 90 or 160 degrees.

**Description:** Proportional control motor for 135 ohm firing rate applications

**Dimensions, Approximate:** 164 mm high x 140 mm wide x 185 mm deep (6.45 in high x 5.5 in wide x 7.3 in deep)

**Ambient Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Crankshaft:** double-ended, 3/8 in. (9.5 mm) square

**Deadweight Load on Shaft (Either End):** 90.8 kg (136 kg combined power and auxiliary shafts) (200 lb (300 lb combined power and auxiliary shafts))

**Input Signal:** 135 ohm

**Power Consumption:** 15 W

**Voltage:** 24 Vac

**Frequency:** 50 Hz; 60 Hz

**Switch Ratings - 120 Vac:** 7.2 AFL, 43.2 ALR, 40 VA pilot duty opposite contact

**Switch Ratings - 240 Vac:** 3.6 AFL, 21.6 ALR, 40 VA pilot duty opposite contact

**Approvals:**

**Underwriters Laboratories, Inc.** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Accessories:**

**Q100B1006** Linkage- Connects Modutrol motor to V51E Butterfly Valve.

Product Number	Torque Rating		Torque Rating, Breakaway		Timing		Auxiliary Switch	Auxiliary Switch Settings
	(Nm)	(lb-in.)	(Nm)	(lb-in.)	90 Degree Stroke	160 Degree Stroke		
M9484D1010	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	—	—
M9484D4006	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	—	—
M9484E1009	8.5 Nm	75 lb-in.	17.0 Nm	150 lb-in.	15 seconds	30 seconds	1	11 degrees
M9484E1017	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	1	1 degree
M9484E1033	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	1	7 degrees
M9484E4003	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	1	8 degrees
M9484F1007	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	2	7 and 80 degrees
M9484F1023	8.5 Nm	75 lb-in.	17.0 Nm	150 lb-in.	15 seconds	30 seconds	2	—
M9484F1031	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	2	7 and 80 degrees
M9484F1049	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	2	35 and 120 degrees
M9484F4001	17 Nm	150 lb-in.	34.0 Nm	300 lb-in.	30 seconds	60 seconds	2	54 degrees and 8 degrees
M9484F4019	8.5 Nm	75 lb-in.	17.0 Nm	150 lb-in.	15 seconds	30 seconds	2	54 degrees and 8 degrees
M9494D1000	34 Nm	300 lb-in.	68.0 Nm	600 lb-in.	60 seconds	120 seconds	—	—
M9494F1003	34 Nm	300 lb-in.	68.0 Nm	600 lb-in.	60 seconds	107 seconds	2	—

# Butterfly Valve Linkages

## Q100 Butterfly Valve Linkages



Connects V51E valve to M9484 and M9494 Modutrol IV Motors with adapter plate.

- Fits all sizes of V51E Valves. Mounts easily.

Product Number	Linkage Type	Linkage Rod	Valve Compatibility	Used with Actuator	Description	Used With
Q100B1006	Butterfly Gas Valve	273 mm; 10 3/4 in.	all sizes	Modutrol Motor	Linkage- Connects Modutrol motor to V51E Butterfly Valve.	V51E Gas Valve

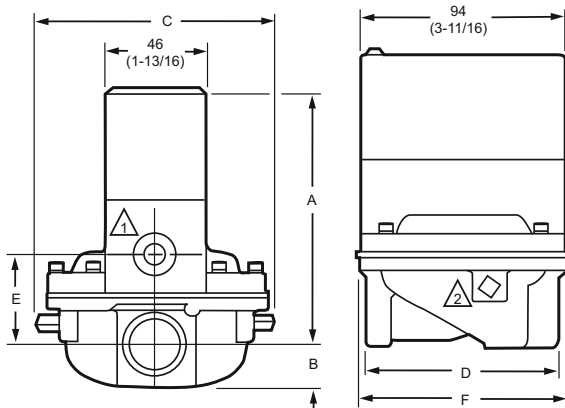
## V48A; V88A Diaphragm Gas Valves



Solenoid-operated diaphragm valves provide slow opening and fast closing suitable for controlling natural, LP or manufactured gases. They are normally used on atmospheric boilers, commercial water heaters, and rooftop heaters.

- V48 for line voltage service; V88 for 24Vac service.
- Close firmly with diaphragm that is both weight and spring loaded.
- Two second maximum closing time.
- Valve closes on power failure; recommended for final shutoff service.
- Set opening time with various sized bleed orifices or adjustable bleed valve.
- Use with LP, natural or manufactured gases.
- Made with cast aluminum in straight-through valve pattern.
- Valve position indicator available for 1-1/4 in. V48A2227.

### Dimensions in millimeters (inches)



VALVE SIZE (IN.)	APPROXIMATE DIMENSIONS											
	A		B		C		D		E		F	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	119.1	4-11/16	19.1	3/4	117.5	4-5/8	88.9	3-1/2	41.3	1-5/8	96.8	3-13/16
1	128.6	5-1/16	25.4	1	127.0	5	93.7	3-11/16	52.4	2-1/16	109.5	4-5/16
1-1/4	141.3	5-9/16	31.8	1-1/4	149.2	5-7/8	134.9	5-5/16	60.3	2-3/8	134.9	5-5/16
1-1/2	141.3	5-9/16	31.8	1-1/4	149.2	5-7/8	134.9	5-5/16	60.3	2-3/8	134.9	5-5/16
2	176.2	6-15/16	57.2	2-1/4	241.3	9-1/2	212.7	8-3/8	90.5	3-9/16	236.5	9-5/16
2-1/2	176.2	6-15/16	57.2	2-1/4	241.3	9-1/2	212.7	8-3/8	90.5	3-9/16	236.5	9-5/16
3	176.2	6-15/16	57.2	2-1/4	241.3	9-1/2	212.7	8-3/8	90.5	3-9/16	236.5	9-5/16

1 BLEED TAPPING: 1/8-27 NPT, OR 1/8-28 BSP. PL.

2 PILOT TAPPING (2): 1/8-27 NPT FOR 3/4 THROUGH 1-1/2 IN. SIZES, 1/4-18 NPT FOR 2 THROUGH 3 IN. SIZES, OR 1/8-28 BSP. PL FOR 1 THROUGH 1-1/2 IN. SIZES, 1/4-19 BSP. PL FOR 2 THROUGH 3 IN. SIZES

**Body Pattern:** Straight-through

**Electrical Connections:** 6 in. Leadwires

**Ground Terminal:** Yes

**Pilot Tapping:** 1/8-27 NPT

**Pressure Ratings:** 3.4 kPa (1/2 psi)

**Frequency:** 60 Hz

**Power Consumption:** 9 W; 15 VA max

**Mounting:** Upright (horizontal)

**Bleed Tapping:** 1/8-27 NPT

**Valve Opening Time:** 5 sec max

**Valve Closing Time:** 2 sec max

**Operating Temperature Range:** 0 C to 52 C (32 F to 125 F)

**Type of Gas:** Natural; LP; Manufactured

**Materials**

**(Body):** Aluminum

**Approvals:**

**Canadian Standards Association:** Certificate No. 158158-2500005576 (Z21.21-CSA 6.5)

**Underwriters Laboratories, Inc.** File No. MH1639, Guide No. YIOZ

Product Number	Pipe Size (inch)	Capacity		Current (max amps at rated Vac/Hz)	Voltage	Comments
		(m <sup>3</sup> /hr)	(cfh)			
V48A2151	3/4 in.	18.9 m <sup>3</sup> /hr	668 cfh	0.13 amps	120 Vac	—
V48A2169	1 in.	28.9 m <sup>3</sup> /hr	1021 cfh	0.13 amps	120 Vac	—
V48A2177	1 1/4 in.	59.5 m <sup>3</sup> /hr	2100 cfh	0.13 amps	120 Vac	—
V48A2185	1 1/2 in.	67.9 m <sup>3</sup> /hr	2400 cfh	0.13 amps	120 Vac	—
V48A2227	1 1/4 in.	59.5 m <sup>3</sup> /hr	2100 cfh	0.13 amps	120 Vac	Includes position indicator
V48A2243	2 in.	118.3 m <sup>3</sup> /hr	4178 cfh	0.13 amps	120 Vac	—
V48A2250	2 1/2 in.	144.4 m <sup>3</sup> /hr	5100 cfh	0.13 amps	120 Vac	—
V48A2268	3 in.	157.5 m <sup>3</sup> /hr	5562 cfh	0.13 amps	120 Vac	—
V48A2276	1 1/2 in.	67.9 m <sup>3</sup> /hr	2400 cfh	0.13 amps	120 Vac	—
V48A2334	1 in.	28.9 m <sup>3</sup> /hr	1021 cfh	0.13 amps	120 Vac	—
V48A2342	1 1/4 in.	59.5 m <sup>3</sup> /hr	2100 cfh	0.13 amps	120 Vac	—
V88A1618	1 in.	28.9 m <sup>3</sup> /hr	1021 cfh	0.62 amps	24 Vac	—
V88A1626	1 1/4 in.	59.5 m <sup>3</sup> /hr	2100 cfh	0.62 amps	24 Vac	—

# Diaphragm Gas Valves

Product Number	Pipe Size (inch)	Capacity		Current (max amps at rated Vac/Hz)	Voltage	Comments
		(m <sup>3</sup> /hr)	(cfh)			
V88A1634	1 1/2 in.	67.9 m <sup>3</sup> /hr	2400 cfh	0.62 amps	24 Vac	—
V88A1659	3/4 in.	18.9 m <sup>3</sup> /hr	668 cfh	0.62 amps	24 Vac	—
V88A1667	3/4 in.	18.9 m <sup>3</sup> /hr	668 cfh	0.62 amps	24 Vac	—
V88A1675	1 in.	28.9 m <sup>3</sup> /hr	1021 cfh	0.62 amps	24 Vac	—
V88A1683	1 1/4 in.	59.5 m <sup>3</sup> /hr	2100 cfh	0.62 amps	24 Vac	—
V88A1691	1 1/2 in.	67.9 m <sup>3</sup> /hr	2400 cfh	0.62 amps	24 Vac	—
V88A1709	2 in.	118.3 m <sup>3</sup> /hr	4178 cfh	0.62 amps	24 Vac	—
V88A1717	2 1/2 in.	144.4 m <sup>3</sup> /hr	5100 cfh	0.62 amps	24 Vac	—
V88A1725	3 in.	157.5 m <sup>3</sup> /hr	5562 cfh	0.62 amps	24 Vac	—

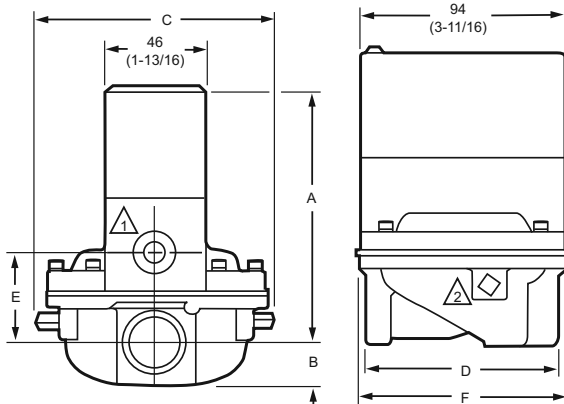
## V88J High Temperature Diaphragm Gas Valves



**Solenoid-operated diaphragm valves provide slow opening and fast closing suitable for controlling natural, LP or manufactured gases. They are normally used on atmospheric boilers, commercial water heaters, and rooftop heaters.**

- Rated for 150F (66C) maximum temperature applications.
- V48 for line voltage service; V88 for 24Vac service.
- Close firmly with diaphragm that is both weight and spring loaded.
- Two second maximum closing time.
- Valve closes on power failure; recommended for final shutoff service.
- Set opening time with various sized bleed orifices or adjustable bleed valve.
- Use with LP, natural or manufactured gases.
- Made with cast aluminum in straight-through valve pattern.

Dimensions in millimeters (inches)



**Body Pattern:** Straight-through  
**Electrical Connections:** 6 in. Leadwires  
**Pilot Tapping:** 1/8-27 NPT  
**Pressure Ratings:** 6.9 kPa (1 psi)  
**Frequency:** 60 Hz  
**Power Consumption:** 15 VA max; 9 W  
**Mounting:** Upright (horizontal)  
**Bleed Tapping:** 1/8-27 NPT  
**Valve Opening Time:** 5 sec max  
**Valve Closing Time:** 2 sec max  
**Operating Temperature Range:** 0 C to 66 C (32 F to 150 F)  
**Type of Gas:** Natural; LP; Manufactured

**Materials**  
**(Body):** Aluminum

**Approvals:**  
**Canadian Standards Association:** Certificate No. 158158-2500005576 (Z21.21-CSA 6.5)  
**Underwriters Laboratories, Inc.** File No. MH1639, Guide No. YIOZ

VALVE SIZE (IN.)	APPROXIMATE DIMENSIONS											
	A		B		C		D		E		F	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	119.1	4-11/16	19.1	3/4	117.5	4-5/8	88.9	3-1/2	41.3	1-5/8	96.8	3-13/16
1	128.6	5-1/16	25.4	1	127.0	5	93.7	3-11/16	52.4	2-1/16	109.5	4-5/16
1-1/4	141.3	5-9/16	31.8	1-1/4	149.2	5-7/8	134.9	5-5/16	60.3	2-3/8	134.9	5-5/16
1-1/2	141.3	5-9/16	31.8	1-1/4	149.2	5-7/8	134.9	5-5/16	60.3	2-3/8	134.9	5-5/16
2	176.2	6-15/16	57.2	2-1/4	241.3	9-1/2	212.7	8-3/8	90.5	3-9/16	236.5	9-5/16
2-1/2	176.2	6-15/16	57.2	2-1/4	241.3	9-1/2	212.7	8-3/8	90.5	3-9/16	236.5	9-5/16
3	176.2	6-15/16	57.2	2-1/4	241.3	9-1/2	212.7	8-3/8	90.5	3-9/16	236.5	9-5/16

- 1 BLEED TAPPING: 1/8-27 NPT, OR 1/8-28 BSP. PL.
- 2 PILOT TAPPING (2): 1/8-27 NPT FOR 3/4 THROUGH 1-1/2 IN. SIZES, 1/4-18 NPT FOR 2 THROUGH 3 IN. SIZES; OR 1/8-28 BSP. PL FOR 1 THROUGH 1-1/2 IN. SIZES, 1/4-19 BSP.PL FOR 2 THROUGH 3 IN. SIZES.

Product Number	Pipe Size (inch)	Capacity		Current (max amps at rated Vac/Hz)	Voltage
		(m <sup>3</sup> /hr)	(cfh)		
V88J1006	1 in.	28.9 m <sup>3</sup> /hr	1021 cfh	0.62 amps	24 Vac
V88J1022	1 1/4 in.	59.5 m <sup>3</sup> /hr	2100 cfh	0.62 amps	24 Vac

# Diaphragm Gas Valves

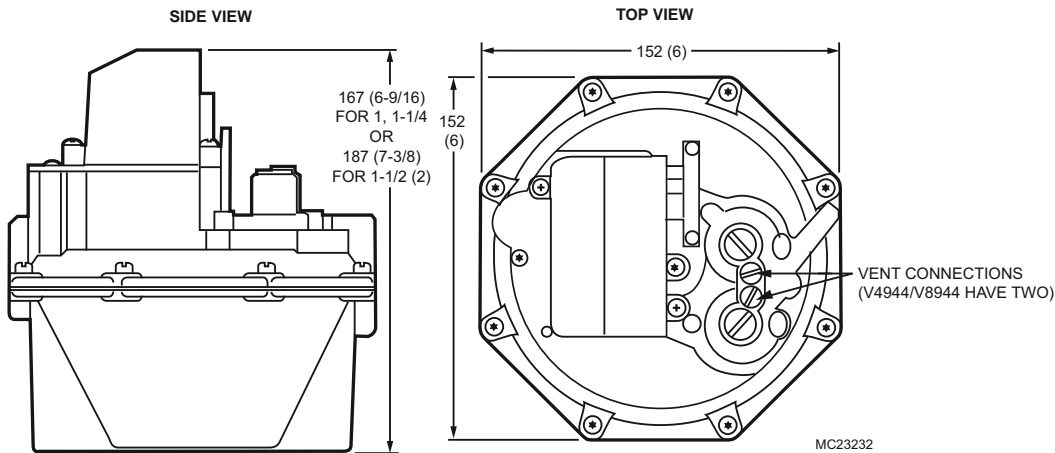
## V4943/V8943A On/Off Diaphragm Gas Valves



V4943A/V8943A are on/off diaphragm gas valve used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4843A/V8843A Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V8943A/V4943A models are solenoid-operated diaphragm valves for on/off flow control of natural or LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4943 are used with line voltage, on/off controllers; V8943A are used with 24 Vac thermostats or controllers.
- Valve closes on power failure; recommended for final shutoff service.

### Dimensions in millimeters (inches)



**Body Pattern:** Straight-through, non-offset  
**Electrical Connections:** 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.  
**Pilot Tapping:** 1/8-27 NPT  
**Pressure Ratings:** 3.4 kPa (1/2 psi)  
**Frequency:** 60 Hz  
**Mounting:** Upright (horizontal)  
**Valve Type:** On-Off, Rapid Opening  
**Bleed Tapping:** Internal Bleed  
**Valve Opening Time:** 6 sec max  
**Valve Closing Time:** 3 sec max

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)  
**Type of Gas:** Natural; LP

**Materials (Body):** Aluminum

**Approvals:**  
**Canadian Standards Association:** Certificate No. 158158-1042930, Guide No. 3371-03, 83 (Z21.21, Z21.78)

**Underwriters Laboratories, Inc.** File No. MH1639, Guide No. YIOZ (60 Hz only)

**Comments:** (2) 30" leadwires

Product Number	Pipe Size (inch)	Capacity (cfh)	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Comments
V4943A1011	1 in.	1000 cfh	0.055 amps	120 Vac	6 VA max	(2) 30" leadwires
V4943A1029	1 1/4 in.	1600 cfh	0.055 amps	120 Vac	6 VA max	(2) 30" leadwires
V4943A1037	1 1/2 in.	2300 cfh	0.055 amps	120 Vac	6 VA max	(2) 30" leadwires
V4943A1045	2 in.	3000 cfh	0.055 amps	120 Vac	6 VA max	(2) 30" leadwires
V8943A1012	1 in.	1000 cfh	0.363 amps	24 Vac	8 VA max	(2) 30" leadwires
V8943A1020	1 1/4 in.	1600 cfh	0.363 amps	24 Vac	8 VA max	(2) 30" leadwires
V8943A1038	1 1/2 in.	2300 cfh	0.363 amps	24 Vac	8 VA max	(2) 30" leadwires
V8943A1046	2 in.	3000 cfh	0.363 amps	24 Vac	8 VA max	(2) 30" leadwires

# Diaphragm Gas Valves

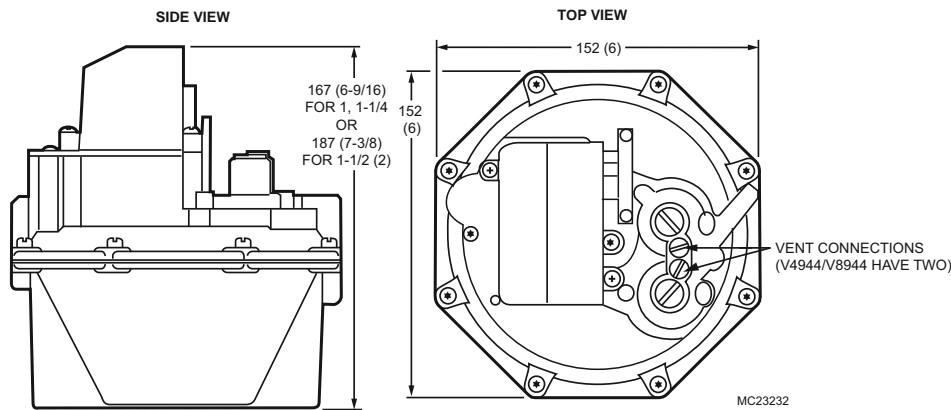
## V4943/V8943B,C,N Single Stage Pressure Regulating Valves



V4943/8943B, C, N are Single-stage Pressure Regulating Valve. These valves are used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4843/V8843; Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V4943/V8943B,C,N models are solenoid-operated diaphragm valves that combine the functions of safety shutoff and pressure regulation in a single unit.
- V4943/V8943B,N are for use with natural gas.
- V4943/V8943C are for use with LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4943 are used with line voltage, on/off controllers; V8943 are used with 24 Vac thermostats or controllers;
- Valve closes on power failure; recommended for final shutoff service.

### Dimensions in millimeters (inches)



**Body Pattern:** Straight-through, non-offset

**Electrical Connections:** 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

**Pilot Tapping:** 1/8-27 NPT

**Pressure Ratings:** 3.4 kPa (1/2 psi)

**Frequency:** 60 Hz

**Mounting:** Upright (horizontal)

**Valve Type:** Single-Stage, Slow Opening

**Bleed Tapping:** 5/16-24 UNF

**Valve Closing Time:** 2 sec max

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Comments:** (2) 30" leadwires

### Materials

**(Body):** Aluminum

### Approvals:

**Canadian Standards Association:** Certificate No. 158158-1042930, Guide No. 3302-01, 81 (Z21.21, Z21.78)

**Underwriters Laboratories, Inc.** File No. MH1639, Guide No. YIOZ (60 Hz only)

Product Number	Type of Gas	Pipe Size (inch)	Capacity (cfh)	Valve Opening Time	Regulator Setpoints; High Fire		Current (max amps at rated Vac/Hz)	Voltage	Power Consumption
					Adj. Range	Factory Setting			
V4943B1019	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943B1027	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943B1035	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943B1043	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943N1012	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943N1020	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943N1038	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V4943N1046	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.055 amps	120 Vac	6.6 VA max
V8943B1010	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max
V8943B1028	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max



# Diaphragm Gas Valves

Product Number	Type of Gas	Pipe Size (inch)	Capacity (cfh)	Valve Opening Time	Regulator Setpoints; High Fire		Current (max amps at rated Vac/Hz)	Voltage	Power Consumption
					Adj. Range	Factory Setting			
V8943B1036	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max
V8943B1044	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max
V8943C1018	LP	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	8.8 in. wc to 11.5 in. wc	10.0 in. wc	0.363 amps	24 Vac	9 VA max
V8943C1026	LP	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	8.8 in. wc to 11.5 in. wc	10.0 in. wc	0.363 amps	24 Vac	9 VA max
V8943N1013	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max
V8943N1021	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max
V8943N1039	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max
V8943N1047	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.363 amps	24 Vac	9 VA max

# Diaphragm Gas Valves

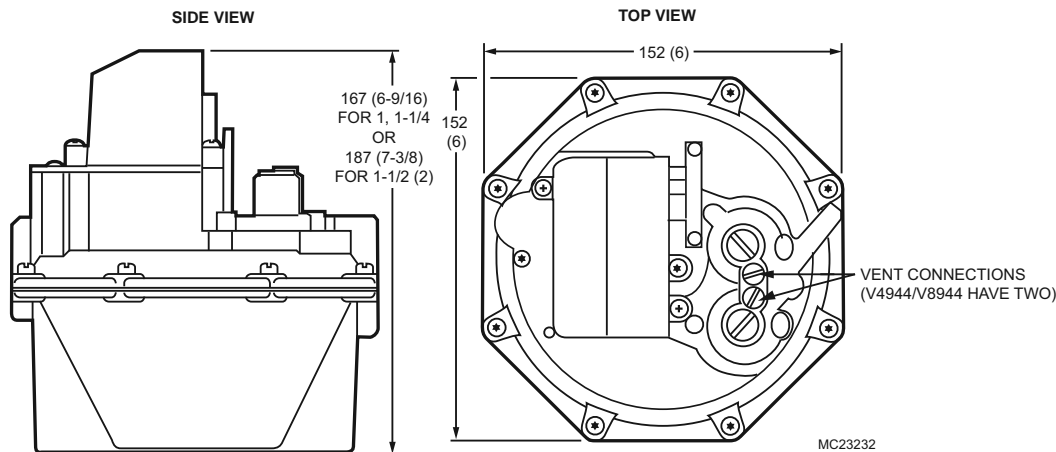
## V4944/V8944B,C,L,N Two Stage Pressure Regulating Gas Valves



V4944B,L,N/8944B,C,L,N are Two-stage Pressure Regulating Gas Valve. These valves are used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Designed for replacement for V4844/V8844 Gas Valves.
- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- V4944/V8944B,C,L,N models are solenoid-operated diaphragm valves that combine the functions of safety shutoff and pressure regulation in a single unit.
- V4944/V8944B,N are for use with natural gas.
- V4944/V8944C,L are for use with LP gas.
- Valve body of die-cast aluminum with a straight-through pattern.
- V4944 are used with line voltage, dual-stage controllers; V8944 are used with 24 Vac dual-stage thermostats or controllers.
- Valve closes on power failure; recommended for final shutoff service.

### Dimensions in millimeters (inches)



**Body Pattern:** Straight-through, non-offset

**Electrical Connections:** 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.

**Pilot Tapping:** 1/8-27 NPT

**Pressure Ratings:** 3.4 kPa (1/2 psi)

**Frequency:** 60 Hz

**Mounting:** Upright (horizontal)

**Valve Type:** Two-Stage, Slow Opening

**Bleed Tapping:** Two 5/16-24 UNF

**Valve Closing Time:** 2 sec max

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Materials**

**(Body):** Aluminum

**Approvals:**

**Canadian Standards Association:** Certificate No. 158158-1042930, Guide No. 3302-01, 81 (Z21.21, Z21.78)

**Underwriters Laboratories, Inc.** File No. MH1639, Guide No. YIOZ (60 Hz only)

Product Number	Type of Gas	Pipe Size (inch)	Capacity (cfh)	Valve Opening Time	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Regulator Setpoints; High Fire		Regulator Setpoints; Low Fire		Comments
								Adj. Range	Factory Setting	Adj. Range	Factory Setting	
V4944B1018	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944B1026	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944B1034	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944B1042	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944B1059	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.0 in. wc	0.8 in. wc to 2 in. wc	0.7 in. wc	(3) 30" leadwires
V4944B1075	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	—
V4944B1083	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	—
V4944B1091	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	—
V4944L1016	LP	1 in.	300 cfh to 1000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 85" leadwires

# Diaphragm Gas Valves

Product Number	Type of Gas	Pipe Size	Capacity (cfh)	Valve Opening Time	Current (max amps at rated Vac/Hz)	Voltage	Power Consumption	Regulator Setpoints; High Fire		Regulator Setpoints; Low Fire		Comments
		(inch)						Adj. Range	Factory Setting	Adj. Range	Factory Setting	
V4944L1024	LP	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30" leadwires
V4944N1011	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944N1029	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944N1037	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944N1045	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V4944N1052	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	1.65 in. wc	(3) 85" leadwires
V4944N1060	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.077 amps	120 Vac	9 VA max	3 in. wc to 4.5 in. wc	3.0 in. wc	0.8 in. wc to 2 in. wc	1.0 in. wc	(3) 85" leadwires
V8944B1019	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944B1027	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944B1035	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944B1043	Natural	2 in.	870 cfh to 3000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944B1050	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	72" leadwires with single plug
V8944B1068	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	72" leadwires with single plug
V8944B1076	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	72" leadwires with single plug
V8944B1092	Natural	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	30" leadwires with single plug
V8944B1100	Natural	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	30" leadwires with single plug
V8944B1118	Natural	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	1.6 in. wc to 4 in. wc	1.6 in. wc	30" leadwires with single plug
V8944C1017	LP	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30" leadwires
V8944C1025	LP	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30" leadwires
V8944C1033	LP	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30" leadwires
V8944C1041	LP	1 in.	300 cfh to 1000 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	72" leadwires with single plug
V8944C1058	LP	1 1/4 in.	480 cfh to 1600 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	72" leadwires with single plug
V8944C1066	LP	1 1/2 in.	780 cfh to 2300 cfh	3 sec to 25 sec	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	72" leadwires with single plug
V8944L1017	LP	1 in.	300 cfh to 1000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30" leadwires
V8944L1025	LP	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	8.8 in. wc to 11.5 in. wc	10.0 in. wc	1.4 in. wc to 4.2 in. wc	1.4 in. wc	(3) 30" leadwires
V8944N1012	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944N1020	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944N1038	Natural	1 1/2 in.	780 cfh to 2300 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944N1046	Natural	2 in.	870 cfh to 3000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	0.8 in. wc	(3) 30" leadwires
V8944N1053	Natural	1 in.	300 cfh to 1000 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	1.2 in. wc	(3) 30" leadwires
V8944N1061	Natural	1 1/4 in.	480 cfh to 1600 cfh	6 sec max	0.516 amps	24 Vac	12.4 VA max	3 in. wc to 4.5 in. wc	3.5 in. wc	0.8 in. wc to 2 in. wc	1.2 in. wc	(3) 30" leadwires

# Diaphragm Gas Valves

## Diaphragm Gas Valve Replacement Parts or Accessories

Product Number	Description	Used With
116930	Replacement Coil for V88A	V88A
116931	Replacement Coil for V48A, 120Vac,60Hz	V48; V48A
116932	Replacement Coil for V48A, 220-240Vac,50/60Hz	V48A
122160	Orifice- .018" for V48, V88	V48, V88
124674	Orifice- .011" for V48, V88	V48, V88
126590	Adjustable Bleed Valve Assembly for V48, V88, V4004. V8004. 1/8 in. NPT to 1/4 in. compression fitting	V48, V88

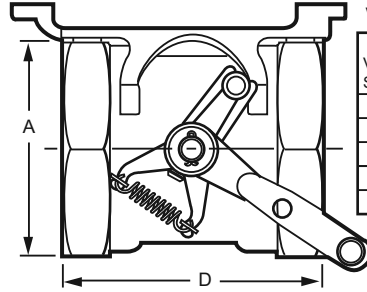
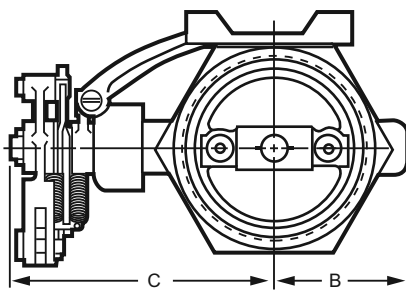
## V51 Butterfly Gas/Air Valve



Provides modulating control of natural, manufactured, LP gases or air.

- Use in commercial and industrial installations where large amounts of gas must be closely controlled.
- NOT for use as safety shutoff valve.
- Adaptable to most modulating jobs.
- Modutrol motor, such as the M9484 or M9494, may be mounted directly on valve or close to it.
- Valve mechanism has strain release.
- Adjustable stroke over low fire-high fire range.
- Straight-through valve pattern.
- Rugged cast aluminum body provides durability and maintenance-free operation.

Dimensions in millimeters (inches)



V51E DIMENSIONS

VALVE SIZE (IN.)	A <sup>1</sup>		B <sup>1</sup>		C <sup>2</sup>		D <sup>1</sup>	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.
1-1/2	67.5	2-21/32	39.7	1-9/16	108.0	4-1/4	77.0	3-1/32
2	80.2	3-5/32	46.0	1-13/16	108.0	4-1/4	89.7	3-17/32
2-1/2	97.6	3-27/32	58.7	2-5/16	122.2	4-13/16	119.9	4-23/32
3	102.4	4-1/32	60.7	2-25/64	127.0	5	119.9	4-23/32
4	135.3	5-21/64	80.2	3-5/32	136.5	5-3/8	133.8	5-17/64

<sup>1</sup> MAXIMUM DIMENSIONS.

<sup>2</sup> NOMINAL DIMENSIONS.

MC9532

**Type of Gas:** Air, natural, manufactured, and LP  
**Body Pattern:** Straight-through  
**Pressure Ratings:** 34.5 kPa (5 psi)  
**Mounting:** Motor shaft horizontal  
**Operating Temperature Range:** 0 C to 60 C (32 F to 140 F)

**Materials**  
**(Body):** Aluminum

**Approvals:**  
**Underwriters Laboratories, Inc.** File No. MH5968 Vol. 1 Sec. 1, Guide no. MHKZ

**Accessories:**  
**Q100B1006** Linkage- Connects Modutrol motor to V51E Butterfly Valve.  
**32003396-001** V51E Mounting Kit for ML7999 Actuator (1-1/2 & 2 in. valves)  
**32003396-002** V51E Mounting Kit for ML7999 Actuator (2-1/2 in., 3 in. & 4 in. valves)

Product Number	Pipe Size		Capacity		Inlet/Outlet Pressure Trapping	Used With
	DN	inch	(m <sup>3</sup> /hr)	(cfh)		
V51E1000	DN40	1 1/2 in.	118.9 m <sup>3</sup> /hr	4200 cfh	Two downstream 1/4 in. NPT taps	Mod Motor with Q100 Linkage
V51E1018	DN50	2 in.	260.7 m <sup>3</sup> /hr	9210 cfh	—	Mod Motor with Q100 Linkage
V51E1034	DN65	2 1/2 in.	199.8 m <sup>3</sup> /hr	8390 cfh	—	Mod Motor with Q100 Linkage
V51E1059	DN80	3 in.	414.5 m <sup>3</sup> /hr	14640 cfh	—	Mod Motor with Q100 Linkage
V51E1075	DN100	4 in.	934.2 m <sup>3</sup> /hr	33000 cfh	—	Mod Motor with Q100 Linkage
V51E1125	DN50	2 in.	260.7 m <sup>3</sup> /hr	9210 cfh	—	Mod Motor with Q100 Linkage
V51E1133	DN65	2 1/2 in.	199.8 m <sup>3</sup> /hr	8390 cfh	—	Mod Motor with Q100 Linkage
V51E1141	DN80	3 in.	414.5 m <sup>3</sup> /hr	14640 cfh	—	Mod Motor with Q100 Linkage
V51E1158	DN100	4 in.	934.2 m <sup>3</sup> /hr	33000 cfh	—	Mod Motor with Q100 Linkage
V51E1216	DN40	1 1/2 in.	118.9 m <sup>3</sup> /hr	4200 cfh	—	Mod Motor with Q100 Linkage

## Firing Rate Gas Valve Parts

Product Number	Description	Used With
4074EPR	Bag Assembly including (2) Springs, (2) Toggles and (2) Arms for V51E	V51E
49085B	Strain Release Assembly for V51E	V51E

# Butterfly Gas Valves

## V5197 Integrated Valve Train Butterfly Gas Valve

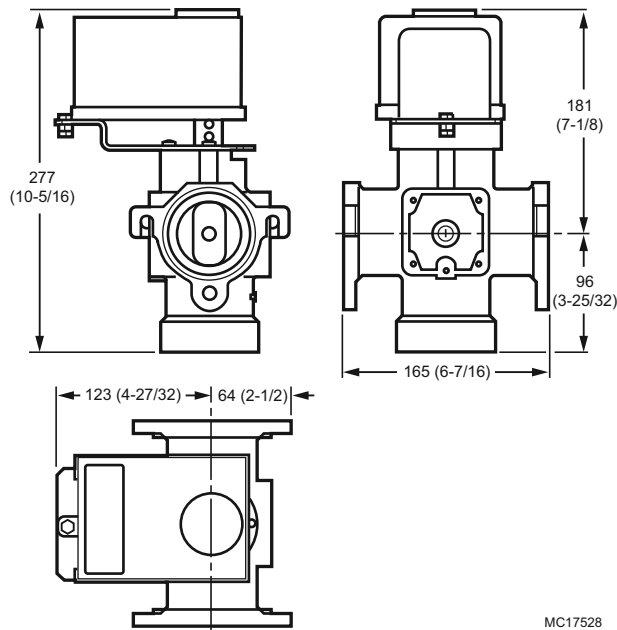


The V5197A is a firing rate valve used to provide variable flow control of air, natural gas, liquefied petroleum (LP), and manufactured gases. The V5197A is actuated by a ML7999A or B firing rate motor that can be mounted directly on the valve. The V5197A is not applicable as a safety shutoff valve. The V5197A is specially designed to provide fine control of gas flow in applications where a high turn down ratio is required. The

maximum flow adjustment screw on the bottom of the valve allows adjusting the maximum flow of gas through the V5197 while maintaining the linear modulating characteristics and stroke. The V5197A is part of the Honeywell Integrated Valve Train System that allows gas train components to be directly bolted together.

- Used with air, natural, manufactured or liquefied petroleum (LP) gases.
- For modulating applications that do not require final shutoff service of firing rate valve.
- Two valve body types (small and large) applicable to seven pipe sizes: Small body type for 3/4 in. (19 mm), 1 in. (25 mm), 1-1/4 in. (32 mm), 1-1/2 in. (38 mm) and 2 in. (51 mm) pipes, NPT or ISO 7 threads. Large body type for 2 in. (51 mm), 2-1/2 in. (64 mm) and 3 in. (76 mm) pipes, NPT or ISO 7 threads.
- Two downstream 1/4 in. NPT threaded pressure taps available.
- Accepts C6097 Pressure Switch mounted directly to flange (downstream pressure tap only).
- Unpainted cast aluminum body.
- Suitable for electric or pneumatic operators with the appropriate linkage.
- May be used with manufacturers own linkage and drive motor.
- Flow adjustment screw on bottom of valve controls maximum flow.
- Visual position indicator.

### Dimensions in millimeters (inches)



**Type of Gas:** Air, natural, manufactured, and LP

**Pressure Ratings:** 1 Bar (15 psi max)

**Mounting:** Directly bolted to Integrated Valve Train (IVT) components or IVT adapters

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

### Materials

**(Body):** Die-cast aluminum

### Approvals:

**Canadian Standards Association:** Design Certified

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Listed

Product Number	Pipe Size		Capacity		Inlet/Outlet Pressure Tapping
	DN	inch	(m <sup>3</sup> /hr)	(cfh)	
V5197A1003	DN20;	3/4 in.;	51 mm =155	5480 cfh for 2 in.	Two downstream 1/4 in. NPT taps
	DN25;	1 in.;	38 mm =142	5010 cfh for 1 1/2 in.	
	DN32;	1 1/4 in.;	32 mm = 125	4430 cfh for 1 1/4 in.	
	DN40;	1 1/2 in.;	25 mm =87	3080 cfh for 1 in.	
	DN50	2 in.	19 mm =69	2450 cfh for 3/4 in.	
V5197A1011	DN80;	2 in.;	76 mm=478	16,900 cfh for 3 in.	Two downstream 1/4 in. NPT taps
	DN65;	2 1/2 in.;	64 mm=419	14,800 cfh for 2 1/2 in.	
	DN50	3 in.	51 mm=356	12,600 cfh for 2 in.	

## Selection Chart: V5055 and V5097 Industrial Gas Valves with V4055, V4062 or V9055 Fluid Power Actuators

The chart below describes every model of V5055 or V5097 Valve in the left column, and every model of Fluid Power Actuator across the top. While it's possible to combine any valve with any actuator, we've marked the recommended valve/actuator combinations which cover most applications with a ●.

Each valve described in the left column is available:

- In these sizes: 3/4 to 3 in. (NPT or parallel BSP). V5055A,B,C are also available in 4 in. size (flange connection only).
- With upstream and/or downstream tap.

Options available on some Fluid Power Actuators include:

- Damper arm shaft, with or without spring return.
- NEMA 4 enclosure.
- Fast or slow open time (13 or 26 seconds).
- Auxiliary switch.
- Valve seal overtravel interlock switch.

For complete specifications and ordering information on V5055 and V5097 Valves and V4055, V4062 and V9055 Fluid Power Actuators, refer to Index for specific page numbers.

Fluid Power Actuators/ Industrial Gas Valves			Standard pressure <sup>a</sup>			High Pressure <sup>a</sup>	
			V5055A, F <sup>b</sup> , V5097A	V5055B, V5097B	V5055C, V5097C	V5055D, V5097D	V5055E, V5097E
Type	Model	Pressure Rating <sup>a</sup>	On-Off	Characterized Guide <sup>c</sup>	VSOI <sup>d</sup>	On-Off	VSOI <sup>d</sup>
V4055 On-Off	A, G <sup>e</sup>	Standard	•	•		•	
	B	High	• <sup>f</sup>	• <sup>f</sup>		•	
	D <sup>d</sup> F <sup>d</sup> E	Standard			•		•
	E <sup>d</sup>	High			• <sup>f</sup>		•
V4062 Hi-Lo-Off	A	Standard		•	•		
	B	High		• <sup>f</sup>	• <sup>f</sup>		•
	D <sup>d</sup>	Standard			•		
V9055 Modulating	A	Standard		•			
	D <sup>d</sup>	Standard			•		

a Refer to the table below for actual pressure ratings of the various combinations of valves and actuators.

b V5055F models meet EN161 leakage requirements.

c Characterized guide provides a more linear relationship between stem travel and gas flow. Check Honeywell form 70-8311 to verify that flow curve characteristics match application requirements.

d Valve Seal Overtravel Interlock. Valve has two shutoff seals, actuator has a proof-of-closure switch.

e V4055F, G models include switch for manual control.

f These combinations have higher pressure ratings; see the table below.

### Valve Actuator Approvals:

The following combinations of V5055 and V5097 Valves, and V4055, V4062 and V9055 Fluid Power Actuators are approved by these agencies.

**Underwriters Laboratories, Inc.** Listed: MH1639

- V4055A/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055B/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055D/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055E/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V4055F/V5055A-E (3/4-4 in.<sup>a</sup>) or V5097A-E (3/4-3 in.).
- V4055G/V5055A-E (3/4-4 in.<sup>a</sup>) or V5097A-E (3/4-3 in.).
- V4062A,D/V5055A-E (3/4-4 in.) or V5097A-E (3/4-3 in.).
- V9055A,D/V5055A,B,C,E (3/4-4 in.) or V5097A-E (3/4-3 in.).

**Factory Mutual Approved:** Report No. 20698, 20835, 21172 and 24061:

- V4055A/V5055A and V5097A.
- V4055D/V5055C and V5097C.
- V4055A/V5055B and V5097B.
- V4055B/V5055D and V5097D.
- V4055E/V5055E and V5097E.
- V4055F/V5055C<sup>a</sup> and V5097C.
- V4055G/V5055A,B<sup>a</sup> and V5097A,B.
- V9055A/V5055B,C and V5097B,C.

<sup>a</sup> Manual reset safety shut-off valves.

### Pressure Ratings of Valve-Actuator Combinations

Model	Pipe Size	Standard Pressure Actuators V4055A, D, F, G, V4062A, D, V9055A, D				High Pressure Actuators V4055B, E, V4062B			
		M.O.P.D. <sup>a</sup>		Max. Rated Pressure <sup>b</sup>		M.O.P.D. <sup>a</sup>		Max. Rated Pressure <sup>b</sup>	
Standard Pressure Valves V5055A, B, C, F, V5097A, B, C	3/4" to 1-1/2" <sup>c</sup>	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	2" to 3" <sup>d</sup>	5 PSI	340 mbar	15 PSI	1.0 Bar	15 PSI	1030 mbar	15 PSI	1.0 Bar
	4" flanged <sup>e</sup>	3 PSI	207 mbar	15 PSI	1.0 Bar	5 PSI	340 mbar	15 PSI	1.0 Bar
High Pressure Valves V5055D, E, V5097D, E	3/4" to 1-1/2" <sup>c</sup>	5 PSI	340 mbar	75 PSI	5.0 Bar	25 PSI	1720 mbar	75 PSI	5.0 Bar
	2" to 3" <sup>d</sup>	5 PSI	340 mbar	45 PSI	3.0 Bar	15 PSI	1030 mbar	45 PSI	3.0 Bar

a Max Operating Pressure Differential (UL) or Max Operating Pressure (CSA); maximum allowable pressure drop from inlet to outlet for proper operation.

b Max Rated Pressure (UL) or Max Close-off Pressure (CSA); maximum pressure that the valve can be exposed to without leakage or damage to the valve.

c Applies for small-body V5097 valves 3/4" up to 2" pipe size.

d Applies for large-body V5097 valves 2" up to 3" pipe size.

e V5055A, B, C only.

# Gas Valve Actuators

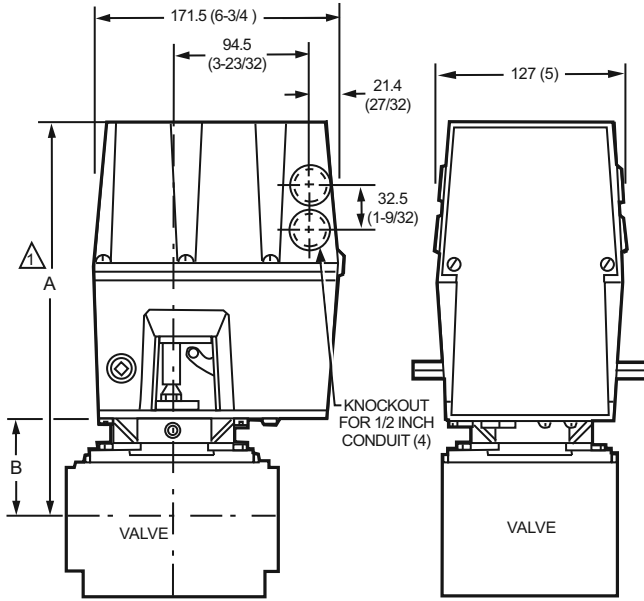
## V4055A,B,D,E On-Off Fluid Power Gas Valve Actuator



Use in combination with V5055 or V5097 Gas Valves to control gas supply to commercial and industrial burners.

- Use where smooth light off is important.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

### Dimensions in millimeters (inches)



△ ALLOW 101.6 MM (4 IN.) CLEARANCE FOR ACTUATOR REMOVAL.

**Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Frequency:** 60 Hz

**Auxiliary Switch Contact Ratings (120 Vac):**

9.8 AFL, 58.8 ALR, 1/2 hp

**Auxiliary Switch Contact Ratings (240 Vac):**

4.9 AFL, 29.4 ALR, 1/2 hp

**Proof of Closure (Factory Mutual) Switch Contact Ratings:**

4.9 AFL, 29.4 ALR, 1/2 hp; 9.8 AFL, 58.8 ALR, 1/2 hp

**Timing; Closing < 1 sec:** Yes

VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1-1/4	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1-1/2	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
2	285.8	11-1/4	73.0	2-7/8	298	11-3/4	86	3-3/8
2-1/2	298.5	11-3/4	85.7	3-3/8	298	11-3/4	86	3-3/8
3	298.5	11-3/4	85.7	3-3/8	298	11-3/4	86	3-3/8
4	358.8	14-1/8	147.6	5-13/16	—	—	—	—

MC10981A

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing	Maximum Operating Pressure		Damper Shaft	Comments	Used With
				(Opening)	(kPa)	(psi)			
V4055A1007	120 Vac	No	No	26 sec	34 kPa	5 psi	No	—	V5055; V5097 Gas Valves
V4055A1031	120 Vac	No	No	13 sec	34 kPa	5 psi	No	—	
V4055A1064	120 Vac	No	No	26 sec	34 kPa	5 psi	Yes	—	
V4055A1080	240 Vac	No	No	26 sec	34 kPa	5 psi	Yes	—	
V4055A1098	120 Vac	No	No	13 sec	34 kPa	5 psi	Yes	—	
V4055A1114	240 Vac	No	No	13 sec	34 kPa	5 psi	Yes	—	
V4055A1130	220 Vac	No	No	13 sec	34 kPa	5 psi	Yes	—	V5034; V5055; V5097; VE5000



# Gas Valve Actuators

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing	Maximum Operating Pressure		Damper Shaft	Comments	Used With
				(Opening)	(kPa)	(psi)			
V4055A1189	100 Vac	No	No	26 sec	34 kPa	5 psi	No	—	V5055;V5097 Gas Valves
V4055A1213	100 Vac	No	No	13 sec	34 kPa	5 psi	No	—	V5034; V5055; V5097; VE5000
V4055A1247	220 Vac	No	No	13 sec	34 kPa	5 psi	Yes	—	
V4055A1296	120 Vac	Yes - adjusted to 90 degree stroke	No	13 sec	34 kPa	5 psi	No	—	V5055;V5097 Gas Valves
V4055A1304	120 Vac	No	No	26 sec	34 kPa	5 psi	Yes with return spring installed.	—	
V4055A1312	120 Vac	No	No	26 sec	34 kPa	5 psi	No	Nema 4 Enclosure	
V4055A1320	110 Vac; 120 Vac	No	No	13 sec	34 kPa	5 psi	No	—	V5034; V5055; V5097; VE5000
V4055B1021	120 Vac	No	No	26 sec	103 or 172 kPa	15 or 25 psi	Yes	—	V5055;V5097 Gas Valves
V4055B1039	120 Vac	No	No	13 sec	103 or 172 kPa	15 or 25 psi	Yes	—	
V4055B1054	100 Vac	No	No	13 sec	103 or 172 kPa	15 or 25 psi	No	—	
V4055B1088	220 Vac	No	No	13 sec	103 or 172 kPa	15 or 25 psi	No	—	
V4055D1001	120 Vac	No	Yes	26 sec	34 kPa	5 psi	Yes	—	
V4055D1019	120 Vac	No	Yes	13 sec	34 kPa	5 psi	Yes	—	
V4055D1027	120 Vac	Yes	Yes	13 sec	34 kPa	5 psi	No	Nema 4 Enclosure	
V4055D1035	120 Vac	Yes	Yes	13 sec	34 kPa	5 psi	No	—	
V4055D1043	120 Vac	No	Yes	13 sec	34 kPa	5 psi	No	—	
V4055D1076	120 Vac	No	Yes	13 sec	34 kPa	5 psi	No	—	
V4055E1016	120 Vac	No	Yes	13 sec	103 or 172 kPa	15 or 25 psi	Yes	—	
V4055E1024	120 Vac	Yes	Yes	26 sec	103 or 172 kPa	15 or 25 psi	Yes	Nema 4 Enclosure	
V4055E1040	120 Vac	No	Yes	13 sec	103 or 172 kPa	15 or 25 psi	Yes	Nema 4 Enclosure	

# Gas Valve Actuators

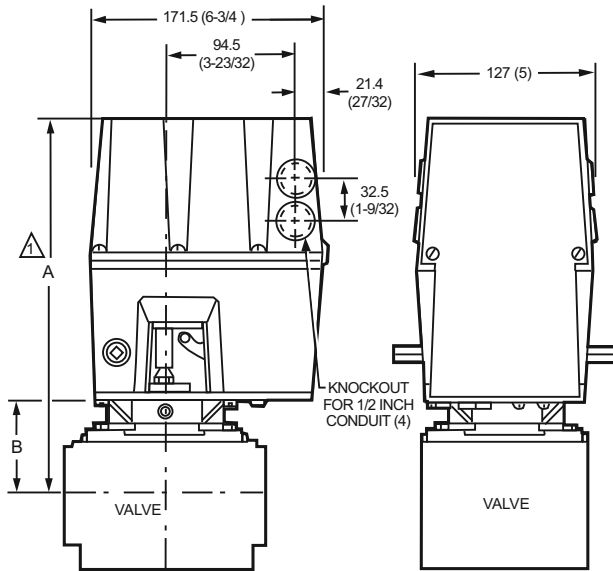
## V4055F,G Manual Reset Safety Shut-off Gas Valve Actuators



Provide manual reset, safety shut-off functions as required on FM, IHEA-IRI and NFPA 86A,B,C industrial furnaces, ovens and kilns. Use with V5055 or V5097 Gas Valves to control gas supply.

- Close in one second maximum.
- Continuously displays the valve position with a red indicator when closed.
- Mount directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

### Dimensions in millimeters (inches)



**Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Frequency:** 60 Hz

**Proof of Closure (Factory Mutual) Switch Contact Ratings:**

4.9 AFL, 29.4 ALR, 1/2 hp; 9.8 AFL, 58.8 ALR, 1/2 hp

**Maximum Operating Pressure:** 34 kPa (5 psi)

**Timing; Closing < 1 sec:** Yes

△ ALLOW 101.6 MM (4 IN.) CLEARANCE FOR ACTUATOR REMOVAL.

VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1-1/4	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1-1/2	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
2	285.8	11-1/4	73.0	2-7/8	298	11-3/4	86	3-3/8
2-1/2	298.5	11-3/4	85.7	3-3/8	298	11-3/4	86	3-3/8
3	298.5	11-3/4	85.7	3-3/8	298	11-3/4	86	3-3/8
4	358.8	14-1/8	147.6	5-13/16	—	—	—	—

MC10981A

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing (Opening)	Damper Shaft	Used With
V4055F1006	120 Vac	No	Yes	13 sec	No	V5034; V5055; V5097; VE5000
V4055G1004	120 Vac	No	No	13 sec	No	V5034; V5055; V5097; VE5000

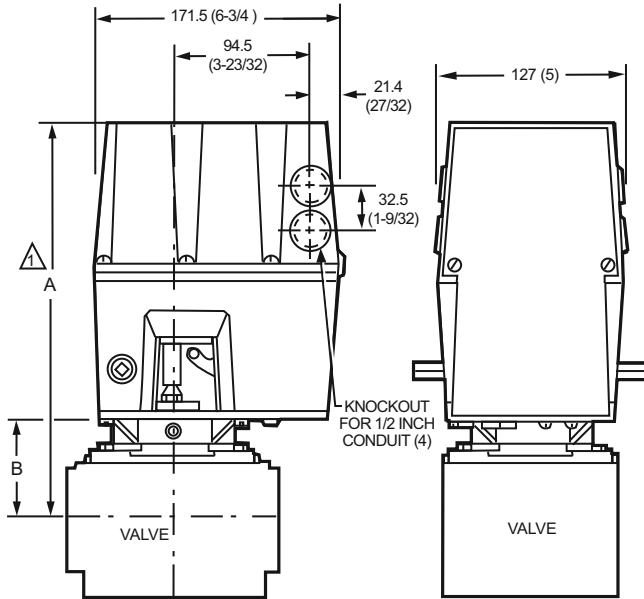
## V4062 Off-Lo-Hi Fluid Power Gas Valve Actuators



Use with V5055 or V5097 Gas Valves to control gas supply for commercial and industrial burners. Valve opens to low fire position when power is applied; valve opens all the way on demand.

- Provide final safety shutoff service when used with V5055 or V5097 gas valve.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

### Dimensions in millimeters (inches)



ALLOW 101.6 MM (4 IN.) CLEARANCE FOR ACTUATOR REMOVAL.

VALVE SIZE INCH	V5055				V5097			
	DIM A		DIM B		DIM A		DIM B	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1-1/4	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
1-1/2	282.6	11-1/8	69.9	2-3/4	283	11-1/8	70	2-3/4
2	285.8	11-1/4	73.0	2-7/8	298	11-3/4	86	3-3/8
2-1/2	298.5	11-3/4	85.7	3-3/8	298	11-3/4	86	3-3/8
3	298.5	11-3/4	85.7	3-3/8	298	11-3/4	86	3-3/8
4	358.8	14-1/8	147.6	5-13/16	—	—	—	—

MC10981A

**Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Frequency:** 60 Hz

**Auxiliary Switch Contact Ratings (120 Vac):**

9.8 AFL, 58.8 ALR, 1/2 hp

**Auxiliary Switch Contact Ratings (240 Vac):**

4.9 AFL, 29.4 ALR, 1/2 hp

**Proof of Closure (Factory Mutual) Switch Contact Ratings:**

4.9 AFL, 29.4 ALR, 1/2 hp 9.8 AFL, 58.8 ALR, 1/2 hp

**Timing; Closing < 1 sec:** Yes

**Maximum Operating Pressure:** 34 kPa (5 psi)

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Timing (Opening)	Damper Shaft	Used With
V4062A1008	120 Vac	No	No	26 sec	Yes	V5034; V5055; V5097; VE5000
V4062A1099	220 Vac	No	No	16 sec	Yes	V5034; V5055; V5097; VE5000
V4062A1123	120 Vac	Yes	No	26 sec	Yes with return spring installed.	V5034; V5055; V5097; VE5000
V4062A1131	120 Vac	No	No	13 sec	Yes	V5034; V5055; V5097; VE5000
V4062A1156	120 Vac	Yes	No	26 sec	No	V5034; V5055; V5097; VE5000
V4062A1198	120 Vac	Yes - adjusted to 90 degree stroke	No	13 sec	Yes with return spring installed.	V5034; V5055; V5097; VE5000
V4062D1002	120 Vac	No	Yes	26 sec	Yes	V5055; V5097 Gas Valves
V4062D1010	120 Vac	No	Yes	13 sec	Yes	V5055; V5097 Gas Valves

# Gas Valve Actuators

## V9055 Modulating Fluid Power Gas Valve Actuators



Use with V5055 or V5097 Gas Valves to control gas supply for commercial and industrial burners. Valve opens to low fire position when power is applied; valve opens all the way on demand.

- Include integral shaft to drive combustion air damper in unison with valve.
- One-second maximum closing time.
- Continuously displays the valve position with a red indicator when open and a yellow indicator when closed.
- Mount in any position directly to valve bonnet with three setscrews.
- Provide final safety shutoff service when used with V5055 or V5097 Gas Valves.

Temperature Range: -40 C to +52 C (-40 F to +125 F)

Frequency: 60 Hz

Proof of Closure (Factory Mutual) Switch Contact Ratings:

4.9 AFL, 29.4 ALR, 1/2 hp; 9.8 AFL, 58.8 ALR, 1/2 hp

Timing; Opening: 26 sec

Timing; Closing < 1 sec: Yes

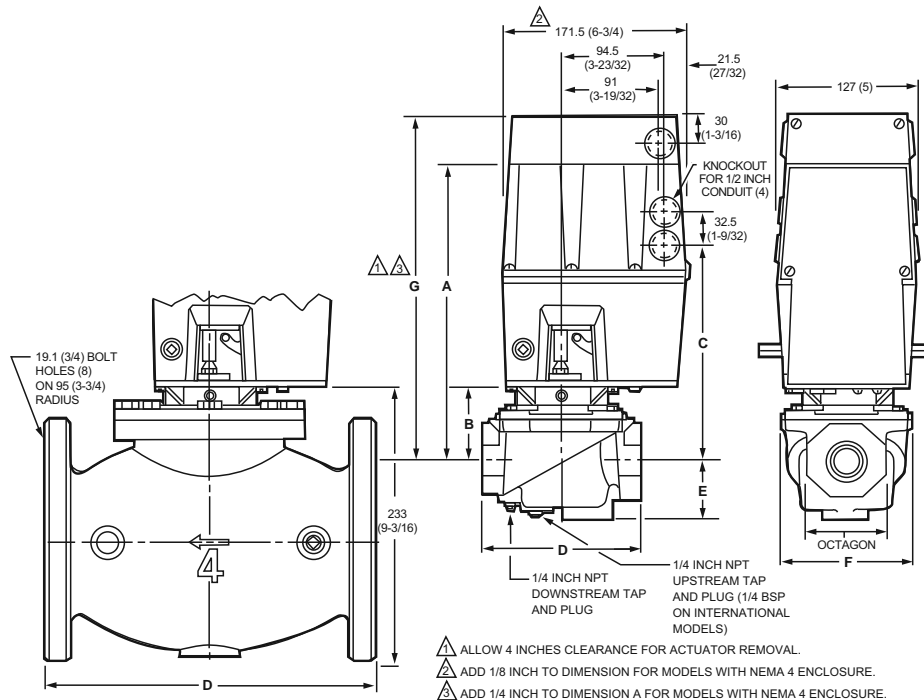
Maximum Operating Pressure: 34 kPa (5 psi)

Accessories:

203422C 4-20 ma Adapter for V9055

Product Number	Electrical Ratings	Internal Auxiliary Switch	Proof of Closure Auxiliary Switch	Damper Shaft	Comments	Used With
V9055A1055	120 Vac	No	No	Yes	—	V5034; V5055; V5097; VE5000
V9055A1063	120 Vac	No	No	Yes	Nema 4 Enclosure	V5034; V5055; V5097; VE5000
V9055A1097	220 Vac	No	No	Yes	—	V5034; V5055; V5097; VE5000
V9055A1113	120 Vac	No	No	Yes with return spring installed.	—	V5034; V5055; V5097; VE5000
V9055D1000	120 Vac	No	Yes	Yes	—	V5055; V5097 Gas Valves

Dimensions in millimeters (inches)



VALVE SIZE INCH	DIM A		DIM B		DIM C		DIM D		DIM E		DIM F		DIM G		OCTAGON	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	282.6	11-1/8	69.9	2-3/4	208.0	8-3/16	146.1	5-3/4	57.2	2-1/4	122.2	4-13/16	333.4	13-1/8	71.4	2-13/16
1	282.6	11-1/8	69.9	2-3/4	208.0	8-3/16	146.1	5-3/4	57.2	2-1/4	122.2	4-13/16	333.4	13-1/8	71.4	2-13/16
1-1/4	282.6	11-1/8	69.9	2-3/4	208.0	8-3/16	146.1	5-3/4	57.2	2-1/4	122.2	4-13/16	333.4	13-1/8	71.4	2-13/16
1-1/2	282.6	11-1/8	69.9	2-3/4	208.0	8-3/16	146.1	5-3/4	57.2	2-1/4	122.2	4-13/16	333.4	13-1/8	71.4	2-13/16
2	285.8	11-1/4	73.0	2-7/8	211.1	8-5/16	212.7	8-3/8	69.9	2-3/4	192.9	7-19/32	336.5	13-1/4	88.9	3-1/2
2-1/2	298.5	11-3/4	85.7	3-3/8	223.8	8-13/16	235.0	9-1/4	69.9	2-3/4	192.9	7-19/32	349.3	13-3/4	114.3	4-1/2
3	298.5	11-3/4	85.7	3-3/8	223.8	8-13/16	235.0	9-1/4	69.9	2-3/4	192.9	7-19/32	349.3	13-3/4	114.3	4-1/2
4	358.8	14-1/8	147.6	5-13/16	285.0	11-7/32	317.5	12-1/2	117.5	4-5/8	—	—	411.0	16-3/16	—	—

MC7321

## Fluid Actuator Accessories and Parts

Product Number	Description	Used With
133568	Auxiliary Switch (Adjustable Valve Position) for V4055, V4062 or V9055	V4055; V4062; V9055
133569	Replacement Pre-ignition Interlock (Proof of Closure) Switch for V4055D,E; V4062D or V9055D	V4055; V4062; V9055
203422C	4-20 ma Adapter for V9055	V9055
7616BR	Crank Arm assembly with clip for Damper Arm of V4055, V4062 or V9055	V4055; V4062; V9055

# Gas Valve Actuators

## V5055 Industrial Gas Valves



**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Temperature Ratings when used with V9055:**

-40 C to +52 C (-40 F to +125 F)

**Includes:** 1/4 in. -18 NPT upstream tap and plug, 1/4 in. -18 NPT downstream tap and plug

**Used With:** V4055; V4062; V9055

**Safety shutoff valves used with V4055, V4062 and V9055 fluid power actuators to control gas flow to commercial and industrial burners.**

- Use with natural or LP gases.
- Mount directly in gas supply line.
- Include 1/4 in. NPT upstream and downstream taps and plug.
- 4 in. models have only flanged connections.
- V5055 normally closed valves are rated for final shutoff service safety shutoff.
- V5055A,C,D,E Valves are for On-Off service.
- V5055B Valve has a characterized guide and in combination with the V4055, V4062, and V9055 Fluid Power Actuators, provides slow-opening, hi-lo-off, and modulating functions respectively.
- V5055C,E,F Valves have a double seal and are used with V4055D,E Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- V5055D,E,F Valves are for high pressure applications.

**Approvals:**

**Canadian Standards Association:** When used with V4055, V4062, and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

**Factory Mutual:** When used with the V4055A,G: Approved, Report Nos. 20698, 20835, 21172, and 24061

**Swiss RE (formerly IRI):** When used with V4055A,B,D,E, V4062, V9055: Acceptable

**Underwriters Laboratories, Inc.** When used with V4055A,B,D,E, V4062, V9055: Listed, File No. MH1639 Guide No. YIOZ

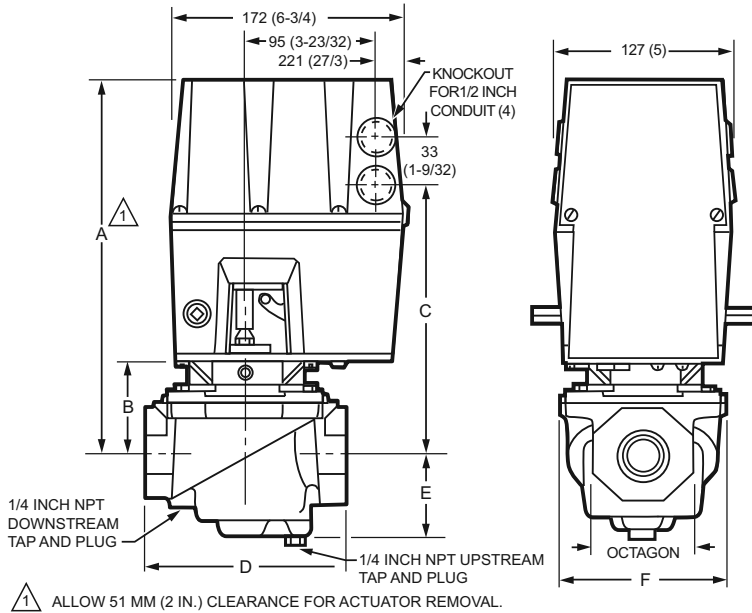
Product Number	Pipe Size (inch)	Pipe Thread	Capacity	Maximum Operating Differential Pressure		Description	Comments
				(V4055A,D; V4062)	(V4055B or E)		
V5055A1004	1 in.	NPT	960 cf/hr; 27.2 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1012	1 1/4 in.	NPT	1406 cf/hr; 39.8 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/4 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1020	1 1/2 in.	NPT	1717 cf/hr; 48.6 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1038	2 in.	NPT	3620 cf/hr; 102.5 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1046	2 1/2 in.	NPT	4250 cf/hr; 120 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1053	3 in.	NPT	5230 cf/hr; 148 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055A1228	4 in.	Flanged	10200 cf/hr; 288.8 m <sup>3</sup> /hr	3 psi (20.7 kPa)	5 psi (.34 bar)	4 in. Flanged Industrial Gas Valve with On-off safety shut-off	—
V5055A1343	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3/4 in. NPT Industrial Gas Valve with On-off safety shut-off	—
V5055B1002	1 in.	NPT	960 cf/hr; 27.2 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1010	1 1/4 in.	NPT	1406 cf/hr; 39.8 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/4 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1028	1 1/2 in.	NPT	1717 cf/hr; 48.6 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/2 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1069	2 in.	NPT	3620 cf/hr; 102.5 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1077	2 1/2 in.	NPT	4250 cf/hr; 120 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1085	3 in.	NPT	5230 cf/hr; 148 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT Industrial Gas Valve with characterized guide	—
V5055B1150	4 in.	Flanged	9180 cf/hr; 259.9 m <sup>3</sup> /hr	3 psi (20.7 kPa)	5 psi (.34 bar)	4 in. Flanged Industrial Gas Valve with characterized guide	—
V5055B1234	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3/4 in. NPT Industrial Gas Valve with characterized guide	—

# Gas Valve Actuators

Product Number	Pipe Size (inch)	Pipe Thread	Capacity	Maximum Operating Differential Pressure		Description	Comments
				(V4055A,D; V4062)	(V4055B or E)		
V5055C1000	2 in.	NPT	3620 cf/hr; 102.5 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1018	2 1/2 in.	NPT	4250 cf/hr; 120 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1026	3 in.	NPT	5230 cf/hr; 148 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1034	1 in.	NPT	960 cf/hr; 27.2 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1042	1 1/4 in.	NPT	1406 cf/hr; 39.8 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/4 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1059	1 1/2 in.	NPT	1717 cf/hr; 48.6 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	1 1/2 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1109	4 in.	Flanged	9180 cf/hr; 259.9 m <sup>3</sup> /hr	3 psi (20.7 kPa)	5 psi (.34 bar)	4 in. Flanged Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055C1182	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3/4 in. NPT Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055D1008	1 in.	NPT	960 cf/hr; 27.2 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1016	1 1/4 in.	NPT	1406 cf/hr; 39.8 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1024	1 1/2 in.	NPT	1717 cf/hr; 48.6 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1032	2 in.	NPT	3620 cf/hr; 102.5 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1040	2 1/2 in.	NPT	4250 cf/hr; 120 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1057	3 in.	NPT	5230 cf/hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055D1065	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	25 psi (1.6 bar)	3/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off	—
V5055E1005	2 in.	NPT	3620 cf/hr; 102.5 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1013	2 1/2 in.	NPT	4250 cf/hr; 120 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	2 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1021	3 in.	NPT	5230 cf/hr; 148 m <sup>3</sup> /hr	5 psi (.34 bar)	15 psi (1 bar)	3 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1039	1 in.	NPT	960 cf/hr; 27.2 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1047	1 1/4 in.	NPT	1406 cf/hr; 39.8 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1054	1 1/2 in.	NPT	1717 cf/hr; 48.6 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055E1062	3/4 in.	NPT	665 cf/hr	5 psi (.34 bar)	25 psi (1.6 bar)	3/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	—
V5055F1003	1 in.	NPT	960 cf/hr; 27.2 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	Meets Intent of DIN Seat Leakage Requirements
V5055F1011	1 1/2 in.	NPT	1717 cf/hr; 48.6 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/2 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	Meets Intent of DIN Seat Leakage Requirements
V5055F1037	1 1/4 in.	NPT	1406 cf/hr; 39.8 m <sup>3</sup> /hr	5 psi (.34 bar)	25 psi (1.6 bar)	1 1/4 in. NPT High Pressure Industrial Gas Valve with On-off safety shut-off with double seal	Meets Intent of DIN Seat Leakage Requirements

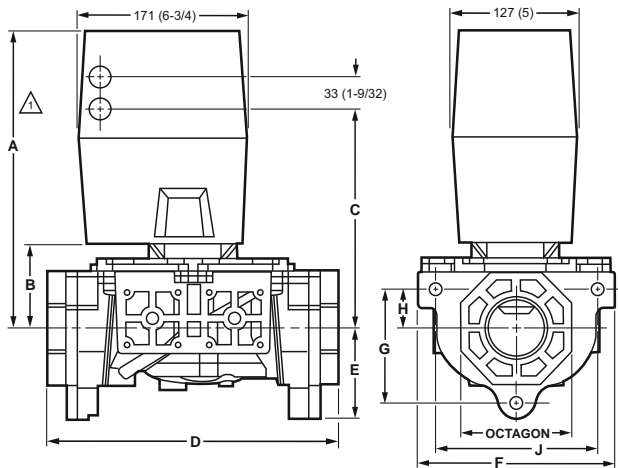
# Gas Valve Actuators

Dimensions in millimeters (inches)



VALVE SIZE INCH	DIM A		DIM B		DIM C		DIM D		DIM E		DIM F		OCTAGON	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	283	11-1/8	70	2-3/4	208	8-3/16	146	5-3/4	57	2-1/4	124	4-7/8	71	2-13/16
1	283	11-1/8	70	2-3/4	208	8-3/16	146	5-3/4	57	2-1/4	124	4-7/8	71	2-13/16
1-1/4	283	11-1/8	70	2-3/4	208	8-3/16	146	5-3/4	57	2-1/4	124	4-7/8	71	2-13/16
1-1/2	283	11-1/8	70	2-3/4	208	8-3/16	146	5-3/4	57	2-1/4	124	4-7/8	71	2-13/16
2	286	11-1/4	73	2-7/8	211	8-5/16	213	8-3/8	70	2-3/4	193	7-19/32	89	3-1/2
2-1/2	299	11-3/4	86	3-3/8	224	8-13/16	235	9-1/4	70	2-3/4	193	7-19/32	114	4-1/2
3	299	11-3/4	86	3-3/8	224	8-13/16	235	9-1/4	70	2-3/4	193	7-19/32	114	4-1/2

MC27268



△ ALLOW 51 MM (2 IN.) CLEARANCE FOR ACTUATOR REMOVAL.

VALVE SIZE (IN.)	DIM. A		DIM. B		DIM. C		DIM. D		DIM. E		DIM. F		DIM. G		DIM. H		DIM. J		OCTAGON	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
3/4	283	11-1/8	70	2-3/4	208	8-3/16	210	8-1/4	62	2-7/16	127	5	58	2-5/16	23	7/8	100	3-15/16	71	2-13/16
1	283	11-1/8	70	2-3/4	208	8-3/16	210	8-1/4	62	2-7/16	127	5	58	2-5/16	23	7/8	100	3-15/16	71	2-13/16
1-1/4	283	11-1/8	70	2-3/4	208	8-3/16	210	8-1/4	62	2-7/16	127	5	58	2-5/16	23	7/8	100	3-15/16	71	2-13/16
1-1/2	283	11-1/8	70	2-3/4	208	8-3/16	210	8-1/4	62	2-7/16	127	5	58	2-5/16	23	7/8	100	3-15/16	71	2-13/16
2	298	11-3/4	86	3-3/8	211	8-5/16	298	11-3/4	91	3-5/8	203	8	113	4-7/16	38	1-1/2	165	6-1/2	114	4-1/2
2-1/2	298	11-3/4	86	3-3/8	211	8-5/16	298	11-3/4	91	3-5/8	203	8	113	4-7/16	38	1-1/2	165	6-1/2	114	4-1/2
3	298	11-3/4	86	3-3/8	211	8-5/16	298	11-3/4	91	3-5/8	203	8	113	4-7/16	38	1-1/2	165	6-1/2	114	4-1/2

MC27581



## V5097 Integrated Valve Train



**Safety shutoff valves used with V4055, V4062 and V9055 fluid power actuators to control gas flow to commercial and industrial burners.**

- Use with natural or LP gases.
- Mount directly in gas supply line.
- Two Valve body types. Small body type for 3/4 in., 1 in., 1-1/4 in., 1-1/2 in., 2 in. pipes. Large body types for 2 in., 2-1/2 in. and 3 in. pipes.

**Operating Temperature Range:** -40 C to +66 C (-40 F to +150 F)

**Temperature Ratings when used with V9055:** -

40 C to +52 C (-40 F to +125 F)

**Includes:** Three 1/4 in. -18 NPT upstream and two 1/4 in. -18 NPT downstream taps

**Comments:** Select Proper Pipe Adapter

**Used With:** V4055; V4062; V9055

- Seven pipe adapter sizes from 3/4 in. to 3 in. have NPT or BSP threaded connections.
- Provides three 1/4 in. upstream and two 1/4 in. downstream tap and plug.
- CE version provides an additional downstream tap and plug.
- Yellow SHUT indicator attached to the valve stem provides an indication of the valve closed position.
- V5097A,C,D,E Valves are for on-off service.
- V5097B Valve has a characterized guide and in combination with the V4055, V4062 and V9055 Fluid Power Actuators, provides slow-opening, HI-LO-OFF, and modulating functions, respectively.
- V5097C,E Valves have a double seal and are used with V4055D,E Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- Actuators to provide proof-of-closure switch and valve seal over-travel interlock.
- V5097D,E Valves are for high pressure applications.
- Two valve body types (small and large) applicable to server pipe size.

**Approvals:**

**Canadian Standards Association:** When used with V4055, V4062, and V5097: Certified General listed File No. 158158, Class 3371 for USA and Canada

**CE:** CE #E3070 (Gastec)

**Factory Mutual:** When used with the V4055A,G: Approved, Report Nos. 20698, 20835, 21172, and 24061

**Swiss RE (formerly IRI):** When used with V4055A,B,D,E, V4062, V9055: Acceptable

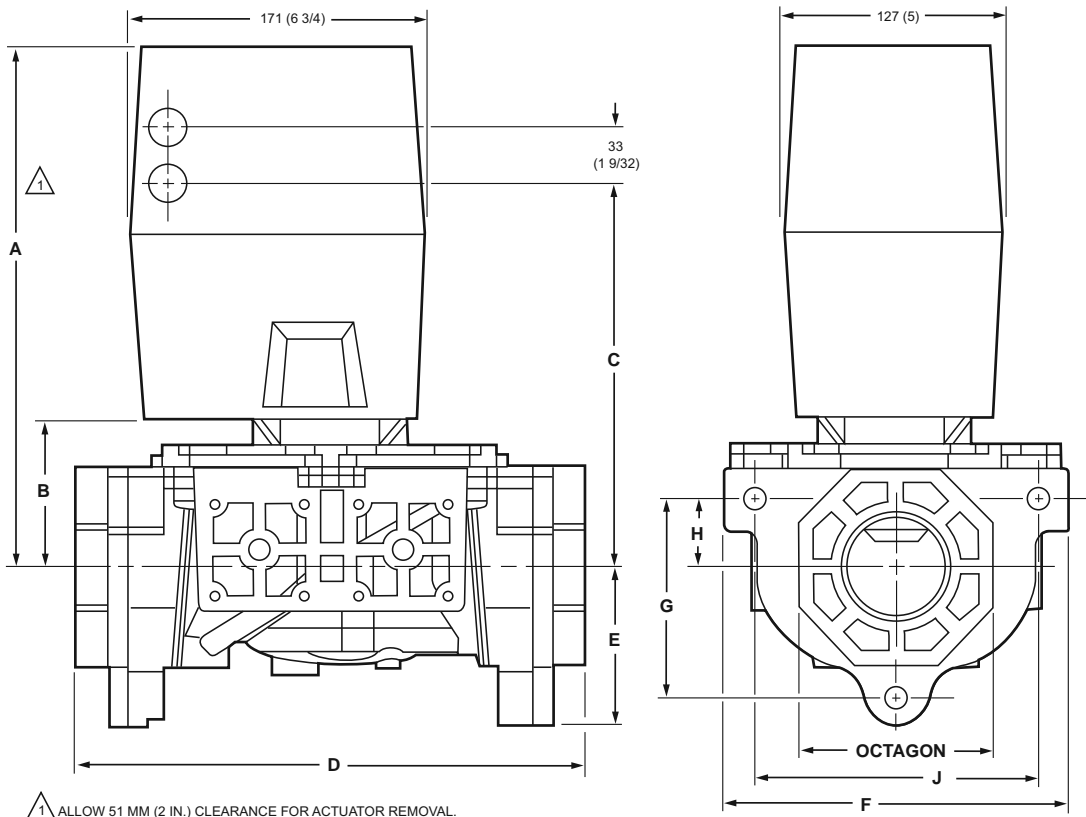
**Underwriters Laboratories, Inc.** When used with V4055A,B,D,E, V4062, V9055: Listed, File No. MH1639 Guide No. YIOZ

Product Number	Pipe Size (inch)	Capacity	Maximum Operating Differential Pressure		Integrated Valve Train Body Size	Description
			V4055A,D; V4062	V4055B or E		
V5097A1004	3/4 in. ; 1 in. 1 1/4 in. ; 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with On-off safety shut-off
V5097A1012	2 in. ; 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with On-off safety shut-off
V5097A1020	3/4 in. ; 1 1/4 in. 1 1/2 in. ; 2 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with On-off safety shut-off and BSP Port Threads
V5097A1038	2 in. ; 2 1/2 in. 3 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with On-off safety shut-off and BSP Port Threads
V5097B1002	3/4 in. ; 1 in. 1 1/4 in. ; 2 in.	665 cf/hr to 3620 cf/hr	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with characterized guide safety shut-off
V5097B1010	2 in. ; 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with characterized guide safety shut-off
V5097B1028	3/4 in. ; 1 1/4 in. 1 1/2 in. ; 2 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with characterized guide safety shut-off and BSP Port Threads
V5097B1036	2 in. ; 2 1/2 in. 3 in.	—	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with characterized guide safety shut-off and BSP Port Threads
V5097C1000	3/4 in. ; 1 in. 1 1/4 in. ; 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Small body	Small Body Low Pressure Integrated Valve with On-off safety shut-off with double seal
V5097C1018	2 in. ; 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body Low Pressure Integrated Valve with On-off safety shut-off with double seal
V5097D1008	3/4 in. ; 1 in. 1 1/4 in. ; 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m <sup>3</sup> /hr	5 psi (340 mbar)	25 psi (1.6 bar)	Small body	Small Body High Pressure Integrated Valve with On-off safety shut-off
V5097D1016	2 in. ; 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body High Pressure Integrated Valve with On-off safety shut-off

# Gas Valve Actuators

Product Number	Pipe Size (inch)	Capacity	Maximum Operating Differential Pressure		Integrated Valve Train Body Size	Description
			V4055A,D; V4062	V4055B or E		
V5097E1005	3/4 in. ; 1 in. 1 1/4 in.; 2 in.	665 cf/hr to 3620 cf/hr; 18.8 to 102.5 m <sup>3</sup> /hr	5 psi (340 mbar)	25 psi (1.6 bar)	Small body	Small Body High Pressure Integrated Valve with On-off safety shut-off with double seal
V5097E1013	2 in. ; 2 1/2 in. 3 in.	3620 cf/hr to 5230 cf/hr; 102.5 to 148.0 m <sup>3</sup> /hr	5 psi (340 mbar)	15 psi (1 bar)	Large body	Large Body High Pressure Integrated Valve with On-off safety shut-off with double seal

## Dimensions in millimeters (inches)



VALVE SIZE (MM)	DIM. A		DIM. B		DIM. C		DIM. D		DIM. E		DIM. F		DIM. G		DIM. H		DIM. J		OCTAGON	
	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.
19	283	11 1/8	70	2 3/4	208	8 3/16	210	8 1/4	62	2 7/16	127	5	58	2 5/16	23	7/8	100	3 5/16	71	2 13/16
25	283	11 1/8	70	2 3/4	208	8 3/16	210	8 1/4	62	2 7/16	127	5	58	2 5/16	23	7/8	100	3 5/16	71	2 13/16
31	283	11 1/8	70	2 3/4	208	8 3/16	210	8 1/4	62	2 7/16	127	5	58	2 5/16	23	7/8	100	3 5/16	71	2 13/16
38	283	11 1/8	70	2 3/4	208	8 3/16	210	8 1/4	62	2 7/16	127	5	58	2 5/16	23	7/8	100	3 5/16	71	2 13/16
50	298	11 3/4	86	3 3/8	211	8 5/16	298	11 3/4	91	3 5/8	203	8	113	4 7/16	38	1 1/2	165	6 1/2	114	4 1/2
63	298	11 3/4	86	3 3/8	211	8 5/16	298	11 3/4	91	3 5/8	203	8	113	4 7/16	38	1 1/2	165	6 1/2	114	4 1/2
76	298	11 3/4	86	3 3/8	211	8 5/16	298	11 3/4	91	3 5/8	203	8	113	4 7/16	38	1 1/2	165	6 1/2	114	4 1/2

MC11682A

## Integrated Valve Train Pipe Adapters

Product Number	Pipe Size (inch)	Pipe Thread	Integrated Valve Train Body Size	Description	Used With
32000109-001	3/4 in.	NPT	Small body	3/4 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-002	1 in.	NPT	Small body	1 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-003	1 1/4 in.	NPT	Small body	1 1/4 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-004	1 1/2 in.	NPT	Small body	1 1/2 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-005	2 in.	NPT	Small body	2 in. NPT Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-007	1 in.	BSP	Small body	1 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-008	1 1/4 in.	BSP	Small body	1 1/4 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32000109-009	1 1/2 in.	BSP	Small body	1 1/2 in. BSP Pipe Adapter Small Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-001	2 in.	NPT	Large body	2 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-002	2 1/2 in.	NPT	Large body	2 1/2 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197
32001605-003	3 in.	NPT	Large body	3 in. NPT Pipe Adapter Large Body Integrated Valve Train. Required for Valve Train Assembly.	V5097; V4297; V5197

# Pilot Gas Valves

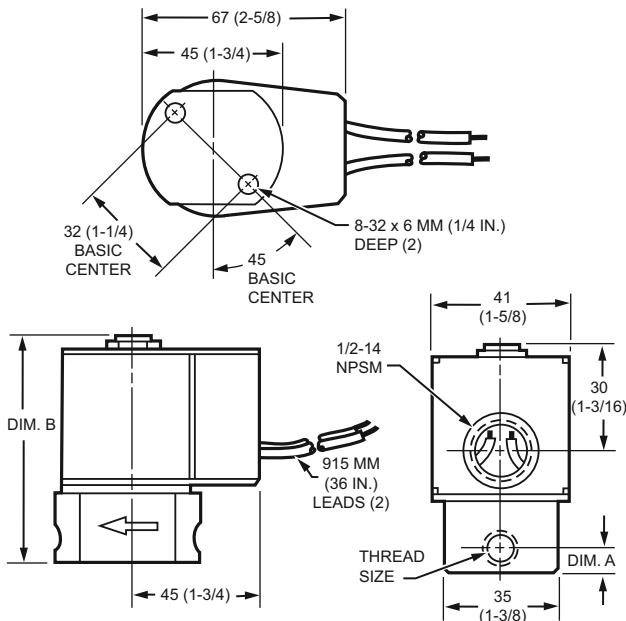
## V4046C; V8046C Pilot Gas Valves



Provide on-off control of natural, LP and manufactured gases to pilot burners in industrial and commercial applications.

- Magnetically operated, normally closed.
- Provide instantaneous action when energized.
- On power failure, valve closes in one second maximum.
- Use in any position, directly in pipe line or on support bracket.
- Replace the solenoid coil without removing the valve body from the piping connections.
- Straight-through valve pattern.
- Available in line voltage or low voltage models.

### Dimensions in millimeters (inches)



MODEL	BODY SIZE	THREAD SIZE	DIM. A		DIM. B	
			MM	IN.	MM	IN.
V4046C, V8046C	SMALL	1/8-27 NPT	8	5/16	70	2-3/4
	SMALL	1/4-18 NPT	10	3/8	76	3
	LARGE	1/4-18 NPT	13	1/2	83	3-1/4
	LARGE	3/8-18 NPT	13	1/2	83	3-1/4

MC16595A

**Type of Gas:** Air, natural, manufactured, and LP

**Body Pattern:** Straight-through

**Electrical Connections:** Two 36-in. leadwires and 1/2 in. conduit bushing

**Pressure Ratings:** 68.9 kPa (10 psi)

**Frequency:** 50 Hz; 60 Hz

**Power Consumption:** 8 W

**Mounting:** Directly in pipe or on support bracket

**Valve Opening Time:** 1 sec max

**Valve Closing Time:** 1 sec max

**Operating Temperature Range:** -40 C to +52 C (-40 F to +125 F)

### Materials

**(Body):** Aluminum

### Approvals:

**Canadian Standards Association:** Certificate No. 158158-

2500006058, Guide No. C3371-03, 83

**Factory Mutual:** Approved: Report No. 17450

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc. Listed:** File No. MH1639, V3, S3 - Guide No. Y10Z

Product Number	Pipe Size (inch)	Capacity		Voltage	Description
		(cfh)	(m <sup>3</sup> /hr)		
V4046C1005	1/8 in.	20 cfh	0.57 m <sup>3</sup> /hr	110 Vac, 120 Vac	1/8 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1021	1/4 in.	20 cfh	0.57 m <sup>3</sup> /hr	110 Vac, 120 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1047	1/4 in.	55 cfh	1.56 m <sup>3</sup> /hr	110 Vac, 120 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1054	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	110 Vac, 120 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1088	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	208 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve
V4046C1120	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	120 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1006	1/8 in.	20 cfh	0.57 m <sup>3</sup> /hr	24 Vac	1/8 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1014	1/4 in.	20 cfh	0.57 m <sup>3</sup> /hr	24 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1022	1/4 in.	55 cfh	1.56 m <sup>3</sup> /hr	24 Vac	1/4 in. NPT pipe size Solenoid Pilot Gas Valve
V8046C1030	3/8 in.	67 cfh	1.90 m <sup>3</sup> /hr	24 Vac	3/8 in. NPT pipe size Solenoid Pilot Gas Valve

## V4295; V8295 Solenoid Gas Valves



V4295A/V8295A are normally closed and V4295S/V8295S are normally open (vent) solenoid gas valve. Suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, roof-top make-up air units, power burners, and commercial/ industrial boilers.

- V8295A,S are used with 24 Vac controllers.
- V4295A,S are used with 120 Vac controllers.
- Positive close off of gas flow when de-energized.
- High valve spring force allows up to 0.7 psi back pressure at valve seat.
- No inlet pressure influence at valve seat.
- Inlet pressure changes do not affect ability to close valve.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.

**Type of Gas:** Air, natural, manufactured, mixed, and LP

**Dimensions, Approximate:** 113 mm high x 73 mm wide x 56 mm deep  
(4 7/16 in. high x 2 7/8 in. wide x 2 3/16 deep)

**Body Pattern:** Straight-through, non-offset

**Electrical Connections:** Screw terminals

**Inlet/Outlet Pressure Tapping:** 1/4 in. NPT

**Frequency:** 50 Hz; 60 Hz

**Mounting:** Vertical to 90 degrees from vertical

**Valve Opening Time:** less than 1 sec

**Valve Closing Time:** less than 1 sec

**Operating Temperature Range:** -40 C to +60 C (-40 F to +140 F)

### Materials

**(Body):** Die-cast aluminum

### Approvals:

**Canadian Standards Association:** Certificate No. 158158-1154280,  
Guide No. C3371-03, 04, 83

**Control Safety Devices:** Acceptable

**Factory Mutual:** Approved: Report No. J.I.OD6A2.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MH18476, V1, S1 -  
Guide No. YIOZ

Product Number	Pipe Size	Capacity		Pressure Ratings		Voltage	Current (max amps at rated Vac/Hz)
	(inch)	(cfh)	(m <sup>3</sup> /hr)	(psi)	(kPa)		
V4295A1015	1/2 in.	250 cfh	7.1 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.160 amps
V4295A1023	3/4 in.	645 cfh	18.3 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.160 amps
V4295A1031	1 in.	790 cfh	22.4 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.160 amps
V4295A1049	1 1/4 in.	1450 cfh	41.0 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.340 amps
V4295A1056	1 1/2 in.	2190 cfh	62.0 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.300 amps
V4295A1064	2 in.	3465 cfh	98.1 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.525 amps
V4295A1072	2 1/2 in.	5070 cfh	143.5 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.575 amps
V4295A1080	3 in.	6100 cfh	172.7 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.675 amps
V4295A1098	3/8 in.	210 cfh	5.9 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.160 amps
V4295A1106	1/2 in.	290 cfh	8.2 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.160 amps
V4295A1114	3/4 in.	610 cfh	17.3 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.2 amps
V4295A1122	1 in.	825 cfh	23.4 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.2 amps
V4295A1130	1 1/4 in.	1950 cfh	55.2 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.550 amps
V4295A1148	1 1/2 in.	2270 cfh	64.3 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.550 amps
V4295A1155	2 in.	3740 cfh	105.9 m <sup>3</sup> /hr	5 psi	34.5 kPa	120 Vac	0.540 amps
V4295S1005	3/4 in.	350 cfh	9.9 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.160 amps
V4295S1013	1 in.	420 cfh	11.9 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.160 amps
V4295S1021	1 1/4 in.	1100 cfh	31.1 m <sup>3</sup> /hr	2 psi	13.8 kPa	120 Vac	0.340 amps
V8295A1016	1/2 in.	250 cfh	7.1 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	0.8 amps
V8295A1024	3/4 in.	645 cfh	18.3 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	0.8 amps
V8295A1032	1 in.	790 cfh	22.4 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	0.8 amps
V8295A1040	1 1/4 in.	1450 cfh	41.0 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	1.6 amps
V8295A1057	1 1/2 in.	2190 cfh	62.0 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	1.70 amps
V8295A1065	2 in.	3465 cfh	98.1 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	2.80 amps
V8295S1006	3/4 in.	350 cfh	9.9 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	0.8 amps
V8295S1014	1 in.	420 cfh	11.9 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	0.8 amps
V8295S1022	1 1/4 in.	1100 cfh	31.1 m <sup>3</sup> /hr	2 psi	13.8 kPa	24 Vac	2.40 amps

# Solenoid Gas Valves

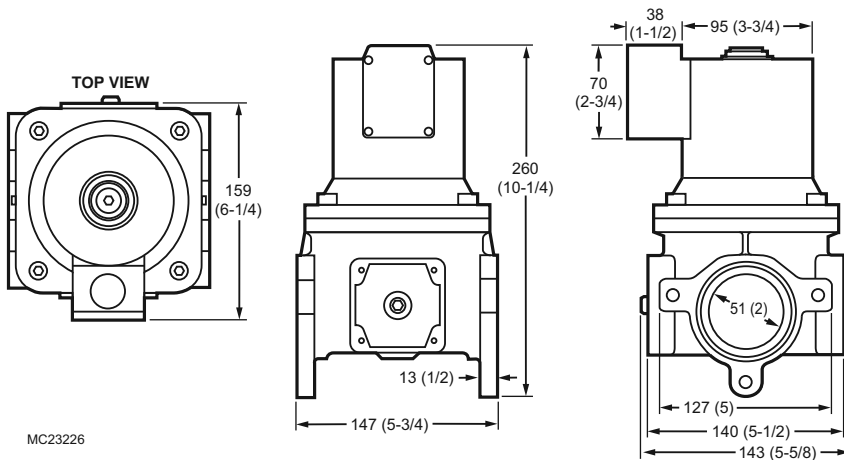
## V4297A Solenoid Safety Shut-off Valve for IVT



V4297A are normally closed solenoid gas valve. Suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, roof-top make-up air units, power burners, and commercial/industrial boilers.

- V4297A are used with 120 Vac controllers.
- Positive close off of gas flow when de-energized.
- High valve spring force allows up to 0.7 psi back pressure at valve seat.
- No inlet pressure influence at valve seat.
- Inlet pressure changes do not affect ability to close valve.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.
- For use with the Integrated Valve Train.
- Accepts C6097 Pressure Switch mounted directly to flange (upstream pressure tap only).

### Dimensions in millimeters (inches)



**Type of Gas:** Air, natural, manufactured, mixed, and LP  
**Body Pattern:** Straight-through, non-offset  
**Electrical Connections:** Screw terminals  
**Inlet/Outlet Pressure Tapping:** 1/4 in. NPT  
**Pressure Ratings:** 34.5 kPa (5 psi)  
**Frequency:** 50 Hz; 60 Hz  
**Mounting:** Directly bolted to Integrated Valve Train Components  
**Valve Opening Time:** less than 1 sec  
**Valve Closing Time:** less than 1 sec  
**Flanges:** Required, Order Separately  
**Operating Temperature Range:** -40 C to +54 C (-40 F to +130 F)

**Materials**  
**(Body):** Die-cast aluminum

**Approvals:**  
**Canadian Standards Association:** Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Listed: File No. MH18476, V1, S1 - Guide No. YIOZ

**Replacement Parts:**  
**4074EYF** Bag assembly for V5097 (small body) includes 6 ea bolts, nuts and washers.  
**4074EYK** Bag assembly for V5097 (small body) includes (2) O-rings, (1) grease capsule.

Product Number	Pipe Size (inch)	Capacity		Integrated Valve Train Body Size	Current (max amps at rated Vac/Hz)	Voltage	Description
		(m <sup>3</sup> /hr)	(cfh)				
V4297A1005	3/4 in. to 1 1/4 in.	19.8 m <sup>3</sup> /hr	780 cfh; 700 cfh; 650 cfh	Small body, small flow	0.2 amps	110/120 Vac; 110 Va; 120 Vac	Integrated Valve Train, Normally Closed, Small Body Solenoid Gas Valve.
V4297A1013	3/4 in. to 2 in.	—	3060 cfh; 2735 cfh; 2260 cfh; 1460 cfh; 1190 cfh	Small body, large flow	0.5 amps	110/120 Vac	Integrated Valve Train, Normally Closed, Large Flow Solenoid Gas Valve.

## V4297S Normally Open Vent Valve for IVT



V4297S are normally open (vent) solenoid gas valves. Suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, roof-top make-up air units, power burners, and commercial/industrial boilers.

- V4297S is used with 120 Vac controllers.
- Low operating noise.
- Low rush-in current.
- Upstream and downstream taps allows tapping and testing pressure points.
- For use with the Integrated Valve Train

**Type of Gas:** Air, natural, manufactured, mixed, and LP  
**Body Pattern:** Straight-through, non-offset  
**Electrical Connections:** Screw terminals  
**Inlet/Outlet Pressure Tapping:** 1/4 in. NPT  
**Pressure Ratings:** 34.5 kPa (5 psi)  
**Frequency:** 50 Hz; 60 Hz  
**Mounting:** Directly bolted to Integrated Valve Train Components  
**Valve Opening Time:** less than 1 sec  
**Valve Closing Time:** less than 1 sec  
**Flanges:** Required for Stand Alone  
**Operating Temperature Range:** -40 C to +63 C (-40 F to +145 F)  
**Materials**  
**(Body):** Die-cast aluminum

**Approvals:**  
**Canadian Standards Association:** Certificate No. 158158-1154280, Guide No. C3371-03, 04, 83  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Listed: File No. MH18476, V1, S1 - Guide No. YIOZ

**Replacement Parts:**  
**4074EYF** Bag assembly for V5097 (small body) includes 6 ea bolts, nuts and washers.  
**4074EYK** Bag assembly for V5097 (small body) includes (2) O-rings, (1) grease capsule.  
**4074EYL** Bag assembly for V5097 (large body) includes (2) O-rings, (1) grease capsule.

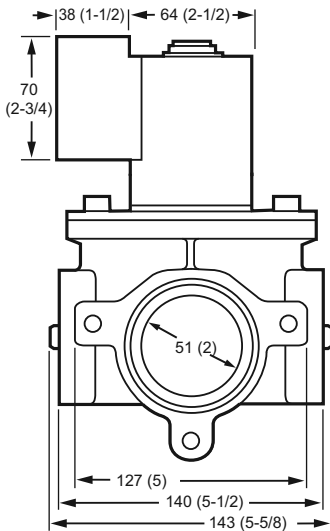
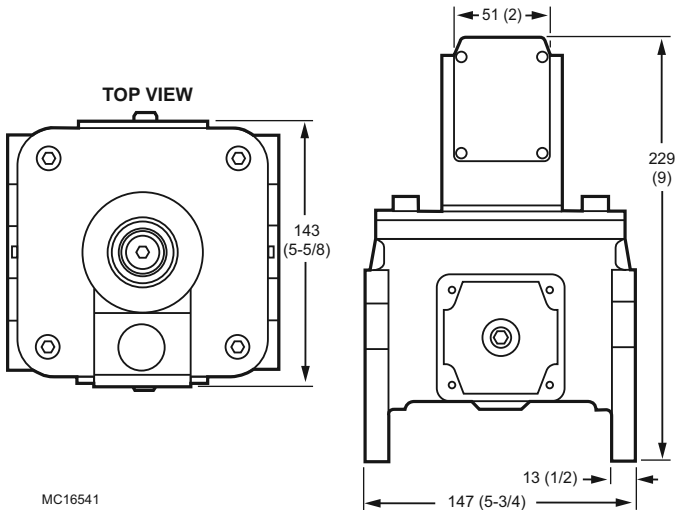
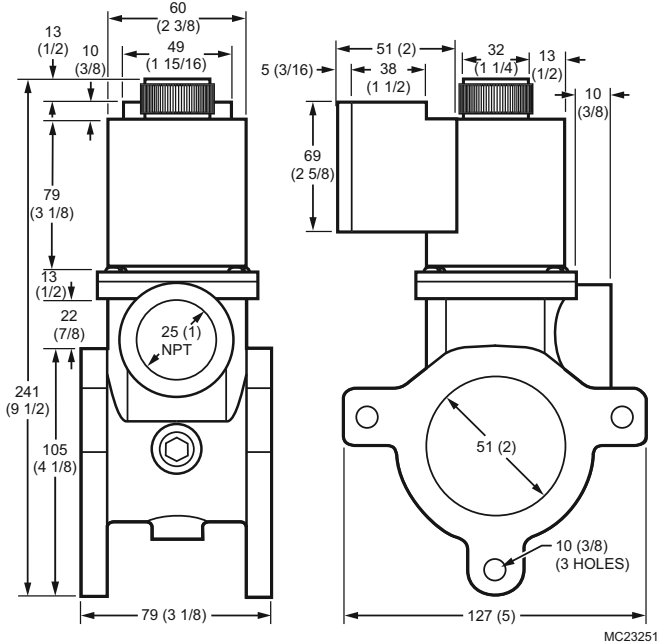
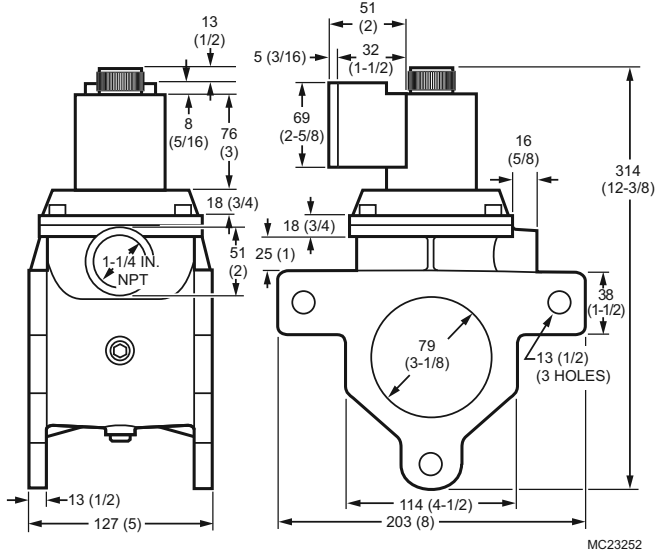
Product Number	Capacity		Integrated Valve Train Body Size	Voltage	Current (max amps at rated Vac/Hz)	Description
	(cfh)	(m <sup>3</sup> /hr)				
V4297S1003	714 cfh	20.2 m <sup>3</sup> /hr	Small body	110/120 Vac	0.2 amps	Integrated Valve Train, Normally Open (1" Vent connection), Small Body Solenoid Gas Valve.
V4297S1011	1115 cfh	31.6 m <sup>3</sup> /hr	Large body	110/120 Vac	0.34 amps	Integrated Valve Train, Normally Open (1 1/4" Vent connection), Large Body Solenoid Gas Valve.

## Solenoid Gas Valve Replacement Parts or Accessories

Product Number	Description	Used With
116668A	Replacement Coil Assembly for 24V, 60 Hz V8046	V8046
32004925-001	Closed Position Indicator (CPI) switch. Used with V4297A	V4295/V4297
KTCPI001	Visual indication for V4297A	V4295/V4297

# Solenoid Gas Valves

Dimensions in millimeters (inches)





## C437 2000 Series Gas/Air Pressure Switches

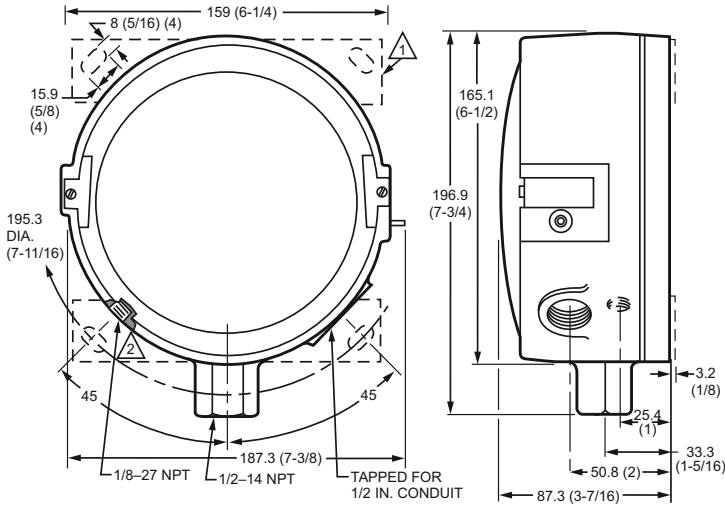


The C437D,E Series 2000 Gas Pressure Switches are pressure-actuated switching devices used in industrial gas system applications for safety shutoff, pressure control, and differential-pressure control.

All Series 2000 models have MicroSwitch™ snap switches to open or close a circuit on pressure rise or drop.

- Use C437 for SPST (non-mercury) switching.
- Models intended for lockout applications must be manually reset before resuming operation.
- Models with pressure range of 1 to 26 in. wc (0.25 to 6.5 kPa) compensate for momentary surges in gas pressure with a restrictive orifice in inlet pressure channel.
- Impede tampering and provide dust-resistant operation with enclosed setting.
- Increase strength of control diaphragm with Buna-N fiber-reinforced material.
- Two Buna-N fiber-reinforced seal-off diaphragms for added reliability.
- Clear glass cover allows observation of interior mechanism to aid in setting and checkout.

### Dimensions in millimeters (inches)



1 137755 MOUNTING BRACKET (2), IN 4074BWK BAG ASSEMBLY – OPTIONAL.

2 VENT TAPPING. REMOVE DUST-SEAL LABEL BEFORE MOUNTING.

MC27582

**Application:** Industrial gas system applications for safety shutoff, pressure control, or differential-pressure control.

**Pipe Connections, Main or High Pressure:** 1/2 in. NPT internal thread

**Pipe Connections, Vent or Low pressure:** 1/8 in. NPT internal thread

**Electrical Connections:** Screw terminals

**Sensor Element:** BUNA N Diaphragm

**Differential Type:** Subtractive

**Temperature Range:** 0 C to 52 C (32 F to 125 F)

**Maximum Ambient Temperature:** 52 C (125 F)

**Materials (Case):** Die-cast aluminum

**Switch Operation:** Manual Reset

### Switch Contact Ratings

**120 Vac:** 8.0 AFL, 48.0 ALR, 10.0 A resistive

**240 Vac:** 5.1 AFL, 30.6 ALR, 5.0 A resistive

### Approvals:

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 380-W-1.16

**Factory Mutual:** Approved: Report No. 22018, 24127, J.I.F4A3.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP2168, Guide No. MFHX

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action
	kPa	in. wc	kPa	psi	kPa	in. wc	
C437D2003	0.5 to 7.0	1 to 26	34.5	5.0	0.44	1 3/4	SPST, break on rise, non-mercury
C437D2011	3.0 to 35	1/2 to 5	103.4	15.0	3.45	1/2	SPST, break on rise, non-mercury
C437D2029	5.0 to 70.0	1 to 10	206.8	30.0	6.89	1	SPST, break on rise, non-mercury
C437E2002	0.5 to 7.0	1 to 26	34.5	5.0	0.44	1 3/4	SPST, Break on Fall, non mercury
C437E2010	3.0 to 35	1/2 to 5	103.4	15.0	3.45	1/2	SPST, Break on Fall, non mercury
C437E2028	5.0 to 70.0	1 to 10	206.8	30.0	6.89	1	SPST, Break on Fall, non mercury
C437E2036	0.1 to 1.4	0.5 to 5.5	20.7	3.0	0.06	0.25	SPST, Break on Fall, non mercury

# Pressure Switches

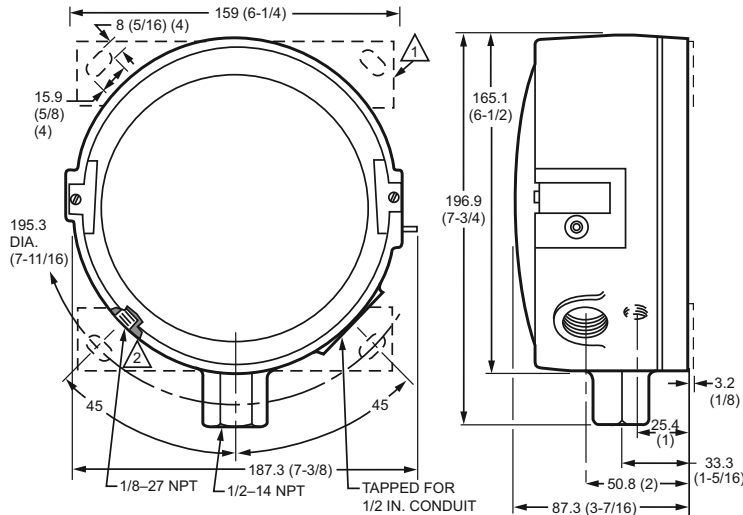
## C437 Gas/Air Pressure Switches



**Pressure or differential pressure limit controls for industrial gas systems.**

- Uses C437 for SPDT Mercury switching.
- Models with pressure range of 1 to 26 in. wc (0.25 to 6.5 kPa) compensate for momentary surges in gas pressure with a restrictive orifice in inlet pressure channel.
- Impede tampering and provide dust-resistant operation with enclosed setting.
- Increase strength of control diaphragm with Buna-N fiber-reinforced material.
- Clear glass cover allows observation of interior mechanism to aid in setting and checkout.
- Mercury switch provides visual indication of switch position.

### Dimensions in millimeters (inches)



- △ 137755 MOUNTING BRACKET (2), IN 4074BWK BAG ASSEMBLY – OPTIONAL.
- △ VENT TAPPING. REMOVE DUST-SEAL LABEL BEFORE MOUNTING.

MC27582

**Application:** Industrial gas system applications for safety shutoff, pressure control, or differential-pressure control.

**Pipe Connections, Main or High Pressure:** 1/2 in. NPT internal thread

**Pipe Connections, Vent or Low pressure:** 1/8 in. NPT internal thread

**Electrical Connections:** Screw terminals

**Sensor Element:** BUNA N Diaphragm

**Differential Type:** Additive

**Switch Operation:** Auto recycle

**Temperature Range:** 0 C to 52 C (32 F to 125 F)

**Maximum Ambient Temperature:** 52 C (125 F)

**Materials (Case):** Die-cast aluminum

### Switch Contact Ratings

**120 Vac:** 8.0 AFL, 48.0 ALR, 10.0 A resistive

**120 Vdc:** 2.0 AFL, 20.0 ALR, 8.0 A resistive

**240 Vac:** 5.1 AFL, 30.6 ALR, 5.0 A resistive

**240 Vdc:** 1.0 AFL, 10.0 ALR, 4.0 A resistive

### Approvals:

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 380-W-1.16

**Factory Mutual:** Approved: Report No. 22018, 24127, J.I.F4A3.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP2168, Guide No. MFHX

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Includes
C437F1003	0.5 to 7.0 kPa	1 to 26 in. wc	34.5 kPa	5.0 psi	0.31 kPa	1 1/4 in. wc	SPST (two), break one and make one on pressure fall	—
C437F1011	3.0 to 35 kPa	1/2 to 5 psi	103.4 kPa	15.0 psi	1.72 kPa	0.25 psi	SPST (two), break one and make one on pressure fall	—
C437F1029	5.0 to 70.0 kPa	1 to 10 psi	206.8 kPa	30.0 psi	3.45 kPa	1/2 psi	SPST (two), break one and make one on pressure fall	—
C437F1037	0.1 to 1.4 kPa	0.5 to 5.5 in. wc	20.7 kPa	3.0 psi	0.06 kPa	0.25 in. wc	SPST (two), break one and make one on pressure fall	—
C437F1045	0.5 to 7.0 kPa	1 to 26 in. wc	34.5 kPa	5.0 psi	0.31 kPa	1 1/4 in. wc	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)
C437F1052	3.0 to 35 kPa	1/2 to 5 psi	103.4 kPa	15.0 psi	1.72 kPa	0.25 psi	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)
C437F1060	5.0 to 70.0 kPa	1 to 10 psi	206.8 kPa	30.0 psi	3.45 kPa	1/2 psi	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)
C437F1078	0.1 to 1.4 kPa	0.5 to 5.5 in. wc	20.7 kPa	3.0 psi	0.06 kPa	0.25 in. wc	SPST (two), break one and make one on pressure fall	Weatherproof enclosure (NEMA 3R)

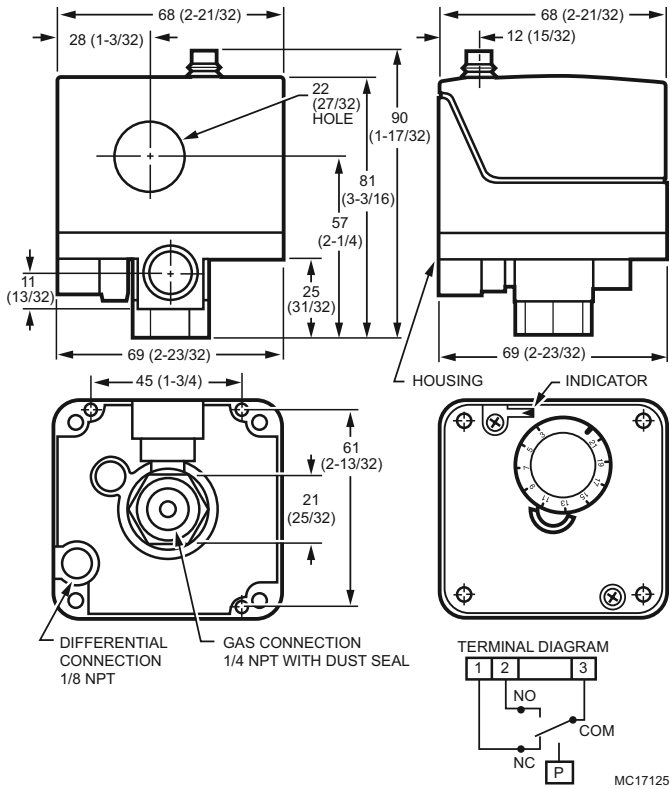
## C6097 Pressure Switch



**Pressure Switches** are safety devices used in positive-pressure or differential-pressure systems to sense gas or air pressure systems.

- For use with natural gas, liquid propane (LP) gas, or air.
- Diaphragm-actuated safety-limit switch.
- Switch can be wired to turn on alarm.
- C6097A models break control circuit at setpoint on pressure fall.
- C6097B models break control circuit at setpoint on pressure rise.
- Lockout with manual reset and recycle options.
- Lockout models have external manual reset button.
- Removable transparent cover protects scaleplate and adjusting knob.
- Pipe tapings allow selection of positive pressure (air only) or venting connections (NPT mount only).
- 1/4 in. NPT or flange mount models for direct mounting to Honeywell Integrated Valve Train.
- Optional switch position indicator lamp available.
- IP54 enclosure standard.
- Ranges: 0.4 to 5 in.wc, 3 to 21 in.wc, 12 to 60 in.wc or 1.5 to 7 psi.
- Surge orifice.
- Integral vent limiter on all models.

**Dimensions in millimeters (inches)**



**Application:** Safety devices used in positive-pressure or differential-pressure systems to sense gas or air pressure changes  
**Pipe Connections, Vent or Low pressure:** 1/8 in. NPT internal thread  
**Alternate Ratings:** Ignition Transformer: 540 VA, Pilot Valve: 50 VA.  
 Main Valve: 400 VA with 2-1/2 times inrush  
**Electrical Connections:** Screw terminals  
**Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Differential Type**  
**C6097A:** Additive  
**C6097B:** Subtractive  
**Switching Action**  
**C6097A:** Break on pressure fall  
**C6097B:** Break on pressure rise

**Switch Contact Ratings**  
**120 Vac:** 3.0 AFL, 18.0 ALR, 5.0 A resistive  
**240 Vac:** 3.0 AFL, 18.0 ALR, 5.0 A resistive

**Approvals:**  
**Canadian Standards Association:** File # 95329 Certificate 2632-01  
**Factory Mutual:** Approved  
**Swiss RE (formerly IRI):** Acceptable  
**Underwriters Laboratories, Inc.** Component Listed, MP 2168-8-1  
**Others:** CSD-1 AFB: Acceptable

Product Number	Operating Pressure Range		Pressure Differential		Nominal Pressure Differential		Maximum Pressure Differential		Switch Operation	Mounting
	kPa	in. wc	kPa	in. wc	kPa	in. wc	kPa	in. wc		
C6097A1004	0.10 to 1.25	0.4 to 5	—	—	0.04 kPa	0.16 in. wc	0.06 kPa	0.24 in. wc	Auto recycle	1/4 in. NPT internal thread
C6097A1012	0.7 to 5.2	3 to 21	max. 0.60 kPa @ min. setpoint;	max. 2.4 in. wc @ min. setpoint;	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097A1020	0.7 to 5.2	3 to 21	max. 1.05 kPa @ max. setpoint;	max. 4.2 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097A1038	3.0 to 15	12 to 60	max. 2.5 kPa @ min. setpoint;	max. 10 in. wc @ min. setpoint;	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097A1046	3.0 to 15	12 to 60	max. 3.0 kPa @ max. setpoint;	max. 12 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097A1053	0.7 to 5.2	3 to 21	—	—	0.06 kPa	0.24 in. wc	0.12 kPa	0.48 in. wc	Auto recycle	1/4 in. NPT internal thread
C6097A1061	0.7 to 5.2	3 to 21	—	—	0.06 kPa	0.24 in. wc	0.12 kPa	0.48 in. wc	Auto recycle	Flange Mount

# Pressure Switches

Product Number	Operating Pressure Range		Pressure Differential		Nominal Pressure Differential		Maximum Pressure Differential		Switch Operation	Mounting
C6097A1079	3.0 to 15 kPa	12 to 60 in. wc	—	—	0.27 kPa	1.1 in. wc	0.60 kPa	2.4 in. wc	Auto recycle	1/4 in. NPT internal thread
C6097A1087	3.0 to 15 kPa	12 to 60 in. wc	—	—	0.27 kPa	1.1 in. wc	0.60 kPa	2.4 in. wc	Auto recycle	Flange Mount
C6097A1095	0.10 to 1.25 kPa	0.4 to 5 in. wc	max. 0.15 kPa @ min. setpoint; max. 0.25 kPa @ max. setpoint	max. 0.6 in. wc @ min. setpoint; max. 0.25 in. wc @ max. setpoint	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097A1103	10.3 to 48 kPa	1.5 to 7 psi	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097A1111	10.3 to 48 kPa	1.5 to 7 psi	—	—	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097A1137	10.3 to 48 kPa	1.5 to 7 psi	—	—	0.69 kPa	0.1 psi	2.07 kPa	0.3 psi	Auto recycle	1/4 in. NPT internal thread
C6097A1145	0.75 to 5.23 kPa	3 to 21 in. wc	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097A1210	0.10 to 1.25 kPa	0.4 to 5 in. wc	—	—	0.04 kPa	0.16 in. wc	0.06 kPa	0.24 in. wc	Auto recycle	Flange Mount
C6097A1228	0.10 to 1.25 kPa	0.4 to 5 in. wc	max. 0.15 kPa @ min. setpoint; max. 0.25 kPa @ max. setpoint	max. 0.6 in. wc @ min. setpoint; max. 0.25 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097A1236	3.0 to 15 kPa	12 to 60 in. wc	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097B1002	3.0 to 15 kPa	12 to 60 in. wc	max. 2.5 kPa @ min. setpoint; max. 3.0 kPa @ max. setpoint	max. 10 in. wc @ min. setpoint; max. 12 in. wc @ max. setpoint	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097B1010	3.0 to 15 kPa	12 to 60 in. wc	—	—	—	—	—	—	Manual Reset	Flange Mount
C6097B1028	0.7 to 5.2 kPa	3 to 21 in. wc	max. 0.60 kPa @ min. setpoint; max. 1.05 kPa @ max. setpoint	max. 2.4 in. wc @ min. setpoint; max. 4.2 in. wc @ max. setpoint	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097B1036	0.7 to 5.2 kPa	3 to 21 in. wc	—	—	—	—	—	—	Manual Reset	Flange Mount
C6097B1044	10.3 to 48 kPa	1.5 to 7 psi	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097B1051	10.3 to 48 kPa	1.5 to 7 psi	—	—	—	—	—	—	Manual Reset	1/4 in. NPT internal thread
C6097B1069	0.7 to 5.2 kPa	3 to 21 in. wc	—	—	0.06 kPa	0.24 in. wc	0.12 kPa	0.48 in. wc	Auto recycle	Flange Mount
C6097B1077	3.0 to 15 kPa	12 to 60 in. wc	—	—	0.27 kPa	1.1 in. wc	0.60 kPa	2.4 in. wc	Auto recycle	Flange Mount
C6097B1085	3.0 to 15 kPa	12 to 60 in. wc	—	—	0.27 kPa	1.1 in. wc	0.60 kPa	2.4 in. wc	Auto recycle	1/4 in. NPT internal thread
C6097B1093	10.3 to 48 kPa	1.5 to 7 psi	—	—	0.69 kPa	0.1 psi	2.07 kPa	0.3 psi	Auto recycle	Flange Mount
C6097B1101	10.3 to 48 kPa	1.5 to 7 psi	—	—	0.69 kPa	0.1 psi	2.07 kPa	0.3 psi	Auto recycle	1/4 in. NPT internal thread
C6097B1119	0.7 to 5.2 kPa	3 to 21 in. wc	—	—	0.06 kPa	0.24 in. wc	0.12 kPa	0.48 in. wc	Auto recycle	1/4 in. NPT internal thread
C6097B1127	3.0 to 15 kPa	12 to 60 in. wc	max. 7.6 kPa @ min. setpoint; max. 9.6 kPa @ max. setpoint	max. 1.1 in. wc @ min. setpoint; max. 1.4 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount
C6097B1135	0.7 to 5.2 kPa	3 to 21 in. wc	—	—	—	—	—	—	Manual Reset	Flange Mount
C6097B1168	10.3 to 48 kPa	1.5 to 7 psi	—	—	—	—	—	—	Manual Reset	Flange Mount
C6097B1184	0.75 to 5.23 kPa	3 to 21 in. wc	max. 0.60 kPa @ min. setpoint; max. 1.05 kPa @ max. setpoint	max. 2.4 in. wc @ min. setpoint; max. 4.2 in. wc @ max. setpoint	—	—	—	—	Manual Reset	Flange Mount

# Pressure and Limit Controllers

## L404F Pressuretrol® Controllers



Provide operating control with automatic limit protection for pressure systems up to 300 psi (2068 kPa).

- Use with steam, air, noncombustible gases, or fluids non-corrosive to pressure sensing element.
- Models have snap-acting switching to open or close a circuit on pressure rise.
- Have adjustable differentials.
- Adjustments are made by screws on top of case.
- Mount using 1/4 inch -18 NPT internal pipe threads or surface mount through base of case.
- Ground screw terminal.

**Application:** Provide control of steam, air, non-combustible gases or non-corrosive fluids

**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Pipe Connections, Main or High Pressure:** 1/4 in. NPT internal thread

**Electrical Connections:** Screw terminals

**Sensor Element:** Stainless Steel diaphragm

**Differential Type:** Subtractive

**Switch Operation:** Auto recycle

**Temperature Range:** -37 C to +66 C (-35 F to +150 F)

### Switch Contact Ratings

**120 Vac:** 8.0 AFL, 48.0 ALR, 10.0 A resistive

**240 Vac:** 5.1 AFL, 30.6 ALR, 5.0 A resistive

### Approvals:

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

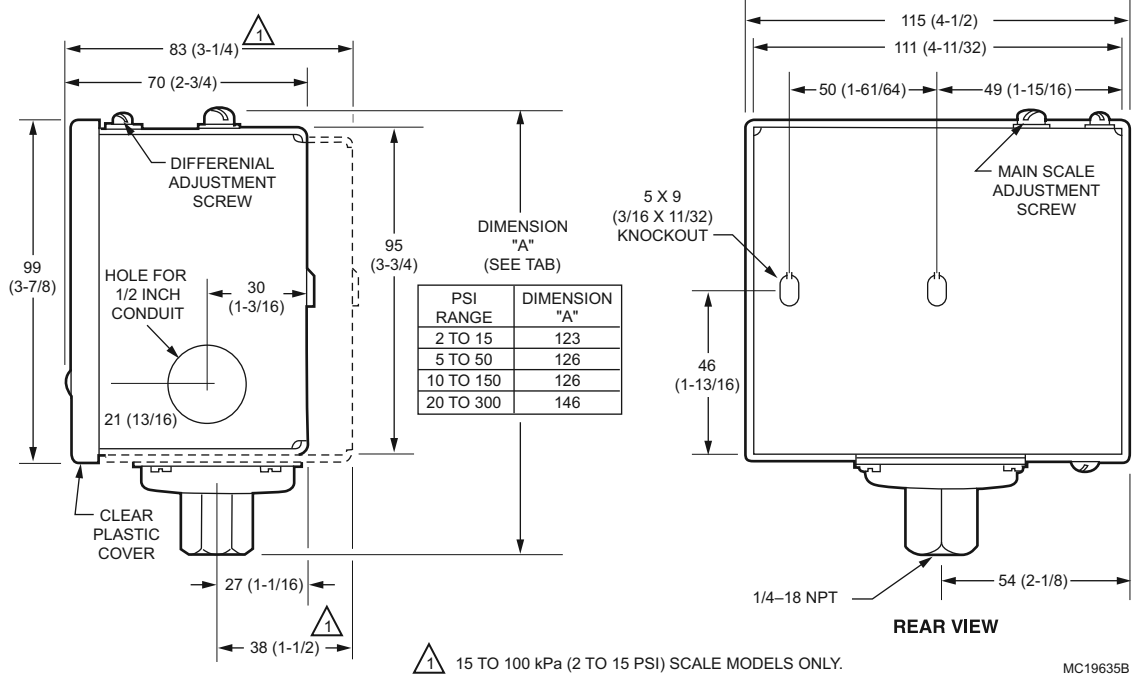
**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP466, Guide No. MBPR

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Includes
L404F1060	14 to 103 kPa	2 to 15 psi	345 kPa	25 psi	14 to 41 kPa	2 to 6 psi	SPDT snap action, make R-W, break R-B on pressure rise	—
L404F1078	35 to 345 kPa	5 to 50 psi	586 kPa	85 psi	41 to 97 kPa	6 to 14 psi	SPDT snap action, make R-W, break R-B on pressure rise	—
L404F1094	138 to 2068 kPa	20 to 300 psi	2413 kPa	350 psi	138 to 345 kPa	20 to 50 psi	SPDT snap action, make R-W, break R-B on pressure rise	—
L404F1102	69 to 1034 kPa	10 to 150 psi	1551 kPa	225 psi	60 to 152 kPa	10 to 22 psi	SPDT snap action, make R-W, break R-B on pressure rise	—
L404F1219	14 to 103 kPa	2 to 15 psi	345 kPa	25 psi	14 to 41 kPa	2 to 6 psi	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure
L404F1227	69 to 1034 kPa	10 to 150 psi	1551 kPa	225 psi	60 to 152 kPa	10 to 22 psi	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure
L404F1235	138 to 2068 kPa	20 to 300 psi	2413 kPa	350 psi	138 to 345 kPa	20 to 50 psi	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure
L404F1243	35 to 345 kPa	5 to 50 psi	586 kPa	85 psi	41 to 97 kPa	6 to 14 psi	SPDT snap action, make R-W, break R-B on pressure rise	BSPT ground screw and European Enclosure
L404F1375	35 to 350 kPa	5 to 50 psi	590 kPa	85 psi	40 to 100 kPa	6 to 14 psi	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)
L404F1383	70 to 1035 kPa	10 to 150 psi	1550 kPa	225 psi	70 to 150 kPa	10 to 22 psi	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)
L404F1391	140 to 2070 kPa	20 to 300 psi	2410 kPa	350 psi	140 to 345 kPa	20 to 50 psi	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)
L404F1409	14 to 103 kPa	2 to 15 psi	172 kPa	25 psi	15 to 40 kPa	2 to 6 psi	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)
L404F1417	14 to 103 kPa	2 to 15 psi	345 kPa	25 psi	14 to 41 kPa	2 to 6 psi	SPDT snap action, make R-W, break R-B on pressure rise	—
L404F1425	69 to 1034 kPa	10 to 150 psi	1551 kPa	225 psi	60 to 152 kPa	10 to 22 psi	SPDT snap action, make R-W, break R-B on pressure rise	—

# Pressure and Limit Controllers

Dimensions in millimeters (inches)



MC19635B

# Pressure and Limit Controllers

## L404T,V Oil Pressuretrol® Limit Controllers



Oil pressure sensing devices for use on oil burner systems using any type of fuel oil, including heavy pretreated oils.

- Clear plastic cover allows observation of the pressure settings.
- Models have snap-acting switching to open or close a circuit on pressure rise.
- L404T High pressure limit, break a circuit on oil pressure rise above setpoint.
- L404V Low Pressure limit, makes a circuit on oil pressure rise above setpoint.
- Adjustments are made by screws on top of case.
- Mount using 1/4 inch -18 NPT internal pipe threads or surface mount through base of case.
- Ground screw terminal.

**Application:** High oil pressure limit switch for heavy oil applications.  
**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Pipe Connections, Main or High Pressure:** 1/4 in. NPT internal thread

**Electrical Connections:** Screw terminals

**Sensor Element:** Stainless Steel diaphragm

**Differential Type:** Subtractive

**Switch Operation:** Auto recycle

**Temperature Range:** -37 C to +66 C (-35 F to +150 F)

**Switch Contact Ratings**

**120 Vac:** 8.0 AFL, 48.0 ALR, 10.0 A resistive

**240 Vac:** 5.1 AFL, 30.6 ALR, 5.0 A resistive

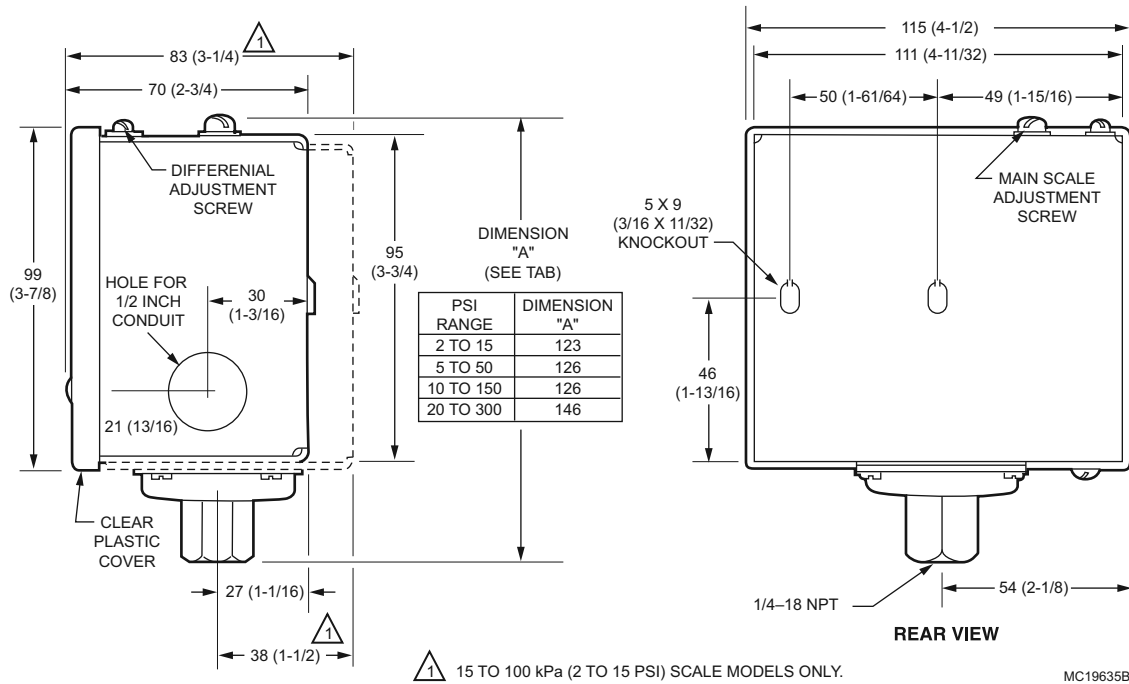
**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329

**Underwriters Laboratories, Inc.** Listed: File No. MP2168, Guide No. MFHX

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Switching Action	Includes
	kPa	psi	kPa	psi	kPa	psi		
L404T1055	35 to 350	5 to 50	586	85	40 to 100	6 to 14	SPST snap acting break on pressure rise	—
L404T1063	70 to 1035	10 to 150	1550	225	70 to 150	10 to 22	SPST snap acting break on pressure rise	—
L404V1087	70 to 1035	10 to 150	1550	225	70 to 150	10 to 22	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)
L404V1095	35 to 350	5 to 50	590	85	40 to 100	6 to 14	Snap switch makes R-W on pressure rise	Miswiring Compliant (less B terminal)

Dimensions in millimeters (inches)



# Pressure and Limit Controllers

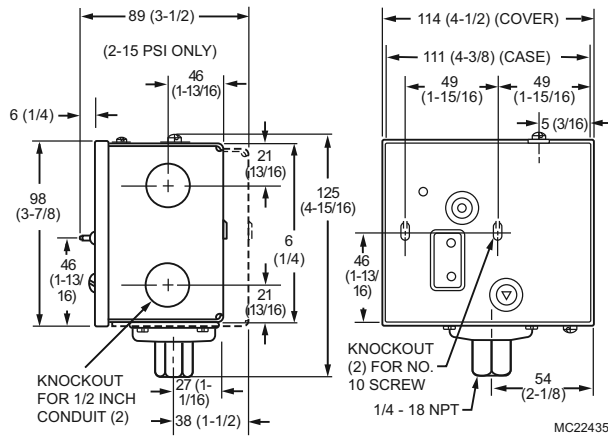
## L4079 Pressuretrol® Limit Controllers



### High pressure limit switches.

- Stainless steel diaphragm for use with steam, air, noncombustible gases and fluids non-corrosive to stainless steel.
- L4079W is for Oil Applications.
- Micro Switch™ snap-acting switches open automatically on pressure rise; must be manually reset.
- Mount using 1/4 in. NPT female fitting on diaphragm assembly or surface mount through back of case.

### Dimensions in millimeters (inches)



**Application:** Provide limit control of steam, air, non-combustible gases or non-corrosive fluids

**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Pipe Connections, Main or High Pressure:** 1/4 in. NPT internal thread

**Electrical Connections:** Screw terminals

**Sensor Element:** Stainless Steel diaphragm

**Switch Operation:** Manual Reset

**Maximum Ambient Temperature:** 66 C (150 F)

### Switch Contact Ratings

**120 Vac:** 9.8 AFL, 58.8 ALR

**240 Vac:** 4.9 AFL, 29.4 ALR

### Approvals:

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP466, Guide No. MBPR

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Switching Action
	kPa	psi	kPa	psi	
L4079A1035	14 to 103	2 to 15	172	25	SPST (two) break simultaneously on pressure rise
L4079A1050	69 to 1034	10 to 150	1551	225	SPST (two) break simultaneously on pressure rise
L4079B1033	14 to 103	2 to 15	172	25	SPST break on pressure rise
L4079B1041	70 to 1035	10 to 150	1550	225	SPST break on pressure rise
L4079B1058	35 to 350	5 to 50	590	85	SPST break on pressure rise
L4079B1066	140 to 2070	20 to 300	2410	350	SPST break on pressure rise
L4079W1000	35 to 350	10 to 150	590	225	SPST break on pressure rise - Oil Applications



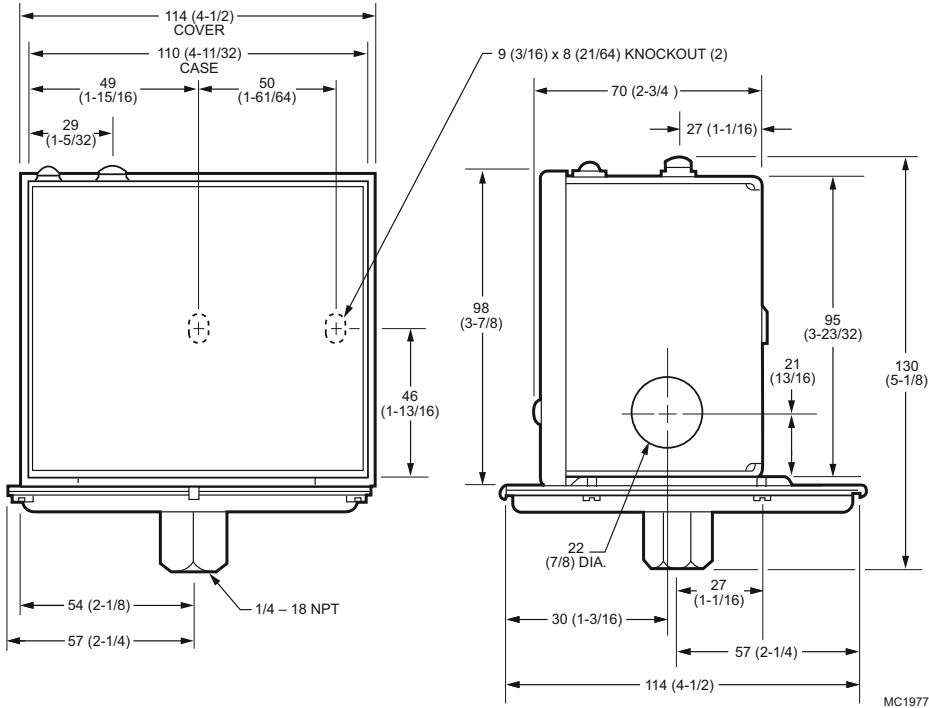
## L408J Vaporstat® Controllers



Provide operating control and automatic high limit protection for vapor heating systems with pressures up to 4 psi (8 kPa). All models have Microswitch snap switches to open or close a circuit on a pressure rise.

- Stainless steel diaphragm for use with liquids, air, noncombustible gases, ammonia, oxygen, distilled water and similar media.
- Provide SPDT switching.
- Clear plastic cover allows observation of the pressure settings.
- Mount using hexagonal fitting with 1/4 in. NPT internal threads for direct mounting to the 14026 (steel) or 50024585-001 (brass) Steam Trap (siphon loop).
- Ground Screw terminal.

### Dimensions in millimeters (inches)



**Application:** Provide operating control and automatic limit protection for pressure systems with pressures up to 4 psi (8 kPa)

**Mounting:** 1/4 in. NPT internal thread or surface mount through back of case

**Pipe Connections, Main or High Pressure:** 1/4 in. NPT internal thread

**Electrical Connections:** Screw terminals

**Sensor Element:** Stainless Steel diaphragm

**Differential Type:** Subtractive

**Switch Operation:** Auto recycle

**Temperature Range:** -37 C to +66 C (-35 F to +150 F)

### Switch Contact Ratings

**120 Vac:** 8.0 AFL, 48.0 ALR, 10.0 A resistive

**240 Vac:** 5.1 AFL, 30.6 ALR, 5.0 A resistive

### Approvals:

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Listed: File No. MP466, Guide No. MBPR

Product Number	Operating Pressure Range		Pressure Differential		Switching Action	Comments
L408J1009	0 to 6.9 kPa	0 to 16 oz/in <sup>2</sup>	0.9 to 6.9 kPa	2 to 16 oz/in <sup>2</sup>	SPDT make R-W, break R-B on pressure rise	
L408J1017	0 to 28 kPa	0 to 4 psi	0.9 to 6.9 kPa	2 to 16 oz/in <sup>2</sup>	SPDT make R-W, break R-B on pressure rise	
L408J1025	0 to 6.9 kPa	0 to 16 oz/in <sup>2</sup>	0.9 to 6.9 kPa	2 to 16 oz/in <sup>2</sup>	SPST make on pressure rise Only	Miswire Compliant
L408J1033	0 to 28 kPa	0 to 4 psi	0.9 to 6.9 kPa	2 to 16 oz/in <sup>2</sup>	SPST make on pressure rise Only	Miswire Compliant

# Pressure and Limit Controllers

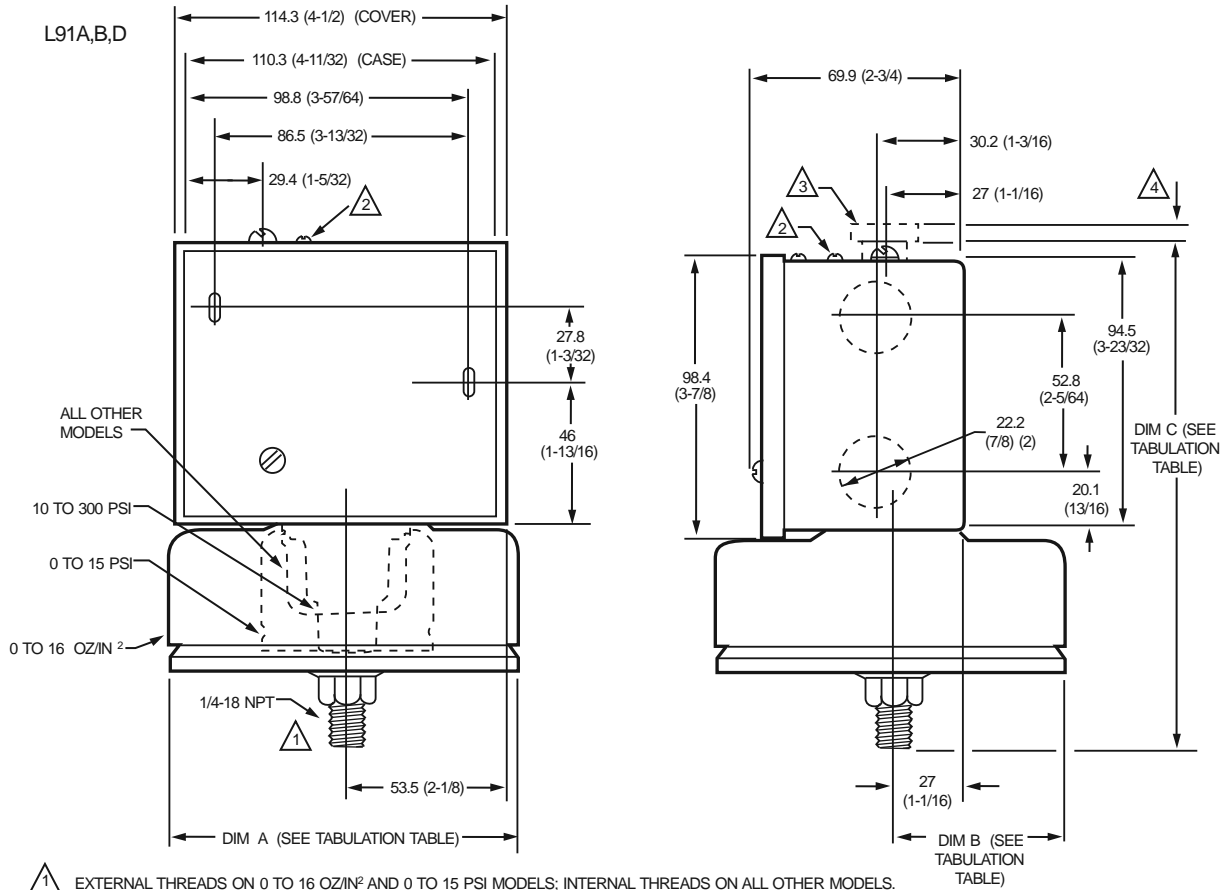
## L91 Proportional Pressuretrol® Controllers



**Modulating pressure operating control for regulation of liquid or air and other non-corrosive gases.**

- Use with steam, air, noncombustible gases, or other fluids non-corrosive to the brass or phos-bronze (300 psi models) bellows.
- Do NOT use with combustible mediums or any medium chemically harmful to phos-bronze bellows (10-300 psi models) or brass bellows (all other pressure range models).

Dimensions in millimeters (inches)



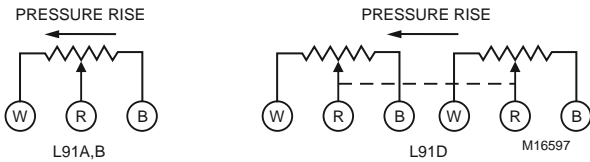
- 1 EXTERNAL THREADS ON 0 TO 16 OZ/IN<sup>2</sup> AND 0 TO 15 PSI MODELS; INTERNAL THREADS ON ALL OTHER MODELS. SOME MODELS ARE ALSO AVAILABLE WITH 1/4-19 BSP-TR INTERNAL THREADS; SEE TABLE 1.
- 2 PROPORTIONING RANGE ADJUSTING SCREW ON L91B,D MODELS ONLY.
- 3 33312B KNURLED ADJUSTMENT SCREW KNOB, 22.2 MM (7/8 IN.) DIAMETER KNOB IS INCLUDED WITH 10 TO 300 PSI [0.07 TO .07 MPa] MODELS; OPTIONAL ACCESSORY FOR OTHER MODELS.
- 4 FOR 10 TO 300 PSI [0.07 TO 2.07 MPa] MODELS. DIM C INCLUDES THE KNURLED ADJUSTMENT KNOB.

TABULATION OF DIMENSIONS A, B, AND C

OPERATING RANGE		DIM A		DIM B		DIM C	
CUSTOMARY UNITS	METRIC UNITS	MM	IN.	MM	IN.	MM	IN.
0 TO 16 OZ/IN. <sup>2</sup>	0 TO 7 kPa	123.8	4-7/8	61.9	2-7/16	178.6	7-1/32
0 TO 15 PSI	0 TO 103 kPa	61.9	2-7/16	31.0	1-7/32	174.6	6-7/8
2 TO 50 PSI	14 TO 345 kPa	41.3	1-5/8	20.6	13/16	146.1	5-3/4
5 TO 150 PSI	0.03 TO 1.03 MPa	41.3	1-5/8	20.6	13/16	146.1	5-3/4
10 TO 300 PSI	0.07 to 2.07 MPa	31.8	1-1/4	15.9	5/8	154.0	6-1/16

MC8524A

# Pressure and Limit Controllers



**Application:** Modulating pressure control for regulation of liquid, air, or other non-corrosive gases.

**Pipe Connections, Main or High Pressure:** 1/4 in. NPT external thread

**Electrical Connections:** Screw terminals

**Sensor Element:** Brass bellows

**Switch Operation:** Modulating

**Temperature Range:** 0 C to 66 C (32 F to 150 F)

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Modulating Output	Mounting
L91A1037	0 to 103 kPa	0 to 15 psi	172 kPa	25 psi	3.4 kPa	0.5 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1052	34 to 1034 kPa	5 to 150 psi	1551 kPa	225 psi	34 kPa	5 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1078	69 to 2068 kPa	10 to 300 psi	2241 kPa	325 psi	83 kPa	12 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1136	69 to 2068 kPa	10 to 300 psi	2241 kPa	325 psi	83 kPa	12 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1151	34 to 1034 kPa	5 to 150 psi	1551 kPa	225 psi	34 kPa	5 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1169	0 to 103 kPa	0 to 15 psi	172 kPa	25 psi	3.4 kPa	0.5 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91A1177	69 to 2068 kPa	10 to 300 psi	2241 kPa	325 psi	83 kPa	12 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1035	0 to 103 kPa	0 to 15 psi	172 kPa	25 psi	10 to 83 kPa	1.5 to 12 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1050	34 to 1034 kPa	5 to 150 psi	1551 kPa	225 psi	35 to 160 kPa	5 to 23 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1068	69 to 2068 kPa	10 to 300 psi	2241 kPa	325 psi	193 to 758 kPa	28 to 110 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91B1100	0 - 1 MPa	5 to 150 psi	1551 kPa	225 psi	35 to 160 kPa	5 to 23 psi	Single potentiometer, 135 ohms	1/4 in BSP-TR thread Mounting
L91B1118	0 - 2 MPa	10 to 300 psi	2241 kPa	325 psi	193 to 758 kPa	28 to 110 psi	Single potentiometer, 140 ohms	1/4 in BSP-TR thread Mounting
L91B1241	69 to 2068 kPa	10 to 300 psi	2241 kPa	325 psi	85 to 330 kPa	12 to 48 psi	Single potentiometer, 140 ohms	optional surface mount through back of case
L91D1015	0 to 103 kPa	0 to 15 psi	172 kPa	25 psi	10 to 83 kPa	1.5 to 12 psi	Dual potentiometer, 140 ohms	optional surface mount through back of case
L91D1031	34 to 1034 kPa	5 to 150 psi	1551 kPa	225 psi	76 to 359 kPa	11 to 52 psi	Dual potentiometer, 140 ohms	optional surface mount through back of case
L91D1049	69 to 2068 kPa	10 to 300 psi	2241 kPa	325 psi	193 to 758 kPa	28 to 110 psi	Dual potentiometer, 140 ohms	optional surface mount through back of case
L91D1056	0 - 1 MPa	5 to 150 psi	1551 kPa	225 psi	35 to 160 kPa	5 to 23 psi	Dual potentiometer, 140 ohms	1/4 in BSP-TR thread Mounting
L91D1072	0 - 2 MPa	10 to 300 psi	2241 kPa	325 psi	193 to 758 kPa	28 to 110 psi	Dual potentiometer, 140 ohms	1/4 in BSP-TR thread Mounting

# Pressure and Limit Controllers

## P7810 Pressure Control



Line voltage pressure controller that provides automatic operating control, automatic limit protection, manual reset limit protection, and 4-20ma modulating firing rate control for pressure systems up to 300 psi.

- May be used with steam, air, non-combustible gases or fluids that will not corrode the pressure sensing element.
- Models available in 15, 150, 300 psi maximum set points.
- LED indicators show limit function/lockout.
- Reset function easily accessible under cover.
- Clear cover allows set point and differentials to be read (but not adjusted) without opening the cover.

**Application:** On-off, Modulate and Limit Control

**Pipe Connections, Main or High Pressure:** 1/2 in. NPT internal thread

**Power Consumption:** 3.6 W, 4.7 VA @ 50Hz; 3.3 W, 4.0 VA @ 60 Hz

**Voltage:** 120 Vac

**Frequency:** 50 Hz; 60 Hz

**Electrical Connections:** Screw terminals

**Sensor Element:** Stainless Steel, solid state sensor

**Switching Action:** Break on pressure rise

**Temperature Range:** -40 C to +85 C (-40 F to +185 F)

**Operating Humidity Range (% RH):** 5 to 95% RH, non-condensing

**Materials (Case):** Plastic

**Switch Contact Ratings (120 Vac):**

9.8 AFL, 58.8 ALR, 10.0 A resistive

**Approvals:**

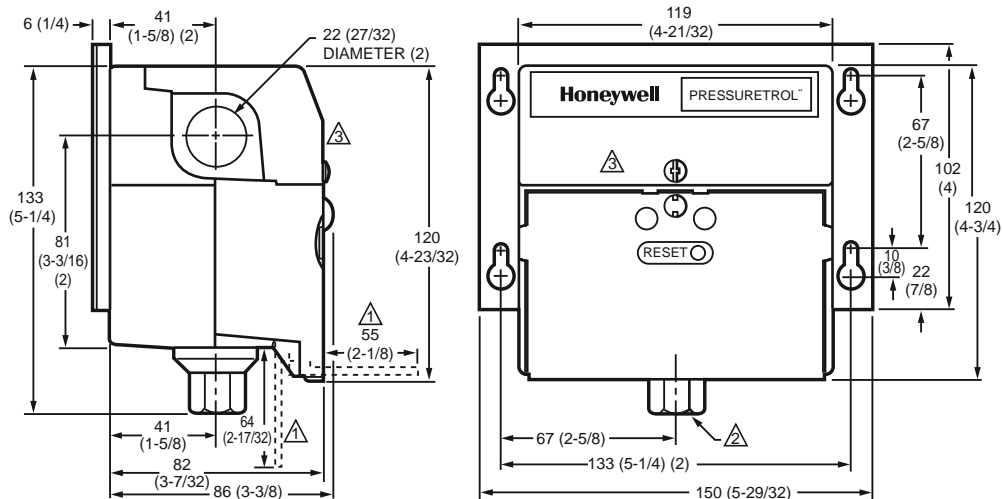
**Canadian Standards Association:** Certified: File No. LR95329-6

**Factory Mutual:** Approved: Report No. J.I.2D3A6AF

**Underwriters Laboratories, Inc.** Listed: File No. MP268, Guide No. MCCZ

Product Number	Operating Pressure Range		Maximum Sustained Operating Pressure		Pressure Differential		Modulating Output
	(kPa)	(psi)	(kPa)	(psi)	(kPa)	(psi)	
P7810C1000	0 to 103 kPa	0 to 15 psi	155 kPa	22.5 psi	14 to 69 kPa	2 to 10 psi	4 mA to 20 mA
P7810C1018	0 to 1034 kPa	0 to 150 psi	1551 kPa	225 psi	35 to 135 kPa	5 to 20 psi	4 mA to 20 mA
P7810C1026	0 to 2068 kPa	0 to 300 psi	3103 kPa	450 psi	103 to 340 kPa	15 to 50 psi	4 mA to 20 mA

### Dimensions in millimeters (inches)



△ DIMENSIONS WITH DOOR IN OPEN POSITION.

△ PIPE THREAD IS 1/4 INCH NATIONAL PIPE THREAD FOR P7810A,B; 1/2 INCH NATIONAL PIPE THREAD FOR P7810C,D.

△ WIRING COMPARTMENT ACCESS COVER.

MC23225

# Pressure and Limit Controllers

## Pressure Controls and Limits Accessories

Product Number	Description	Used With
106729	C437, C637 Glass Lens, 6 in. diameter	C437, C637
118733/0021	Retaining clip for C437 and C637	C437, C637
129178E	L404, L604, Thermoplastic Cover, Honeywell Logo and mounting screw	L404; L604
137632	C437, C637 Paper Lens Gasket	C437, C637
139870A	C437, C637 Lens and Gasket for Rainproof Devices	C437, C637
14026	Steam Trap "Black Iron Siphon Loop" for L404, L408, L91 or P7810A,B	L404, L91, L604
23176CB	L91 Potentiometer - 135 ohm	L91
23176CF	L91 Potentiometer - 135 ohm	L91
32003039-001	C6097 Lamp Kit, Position Indication	C6097
32003040-001	C6097 Cover, Recycle Model	C6097
32003041-001	C6097 Cover, Manual Reset Model	C6097
4074BWJ	Pressure Control/Limits, Limit Stop Assembly - to limit set point. Includes 129564 Range Stop, 107194 Range Stop Screw and 23466 Wrench.	L404, L604, L91, L4079

# Modernization and Replacement

## For All Modernization and Replacement Applications, Follow the Instructions Below.

### CAUTION

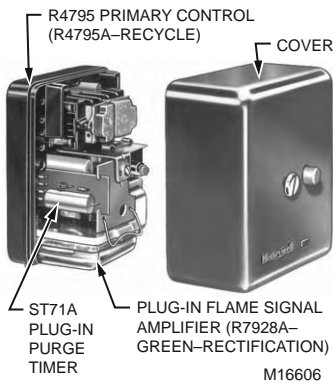
Installer must be a trained, experienced, flame safeguard control service technician. Disconnect power supply before beginning installation to prevent electrical shock and equipment damage. More than one disconnect may be involved.

All wiring must comply with applicable local electrical codes, ordinances, and regulations. Voltage and frequency of the power supply and flame detector(s) connected to this control must agree with those marked on the device. Loads connected to the control terminals must not exceed those listed in specification sheet for this product.

All external timers must be listed or component recognized by authorities having jurisdiction, for the specific purpose for which they are used.

Perform all required checkout tests after installation is complete.

## RA890 and Fireye “M” Series Modernization



- Use R4795 Primary Controls to provide proven prepurge period and recycle on flame failure.
- 9.8A burner motor contact rating for longer life; solid state circuitry for greater dependability.
- Mount on same Q270A Subbase as RA890, use same flame detector.
- Increase flexibility and reduce maintenance costs with field-replaceable, plug-in purge timers and flame signal amplifiers.
- Flame signal strength (µA) labeled on amplifier to reduce service time.
- All controls are listed by Underwriters Laboratories Inc.
- Three-second flame failure response time for increased safety.
- Plug-in components add versatility and reduce inventory and future replacement costs.

For complete Honeywell and competitive modernization information, refer to the Flame Safeguard System Modernization Survey and Proposal Form, in THE FIRING LINE, Honeywell form 70-8900. For information about THE FIRING LINE, see Training Materials section.

Modernize Honeywell RA890E,F,G and Fireye “M” Series relays.

Programmer/Relay to be Replaced/Modernized	Replacement Programmer	Plug-in Amplifier	Detector	Plug-in <sup>a</sup> Timer (recommended)
RA890E,F	Use R4795A1016 for UL approved installations.	R7289A1004	Use existing rectification detector.	ST71A1000 (7-sec delay for oil)
RA890G		R7290A1001	Use existing U.V. detector.	ST71A1018 (30-sec purge)
Fireye TFM Series <sup>b</sup>		R7289A1004	Use existing rectification detector.	ST71A1026 (60-sec purge)
Fireye UVM Series <sup>b</sup>		R7290A1001	Replace Fireye detector with C7027A1080 U.V. detector.	ST71A1034 (90-sec purge) ST71A1042 (10-sec purge)

<sup>a</sup> Many codes require 4 air changes during purge. Choose the timing needed to accomplish this (typically 30 seconds at high fire—open damper—or 90 seconds at low fire).

<sup>b</sup> When replacing Fireye M-series programmers, a Q270A1024 subbase must be installed in place of the Fireye subbase.

### INSTALLING AN R4795

1  
Disconnect power supply and remove RA890.



2  
Make simple wiring change in subbase.



3  
Install R4795.



4  
Plug in  
ST71A  
purge timer.



5  
Plug in  
R7289/R7290  
amplifier



## R7795 Primary Control



### Provide flameout protection plus automatic control of commercial and industrial gas and oil burners.

- Meet requirements for gas burners with 400,000 to 2-1/2 million Btuh (117.2 to 732.8 kW) input. R7795C,D meet requirements to over 12-1/2 million Btuh.
- R7795A,B provide ignition cutoff and intermittent pilot.
- R7795C,D have interrupted pilot with delayed main valve.
- Includes terminals for connection of a line voltage airflow switch to prove airflow from the start of prepurge through the run period.
- Mount on Q795A Subbase with two captive screws.
- Provides all electrical connections between the device and subbase.
- Access to wiring terminals for testing.
- Integral solid state color-coded flame amplifiers.
- Field-selectable ten or four second trial for pilot flame ignition.
- Field-selectable recycle or lockout on flame failure.

### Conversion Wiring Chart for R7795A-D

You can easily convert the following model primaries and programmers to the R7795A,B,C or D by following the step-by-step instructions listed below.

Honeywell	RA890, R4795	All 120 V models.
Fireye	M-Series	

**IMPORTANT:** For on-off, gas-fired systems, some authorities having jurisdiction prohibit the wiring of any limit or operating contacts in series with the main fuel valve(s).

### DIRECTIONS:

1. Disconnect all power to programmer.
2. Remove old programmer from subbase (trade-in to Honeywell Authorized Flame Safeguard Distributor).
3. Mark all wires on subbase; i.e., wires connected to terminal "1" should be marked "1." Disconnect wires as they are marked.
4. Remove old subbase.
5. Mount Q795A Subbase.
6. Connect wires to subbase per attached cross reference. Pay close attention to footnotes. For example: to convert a Fireye UVM-2 to a R7795, the wire marked "A" would connect to terminal #9 on the Q795. The wire marked "8" would connect to Q795 terminal #8.
7. A superscript letter, such as "a" designates a footnote. Study these footnotes carefully.
8. Plug in the R7795. Make sure you select the proper ST795A Purge Timer and Detector for the application.
9. There are 2 wires on the amplifier section of the R7795, which are used to select the desired trial for ignition timing and mode (lock-out or recycle). Refer to the R7795 instruction sheet (form 66-2001) for assistance with proper selection.
10. If a low voltage controller is used on the RA890 or UVM-1, remove it and replace it with a line voltage controller. The line voltage controller should be connected in series with the limits.
11. If a low voltage airflow switch is used on the R7795, it must be replaced with a line voltage airflow switch, such as the Honeywell C645.
12. The following models are recommended for replacements:

Honeywell Device to be Replaced	Replace With	Fireye Device to be Replaced	Replace With
RA890E,F	R7795B	TFM1,2,3H	R7795B
RA890G	R7795A	UVM1,2,3,3H	R7795A
R4795A,D/W-R7290 AMP		UVM5	R7795C
R4795A,D/W-R7289 AMP	R7795B		
R4140P	R7795C,D		
R4140Y	R7795A,B		

### CONVERSION CHART FOR R7795 120 VOLT ONLY

Q795 TERMINAL	L1	L2	3	5	6	7	8	9	16	18	F	G
<b>Programmer to be Converted</b>												
RA890 (All)	1 <sup>a</sup>	2	b	3 <sup>d</sup>	5	—	d,b	c	6	4	F	G
R4795 (All)	a	2	6 <sup>b</sup>	3	5	—	8, 7	c	1	4	F	G
R4140P	L1	L2	P	5	7	6	M	A	3	—	S1	S2
R4140Y	L1	L2	3	6	7	—	8	9	4	5	F <sup>e</sup>	G
Fireye: UVM/TFM (All models)/MII	1	1	6	3	5	—	8	A	7	4	S2 <sup>f</sup>	S1
UVM-1 (Prior to 1968)	a	2	b	3	5	—	d,b	A	1	4	S <sup>f</sup>	S
UVM-2 (Prior to 1968), All others	a	2	6	3	5	—	8	A	1	4	S <sup>f</sup>	S

<sup>a</sup> Connect power to terminal L1.

<sup>b</sup> If no airflow switch is used, jumper Q795 terminal 3 to 8.

<sup>c</sup> Replace low voltage alarm (if used) with line voltage alarm. Connect alarm directly to Q795 terminal 9.

<sup>d</sup> On power burners, identify burner motor wire on terminal 3 and connect it to Q795 terminal 8.

<sup>e</sup> R7795 uses only rectification or U.V. detectors. All other detectors must be converted to these types.

<sup>f</sup> On UVM models, the detector must be changed to a Honeywell C7027 or C7035.

# Modernization and Replacement

## RM7895 On-Off Primary Control with Prepurge



**Microprocessor-based integrated primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.**

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.
- Subbase, amplifier, and prepurge timer are required for operation.
- Options include PC interface, keyboard display module, Data ControlBus™ Module, remote display module, first-out expanded annunciator, and Combustion System Manager™ software.
- Five LEDs provide sequence information.
- Interchangeable plug-in flame amplifiers.
- Optional local or remote annunciation of operation and fault information.
- Nonvolatile memory retains history files and sequencing status after power loss.
- Optional remote reset capability.
- Optional report generation.
- Selectable relight or lockout on loss of flame.
- Airflow switch check.

Honeywell	RA890, R4795, R7795	All 120 V models.
Fireye	M-Series	

**IMPORTANT:** For on-off, gas-fired systems, some authorities having jurisdiction prohibit the wiring of any limit or operating contacts in series with the main fuel valve(s).

### DIRECTIONS:

1. Disconnect all power to programmer.
2. Remove old programmer from subbase (trade-in to Honeywell Authorized Flame Safeguard Distributor).
3. Mark all wires on subbase; i.e., wires connected to terminal "1" should be marked "1." Disconnect wires as they are marked.
4. Remove old subbase.
5. Mount Q7800A Subbase.
6. Connect wires to subbase per attached cross reference. Pay close attention to footnotes. For example: to convert a Fireye UVM-2 to a RM7895, the wire marked "A" would connect to terminal #9 on the Q7800. The wire marked "8" would connect to Q7800 terminal #8.
7. A superscript letter, such as "a" designates a footnote. Study these footnotes carefully.
8. Plug in the RM7895. Make sure you select the proper ST7800A Purge Timer and Detector for the application.
9. There are 2 wires on the amplifier section of the RM7895, which are used to select the desired trial for ignition timing and mode (lock-out or recycle). Refer to the RM7895 instruction sheet (form 66-1090) for assistance with proper selection.
10. If a low voltage controller is used on the RA890 or UVM-1, remove it and replace it with a line voltage controller. The line voltage controller should be connected in series with the limits.
11. If a low voltage airflow switch is used on the RM7895, it must be replaced with a line voltage airflow switch, such as the Honeywell C645.
12. The following models are recommended for replacements:

Honeywell Device to be Replaced	Replace With	Amplifier
RA890E,F	RM7895A	R7847A
RA890G	RM7895A	R7849A
R4795A,D/W-R7290 AMP	RM7895A	
R4795A,D/W-R7289 AMP	RM7895B	R7847A
R7795A	RM7895A	R7849
R7795B	RM7895A	R7847
R7795C	RM7895C	R7849
R7796D	RM7895C	R7847
R4140P	RM7895C	R7847A or R7849A
R4140Y	RM7895A	
Fireye Device to be Replaced	Replace With	Amplifier
TFM1,2,3H	RM7895A	R7847A
UVM1,2,3,3H		R7849A
UVM5	RM7895C	R7849A

### CONVERSION CHART FOR RM7895 120 VOLT ONLY

Q7800 TERMINAL	L1	L2	3	4	6	7	8	9	10	21	F	G
<b>Programmer to be Converted</b>												
RA890 (All)	1 <sup>a</sup>	2	c	b,d	6	b	3 <sup>d</sup>	5	4	—	F	G
R4795 (All)	a	2	c	8, 7	1	6 <sup>b</sup>	3	5	4	—	F	G
R7795A,B	L1	L2	9	8	16	3	5	6	18	—	F	G
R7795C,D	L1	L2	9	8	16	3	5	6	18	7	F	G
R4140P	L1	L2	A	M	3	P	5	7	—	6	S1	S2
R4140Y	L1	L2	9	8	4	3	6	7	5	—	F <sup>e</sup>	G
Fireye: UVM/TFM (All models)/MII	1	1	A	8	7	6	3	5	4	—	S2 <sup>f</sup>	S1
UVM-1 (Prior to 1968)	a	2	A	b,d	1	b	3	5	4	—	S <sup>f</sup>	S
UVM-2 (Prior to 1968), All others	a	2	A	8	1	6	3	5	4	—	S <sup>f</sup>	S

<sup>a</sup> Connect power to terminal L1.

<sup>b</sup> If no airflow switch is used, jumper Q7800 terminal 6 to 7.

<sup>c</sup> Replace low voltage alarm (if used) with line voltage alarm. Connect alarm directly to Q7800 terminal 3.

<sup>d</sup> On power burners, identify burner motor wire on terminal 3 and connect it to Q7800 terminal 4.

<sup>e</sup> Select amplifier to match detector being used.

<sup>f</sup> On UVM models, the detector must be changed to a Honeywell C7027 or C7035.



# Electromechanical Burner Controls

## R4795 Primary Control with Purge



**Application:** Primary Control

**Dimensions, Approximate:** 127 mm high x 127 mm wide x 121 mm deep (5 in. high x 5 in. wide x 4 3/4 in. deep (including subbase))

**Electrical Connections:** Alarm contacts: male quick connect terminals.

**Frequency:** 50 Hz; 60 Hz

**Temperature Range:**

-29 C to +40 C @ 50 Hz (-20 F to +105 F @ 50 Hz)

-29 C to +46 C @ 60 Hz (-20 F to +115 F @ 60 Hz)

**Approvals:**

**Canadian Standards Association**

CSA Certified: 120V models only, includes -40 F models-File No. LR1620

**Provide solid state, electronic flame safeguard protection for commercial and industrial single or dual fuel burners.**

- Use with rectification or ultraviolet type flame detectors depending on the interchangeable, plug-in amplifier being used.
- Recycle after flame failure in attempt to re-establish pilot before lockout.
- Include manual push-to-reset safety switch in a dust-resistant enclosure.
- Includes SPDT alarm contacts.

**Factory Mutual:** Approved: Report No. 18774

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** UL Listed:120V with 30, 60, 90 sec prepurge timers, includes -40 F models-File No.MP268, Guide No. MCCZ; UL Comp. Recg.:120V with 7, 10 sec prepurge timers, includes -40 F models-File No.MP268, Guide No.MCCZ2

**Required Components:** Mounting Base: Q270A1024; Plug-in Amplifier: R7289A1004, R7289A1012, R7290A1001, R7290A1019; Plug-in Purge Timer: ST71A1000 (7 sec), ST71A1042 (10 sec), ST71A1018 (30 sec), ST71A1026 (60 sec), ST71A1034 (90 sec).

Product Number	Voltage	Alarm Relay Switching	Purging Time	Safety Switch Timing	Description	Includes
R4795A1016	120 Vac	SPDT	Determined by Plug - in Purge Timer	15 sec nominal	120V 50/60 HZ less Amplifier and Prepurge Timer	Female quick-connects

## R7795 Primary Controls



**Application:** Provides Flameout Protection plus Automatic control of Commercial and Industrial Gas and Oil Burners

**Dimensions, Approximate:** 127 mm high x 127 mm wide x 133.5 mm deep (5 in. high x 5 in wide x 5 1/4 in. deep.)

**Electrical Connections:** Terminals in Q795 Wiring Subbase

**Frequency:** 50 Hz; 60 Hz

**Temperature Range:** -40 C to +57 C (-40 F to +135 F)

**Voltage:** 120 Vac

**Flame Failure Response Time (sec):** 3 sec nominal

**Alarm Relay Switching:** 120Vac Output for Alarm

**Provide solid state, electronic flame safeguard protection for commercial and industrial single or dual fuel burners.**

- Include flame signal amplifiers that are color-coded: purple for ultraviolet and green for rectification.
- Require a plug-in prepurge timer of 1.5, 7, 10, 30, 60, or 90 seconds.
- Mount on a Q795A Wiring subbase with two captive screws.
- Include line voltage airflow switch to prove airflow from the start of prepurge through the run period.
- Prevent start-up with lockout if flame or a flame simulating failure exists.

**Purging Time:** Determined by Plug -in Purge Timer

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620-681

**Factory Mutual:** Approved: Report No. J.I.OK389.AF

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized: File No. MP268, Guide No. MCCZ

**Required Components:** ST795 Prepurge Timer and Q795 Wiring Subbase

Product Number	Safety Switch Timing	Description
R7795A1001	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Intermittent Pilot, Ultraviolet
R7795B1009	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Intermittent Pilot, Rectification
R7795C1007	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Interrupted Pilot, Ultraviolet
R7795D1005	Electronic - 10 seconds, Mechanical - 15 seconds	Full Function Primary Safety Control, Interrupted Pilot, Rectification

# Electromechanical Burner Controls

## RA890F Protectorelay™ Primary Control



Primary control provides solid state, electronic flame safeguard protection for industrial and commercial single or dual fuel burners for rectification type flame detection.

- Uses rectification principle of electronic flame detection.
- Replaces RA890E in most applications and mounts on same Q270A1024 Subbase.
- Recycles if flame signal lost while in Run. Failure to establish pilot results in a lockout.
- Safe-start check prevents start-up if flame-simulating failure occurs in flame detector circuit.
- Includes built-in protection against ignition crossover in flame rod systems.
- Includes SPDT alarm contacts.
- Solid state circuitry.
- Mounts and removes easily through use of captive mounting screws.
- Mounting base is made of strong thermoplastic.

**Application:** Primary control for rectification application (Flame Rod for example)

**Dimensions, Approximate:** 127 mm high x 127 mm wide x 121 mm deep (including subbase) (5 in. high x 5 in. wide x 4 3/4 in. deep (including subbase))

**Frequency:** 50 Hz; 60 Hz

**Temperature Range:** 50 Hz Models -29 C to +41 C (50 Hz models -20 F to +105 F)

60 Hz Models -29 C to +46 C (60 Hz models -20 F to +115 F)

**Alarm Relay Switching:** SPDT

**Approvals:**

**Canadian Standards Association:** CSA Certified: 120V models only; File No. LR1620

**Factory Mutual:** Approved: Report No. 17678,19417,19784

**Underwriters Laboratories, Inc.** UL Listed: 120V models only; File No. MP268, Guide No. MCCZ

Product Number	Voltage	Flame Failure Response Time (sec)	Safety Switch Timing	Description
RA890F1270	120 Vac	0.8 sec	15 seconds	Rectification, with alarm contacts
RA890F1288	120 Vac	3.0 sec	15 seconds	Rectification, with alarm contacts
RA890F1296	208 Vac	3.0 sec	15 seconds	Rectification, with alarm contacts
RA890F1304	220 Vac	0.8 sec	15 seconds	Rectification, with alarm contacts
RA890F1338	120 Vac	0.8 sec	30 seconds	Rectification, with alarm contacts
RA890F1346	120 Vac	3.0 sec	30 seconds	Rectification, with alarm contacts
RA890F1387	240 Vac	3.0 sec	15 seconds	Rectification, with alarm contacts
RA890F1478	120 Vac	0.8 sec	15 seconds	Rectification, with alarm contacts, fast safe start check.

# Electromechanical Burner Controls

## RA890G Protectorelay™ Primary Control



Primary control provides solid state, electronic flame safeguard protection for industrial and commercial single or dual fuel burners applications using Ultraviolet flame detectors.

- Design for interrupted ignition with intermittent pilot on gas burners, and interrupted or intermittent ignition on oil burners.
- Use with a C7027, C7035 or C7044 Minipeeper Ultraviolet Flame Detector for flame sensing.
- Recycles if flame signal lost while in Run. Failure to establish pilot results in a lockout.
- Safe-start check prevents start-up if flame-simulating failure occurs in flame detector circuit.
- Includes SPDT alarm contacts.
- Solid state circuitry, eliminates warm-up and increases resistance to vibration.
- Mounts and removes easily through use of captive mounting screws.
- Mounting base is made of strong thermoplastic.

**Application:** Either a line or low voltage controller can be used  
**Dimensions, Approximate:** 127 mm high x 127 mm wide x 121 mm deep (including subbase) (5 in. high x 5 in. wide x 4 3/4 in. deep (including subbase))

**Frequency:** 50 Hz; 60 Hz

**Temperature Range:** 50 Hz Models -29 C to +41 C (-20 F to +105 F)  
 60 Hz Models -29 C to +46 C (-20 F to +115 F)

**Alarm Relay Switching:** SPDT

**Approvals:**

**Canadian Standards Association:** CSA Certified: 120V models only; File No. LR9S329

**Factory Mutual:** Approved: Report No. 22013

**Underwriters Laboratories, Inc.** UL Listed: 120V models only; File No. MP268, Guide No. MCCZ

Product Number	Voltage	Flame Failure Response Time (sec)	Safety Switch Timing	Description
RA890G1229	120 Vac	0.8 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1245	220 Vac	0.8 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1260	120 Vac	3.0 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1286	240 Vac	3.0 sec	15 seconds	Ultraviolet, with alarm contacts
RA890G1302	220 Vac	3.0 sec	15 seconds	Ultraviolet, with alarm contacts

## ST71 Prepurge Timer (for R4795)

Prepurge Timer for R4795 Control Systems.

Product Number	Purging Time	Description
ST71A1000	7 sec	Prepurge Timer for R4795 Control Systems
ST71A1018	30 sec	Prepurge Timer for R4795 Control Systems
ST71A1026	60 sec	Prepurge Timer for R4795 Control Systems
ST71A1034	90 sec	Prepurge Timer for R4795 Control Systems

## ST795 Purge Timer (for R7795)

Plug in Purge Timer for use with R7795 Full Function Primary Safety Control.

Product Number	Purging Time	Description
ST795A1007	1.5 sec	Prepurge Timer for R7795 Control Systems
ST795A1015	7 sec	Prepurge Timer for R7795 Control Systems
ST795A1023	10 sec	Prepurge Timer for R7795 Control Systems
ST795A1031	30 sec	Prepurge Timer for R7795 Control Systems
ST795A1049	60 sec	Prepurge Timer for R7795 Control Systems
ST795A1056	90 sec	Prepurge Timer for R7795 Control Systems

## Primary Control Accessories

Product Number	Description
118702E	Remote Reset Cover for RA890F, G and R4795, 120V, 50-60 Hz

# Electromechanical Burner Controls

## Q270 Wiring Mount Base

Product Number	Description	Used With
Q270A1024	Mounting and wiring Mounting Base for RA890, R4795	RA890, R4795

## Q520 Subbase



The Q520A Wiring Subbase is for BC7000, R4140 and R7140 Flame Safeguard Programmers.

- Provides terminals for field wiring, and knife-blade contacts, which are engaged by the spring-connectors on the back of the BC7000, R4140 or R7140 chassis.
- The Q520A is available in a 4-sided model.
- Knockouts are provided on the back, top, and bottom (where applicable) for conduit connections.

**Application:** Wiring Subbase

**Dimensions, Approximate:** 156 mm high x 179 mm wide x 45 mm deep (6 5/32 in. high x 7 1/16 in. wide x 1 3/4 in. deep)

Product Number	Description	Comments
Q520A1121	Subbase (4 sided)	20 terminal Subbase
Q520A1170	Subbase (3 sided)	Includes 20 terminals and ground terminal interlock, Cleaver Brooks #833-2163

## Q795 Wiring Subbases

The Q795A Wiring Subbase provides Wiring termination and serves as a device mount for the R7795 Full Function Primary Control.

- For wiring and checkout information consult the R7795 Primary Control specification sheet, form 66-2007.

- The Q795A is available in a 4-sided model (Q795A1004) for wall mounting and a plastic subbase model for cabinet mounting (Q795A1012).

**Application:** Wiring Subbase

Product Number	Description	Used With
Q795A1004	4-side conduit box subbase with terminals intended to accept field wiring. For use with R7795 full function primary safety control.	R7795
Q795A1012	Subbase for wiring and mounting the R7795 in a Cabinet	R7795

## FSP5075A1; FSP5075A3 Flame Amplifier Modules



The FSP5075A Flame Amplifier Module is designed to accept a variety of Honeywell plug-in flame signal amplifiers. Depending on the plug-in amplifier model installed, the flame amplifier module can be used with ultraviolet flame detectors, infrared flame detectors, rectifying flame rods or rectifying photocells to provide continuous flame supervision from lightoff to shutdown. Certain flame amplifier models feature Dynamic Self-Check or Dynamic

**Application:** Flame Amplifier

**Dimensions, Approximate:** 124 mm high x 216 mm wide x 102 mm deep (4 7/8 in. high x 8 1/2 in. wide x 4 in. deep.)

**Frequency:** 60 Hz

**Voltage:** 120 Vac

**Flame Failure Response Time (sec):** Reference flame signal amplifier

**Ampli-Check® capability.** The flame amplifier module also features plug-in load and flame relays as well as an integral terminal strip mounted on its chassis.

- The flame amplifier module amplifier and relay circuitry combine to provide such safety features as safe-start check, safety shutdown and rapid flame failure response time.
- Approval body certifications include Underwriters Laboratories Inc. component recognized, Factory Mutual approved and Swiss RE (formerly IRI) approvable.
- The zinc dichromate finish resists corrosive effects of most industrial atmospheres.
- A hermetically sealed relay model is also available.
- The FSP5075A Flame Amplifier Module is a standard building block in a burner management system.
- It allows the system to meet flame safeguard requirements while adding versatility to the flame detection system.

**Temperature Range:** -40 C to +60 C (-40 F to +140 F)

**Approvals:**

**Factory Mutual:** Approved: Report No. 26098

**Swiss RE (formerly IRI):** Acceptable

**Underwriters Laboratories, Inc.** Component Recognized: File No. MP268, Guide No. MCCZ

Product Number	Power Consumption	Description	Comments	Used With
FSP5075A1	5.0 W running (max); 2.4 W standby.	Flame Amplifier Module, Plastic Encapsulated Relays	Relays Plastic Encapsulated	R7247, R7248, R7249, or R7476 Flame Amplifier
FSP5075A3	5.0 W running (max); 2.4 W standby.	Flame Amplifier Module, Hermetically Sealed Relays	Relays Hermetically Sealed	R7247, R7248, R7249, or R7476 Flame Amplifier

# Reset Temperature Controllers

## T475 Outdoor Reset Controller



**Type:** Remote bulb

**Application:** Automatically raises heating control setpoint as outdoor temperature falls

**Dimensions, Approximate:** 143 mm high x 51 mm wide x 57 mm deep (5 5/8 in. high x 2 in. wide x 2 1/8 in. deep)

**Sensor Element:** Indoor and outdoor copper bulb

**Color:** Gray

**Output Type:** relay

**Output:** 1 SPST

**Contact Ratings (120 Vac):** 8.0 AFL, 48.0 ALR

**Contact Ratings (240 Vac):** 5.1 AFL, 30.6 ALR

**Operating controller for a hot water or warm air heating system.**

- Used for line voltage, low voltage or millivolt (Powerpile) switching.
- Maintains proper balance between heating medium temperature and outdoor temperature.
- Raises heating medium control point automatically as outdoor temperature falls.
- Does not replace safety high limit control and is not for use in system requiring resetting above 21 C (71 F) outdoor temperature.

**Voltage:** 120 Vac or 240 Vac

**Frequency:** 50 Hz; 60 Hz

**Number of Sensor Inputs:** 2

**Setpoint Temperature Range:** 21 C to 60 C (70 F to 140 F)

**Differential Temperature:** 3 C to 11 C (6 F to 20 F)

**Includes:** 34886A Outdoor Bulb Guard, 121371P Immersion Well Assembly

**Approvals:**

**Underwriters Laboratories, Inc.** Listed: E4436, vol. 4, Guide XAPX

Product Number	Bulb Size		Capillary Length		Comments
	(mm)	(inch)	(m)	(ft)	
* T475A1032	indoor: 9.5 mm diameter x 90 mm long; outdoor: 9.5 mm diameter x 90 mm long	indoor: 3/8 in. diameter x 3 9/16 long; outdoor: 3/8 in. diameter x 3 9/16 long	Indoor: 3 m, Outdoor: 9.1 m	Indoor: 10 ft., Outdoor: 30 ft.	1:1 reset ratio
* T475A1057	indoor: 9.5 mm diameter x 90 mm long; outdoor: 9.5 mm diameter x 135 mm long	indoor: 3/8 in. diameter x 3 9/16 long; outdoor: 3/8 in. diameter x 5 5/16 in. long	Indoor: 3 m, Outdoor: 9.1 m	Indoor: 10 ft., Outdoor: 30 ft.	1:1.5 reset ratio

\* TRADELINE models • SUPER TRADELINE models

# Reset Temperature Controllers

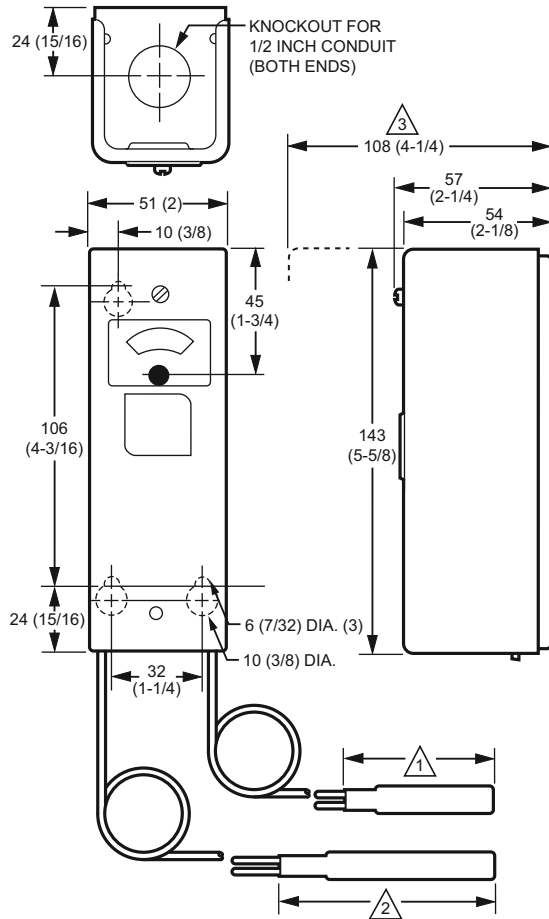
## T678B; T991B Outdoor Reset Dual Bulb Temperature Controller



**Automatic outdoor reset controllers for air or liquid.**

- Raises heating medium control point automatically as outdoor temperature falls.
- One remote element senses heating medium, the other senses outdoor air temperature.
- T991 has 135 ohm potentiometer for proportional heating control.

### Dimensions in millimeters (inches)



**Type:** Remote bulb

**Application:** Automatic reset based on outdoor temperature

**Bulb Size:** 13 mm diameter x 102 mm long (1/2 in. x 4 in.)

**Sensor Element:** Copper bulb

**Number of Sensor Inputs:** 2

**Capillary Length:** Indoor: 3 m, Outdoor: 9.1 m (Indoor: 10 ft., Outdoor: 30 ft.)

**Frequency:** 50 Hz; 60 Hz

**Reset Ratio:** 1.0 to 1.0

**Maximum Operating Temperature:** 52 C (125 F)

**Setpoint Temperature Range:** 21 C to 60 C (70 F to 140 F)

**Differential Temperature:** 3.3 C fixed (6 F fixed)

**Comments:** Indoor bulb temperature plus outdoor bulb temperature must not exceed 265 F (129 C).

**Approvals:**

**Canadian Standards Association:** Listed

**Underwriters Laboratories, Inc.** UL Listed: E4436, Vol. 4, Sec. 11, Guide XAPX

1 OUTDOOR BULB SIZE VARIES INVERSELY WITH THE RESET RATIO.

2 INDOOR BULB LENGTH AND DIAMETER IS 114 MM (4-1/2 IN.) BY 13 (1/2 IN.) MM EXCEPT FOR THE AVERAGING ELEMENT WHICH IS 3 (1/8) MM DIAMETER BY 3 M (12 FEET) LONG.

3 CLEARANCE NECESSARY TO REMOVE COVER.

MC23882

Product Number	Voltage	Output Type	Analog Output	Output	Differential Temperature		Interstage Differential Temperature		Contact Ratings		Throttling Range	
					(C)	(F)	(C)	(F)	120 Vac	240 Vac	(C)	(F)
T678B1006	120 Vac or 240 Vac	relay	—	2 SPDT switch contacts	3.3 C fixed	6 F fixed	1.7 C to 5.5 C adj.	3 F to 10 F adj.	8.0 AFL, 48.0 ALR	5.1 AFL, 30.6 ALR	—	—
T991B1003	24 Vac to 30 Vac	analog	One 135 Ohm Potentiometer	—	—	—	—	—	—	—	1.7 C to 16.7 C	3 F to 10 F

# Reset Temperature Controllers

## T991E,F Proportional Temperature Controller



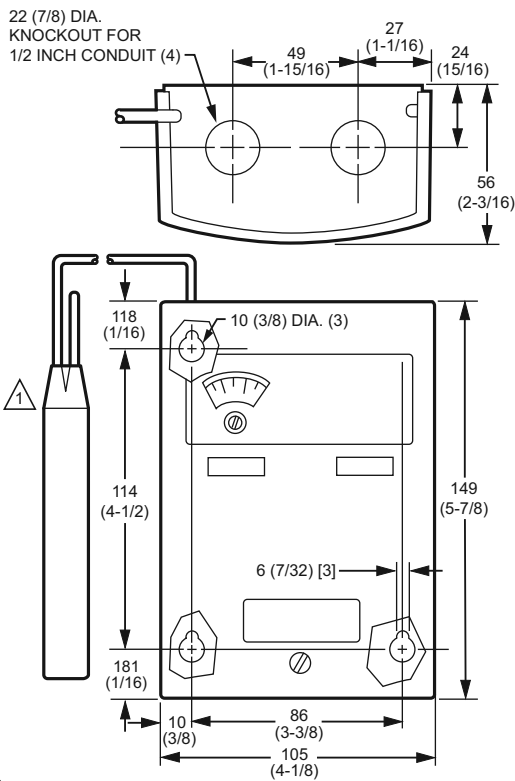
T991E

T991F

Provide both on-off and modulating control of water or air temperatures in ducts, tanks and similar applications.

- Micro Switch™ end switch cycles burner on and off at low fire; T991 then modulates burner as required.
- Designed for use with V9055; can be used with any series 90 motor.
- Ambient compensated.
- Setpoint adjustment on front of case.
- Switch makes 1 F (0.6 C) above end of throttling range.
- Mount using three holes in the back of the case.

### Dimensions in millimeters (inches)



△ T991F (WITH AUTOMATIC RESET) HAS 2 REMOTE SENSING BULBS.

MC23887

**Type:** Remote bulb

**Application:** Provides on/off and modulating control of water or air temperature in ducts or tanks

**Bulb Size:** 13 mm diameter x 107 mm long  
(1/2 in. diameter x 4 3/16 in. long)

**Sensor Element:** Copper bulb

**Output Type:** analog and relay

**Output:** 1 SPST

**Analog Output:** One 135 Ohm Potentiometer

**Color:** Gray

**Voltage:** 24 Vac to 30 Vac

**Frequency:** 50 Hz; 60 Hz

**Throttling Range:** (6 C (11 F)

**Differential Temperature:** 2.2 C additive (4 F additive)

Product Number	Setpoint Temperature Range		Maximum Operating Temperature		Capillary Length		Number of Sensor Inputs	Comments
	(C)	(F)	(C)	(F)	(m)	(ft)		
T991E1018	71 C to 127 C	160 F to 260 F	138 C	280 F	1.5 m	5 ft	1	—
T991E1034	13 C to 79 C	55 F to 175 F	93 C	200 F	1.5 m	5 ft	1	—
T991F1009	21 C to 60 C	70 F to 140 F	129 C	265 F	Indoor: 3 m, Outdoor: 9.1 m	Indoor: 10 ft., Outdoor: 30 ft.	2	Indoor bulb temperature plus outdoor bulb temperature must not exceed 265 F (129 C).

# Testers and Demonstrators

## A7800 Tester



**Provides quick operational check of the 7800 SERIES System components.**

- Allows testing different 7800 SERIES devices using configuration plugs and functional switches to simulate interlocks and control functions.
- Indicator lamps represent outputs as activated.

**Application:** Tester

**Voltage:** 120 Vac

**Frequency:** 50 Hz; 60 Hz

Product Number	Description	Required Components	Used With
A7800A1002	Tester, 7800 SERIES Relay Modules	Configuration Plugs Included	7800 SERIES Relay modules
A7800A1010	Tester, 7800 SERIES Relay Modules with Valve Proving System or New Optical Detector Amplifiers	Configuration Plugs Included	7800 SERIES Relay Modules with Valve Proving System or New Optical Detector Amplifiers

## A7800 and DSP2672 Replacement Parts

Product Number	Application	Description	Comments
203579A	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7800; RM7840	Configures A7800 and DSP2672
203579C	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7838B, C	Configures A7800 and DSP2672
203579E	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7890	Configures A7800 and DSP2672
203579F	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7895/RM7896/RM7897/RM7898	Configures A7800 and DSP2672
203579G	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7823	Configures A7800 and DSP2672
203579H	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7865	Configures A7800 and DSP2672
203579J	Tester; DSP2672 Configuration Plug	Tester Configuration Plug used with RM7838B, C w/VP	Configures A7800 and DSP2672
203579K	A7800A1010 Tester	Tester Configuration Plug used with RM7890A, B w/VP	—
203579L	A7800A1010 Tester	Tester Configuration Plug used with RM7800L/40G, L w/VP	—
203579M	A7800A1010 Tester	Tester Configuration Plug used with RM7898 w/VP	—



## Demonstrators or Trainers



DSP3452

The DSP3822 is used as a R7999 Controlinks commissioning or monitoring tool when a System or Local Operator Interface is not required for operation. It lets you create or change a fuel/air modulation curve (profile) for ControlLinks that allows for safe and efficient operation at all points along the modulation curve. The display uses a wizardlike process to assist you through the commissioning process.

**Voltage:** 120 Vac  
**Frequency:** 50 Hz; 60 Hz



DSP3548



DSP3564

Product Number	Description	Application	Required Components	Includes	Comments	Used With
DSP3452	Flame Safeguard Trainer - 120 Vac	Primaries, Programmers or 7800 Series Trainer	Devices for wiring and training	jumper wires, propane gas hose with regulator, detector mounting adapters	Complete Flame Safeguard Training Package	Primaries, Programmers and 7800 SERIES Relay Modules
DSP3548	ControLink FAR Configuration Toolkit	ControLink FAR Configuration Toolkit	—	ZM software, computer cables, 485-232 converter	—	ControLinks Fuel Air Ratio controls
DSP3564	ControLink FAR Trainer/Demonstrator	ControLink FAR Trainer/Demonstrator	—	Relay Module, R7999 Control and 4 ML Motors	—	ControLinks Fuel Air Ratio controls
DSP3822	ControLink FAR (S7999B) Display Demo and Configuration Tool	For Controlinks Configuration and Monitoring	—	—	Touchscreen for FAR Monitoring or Programming	ControLinks Fuel Air Ratio controls
DSP3956	ControLink FAR Configuration Toolkit	ControLink FAR Configuration Toolkit	—	ZM Software; USB-485 Converter with cable and Connector for Controlinks	—	ControLinks Fuel Air Ratio controls

## Flame Simulator



123514A

203659

Flame simulators simplify the troubleshooting of flame safeguard controls by providing a quick method to check the flame detection function.

Product Number	Description	Color	Comments	Used With
123514A	Flame Simulator, Rectification Type Flame Amplifiers	Brown	Applications with test jack in G circuit; Test jack in G circuit	R4075B; R4181A; R4138A,B; R7253A; R8169B; R7257A; R7247A; R7847A
203659	Flame Simulator, Simulates C7027, C7035, C7044 Flame Simulators for 7800 SERIES	Purple	Simulates Minipeeper Flame Detectors	7800 SERIES Relay modules

# Testers and Demonstrators

## FSP1535 Tester



**Provides quick operational check of Honeywell RA890 or R4795 nonprogramming primary controls.**

- Includes indicator lights that visually represent functions of ignition, pilot and main valve as unit simulates system operation.
- Eliminates need to operate entire system.
- Tests units with rated voltage from 100 to 240, 50/60 Hz by connecting line cord to the rated voltage.

**Voltage:** 120 Vac; 240 Vac

**Frequency:** 50 Hz; 60 Hz

Product Number	Application	Description	Used With
FSP1535	Tester	RA890; R4795 Tester	RA890; R4795

## FSP5004 Tester



**A Tester that provides quick operational check of most Honeywell BC7000, R4140, R7140 and R4150 programmers and R7795 primary controls (order 198355A adapter separately).**

- Includes indicator lights that visually represent control functions of programmer as unit simulates system operation.
- Works with 120 Vac, 60 Hz controls.
- Use to test some Gordon-Piatt programmers.
- Cannot be used to test some R4140 and R4150 models due to design or wiring differences. Reference the list at right to see if you have one of the controls that CANNOT be tested. If you do, check these out using the instructions provided in their respective instruction manuals.
- R4150/R4140/BC7000/R7795/R7140 Tester (120V only). Provides a quick operational check.

**Voltage:** 120 Vac

**Frequency:** 50 Hz; 60 Hz

**Accessories:**

**198355A** Adapter for R7795, used with FSP5004

Product Number	Application	Description	Comments	Used With
FSP5004	Tester	R4150/R4140/BC7000/R7795/R7140 Tester (120V only). Provides a quick operational check.	DO NOT USE WITH: BC7000L1018, BC7000L1034, BC7000L1063; R4140D1004, R4140E1001, R4140M1079, or non-120 Vac R4140 models	BC7000; R4140; R7795; R7140B; C7000; R4140; R7795

## W136 Meter



Combination ac/dc voltmeter and dc micrometer used to test all flame safeguard controls and associated burner equipment. The W136A can be used to verify flame detector output is sufficient to operate the flame relay.

- Measure ac voltage of 0 to 300 Vac and dc voltages of 0 to 150 Vdc.
- Has 0 to 25 dc microamp scale for accurate checking of flame signal strength.
- Protective circuit prevents meter burnout on 25 uA or SPL settings.
- W136A1045 is in a black carrying case that holds meter and has compartment for storing test leads and accessories.
- The W136A1045 includes two push-on alligator clips that fit over probes and 196146 Cable Connector to plug into flame current jack and connect meter in series with flame current lead.

**Dimensions, Approximate:** 216 mm high x 152 mm wide x 59 mm deep (8 1/2 in. high x 6 in. wide x 2 1/3 in. deep)

Product Number	Application	Description	Includes	Comments	Used With
W136A1045	Analog Test Meter	Test Meter	Two color coded, 30 in. (762 mm) long pin jack probe terminals	Scale ranges: 0 to 300 Vac; 0 to 150 Vdc; 0 to 25 microamps	Flame Safeguard Controls

## W136 Replacement Part

Product Number	Application	Description	Used With
196146	Cable Connector for W136 Meter; Flame Simulator, Rectification Flame Amplifiers	Cable Connector for W136 Meter	W136

# Flame Safeguard Legacy Parts

## Legacy Replacement Parts

Product Number	Application	Description	Used With
117053	Accessory or Replacement Part	Connector Plug - 138166 Panel Meter	Q478, R4138C, D, 138166 Panel Meter
118543A	Accessory or Replacement Part	Incandescent Bulb for R4138C, D	R4138C, D
138166	Accessory or Replacement Part	Panel Meter, 0 - 25 microamp	—
4074EMC	Accessory or Replacement Part	Bag Assembly-Battery Assembly for PM7700A	PM7700

## S445A Start-Stop Switch



**Pushbutton switch for manually operated oil or gas burner sequencing relays such as RM7885 and RM7838.**

- Use with Primary Safety Controls.
- Provides remote start-stop manual control.
- Fully enclosed for minimum maintenance.

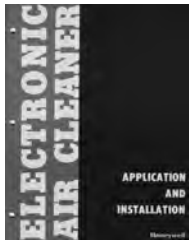
Product Number	Description	Application	Dimensions, Approximate		Voltage	Frequency	Used With
			(mm)	(inch)			
S445A1010	Start-Stop Switch	Start-Stop Switch	64 mm wide x 111 mm high x 75 mm deep.	2-1/2 in. wide x 4-3/8 in. high x 2-15/16 in. deep.	120 Vac	50 Hz; 60 Hz	EC7885A1011, EC7885A1029, RM7838A1014, RM7838B1013, RM7885A1015



## Electronic Air Cleaner Theory and Fundamentals

An introduction to air pollution, its classification and sources, plus methods of air cleaning, Electronic Air Cleaner design, components and efficiency. *33 pages*

**70-9719**



## Electronic Air Cleaner Application and Installation

Includes selection, application and installation information for residential and light commercial type electronic air cleaners. *31 pages*

**70-9723**



## Electronic Air Cleaner Service Data

Includes replacement parts, model number identification, service tools and equipment, plus description, checkout and troubleshooting guide and parts list for Honeywell electronic air cleaners. *107 pages*

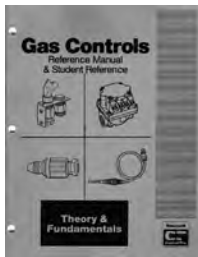
**70-9724**



## Load Management – Utility Rate Analysis

An extensive discussion of how electric utility rates are structured and explaining the basic components of the rate: consumption charge, fuel adjustment charge and demand charge. Calculations necessary to analyze savings on energy bills. *52 pages*

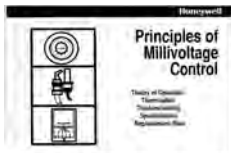
**71-97433**



## Gas Control Reference Manual & Student Reference – Theory and Fundamentals

Basic information and technical data on gas heating controls: gas properties, combustion, pilot burner systems, warm air heating systems, hydronic heating appliances, power sources, safety shutoff circuit and combination gas valves. Extensive glossary and technical charts. *48 pages, 1988*

**71-97473**



## Principles of Millivoltage Control

Theory, controls and control circuits for millivoltage for heating systems with performance specifications on thermopiles. *22 pages, 1989*

**71-97280**

# Training Booklets



## Burners and Boilers

Descriptions of various types of commercial and industrial gas, oil, and coal burners and their operation. Also boilers classified by construction and size. A comprehensive and understandable introduction to the subject. *65 pages*

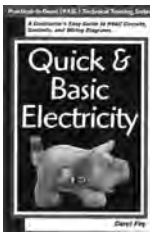
**70-8107**



## Really Basic Electricity

Written for the person with no background in electricity. Introduces basic concepts of a.c. and d.c. electricity. Includes pictures and diagrams. *96 pages*

**71-97004**



## Quick and Basic Electricity

A contractor's beginning guide to HVAC circuits, controls and wiring diagrams. *80 pages*

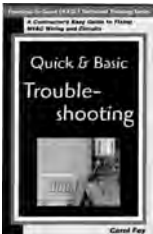
**71-97431**



## Quick and Basic Hydronic Controls

Another in the "Practical is Good" (P.I.G.) Technical Training Series. A contractor's easy guide to hydronic controls, wiring, and wiring diagrams. How figuring circuits is like watching a bug on a rope; why thinking in circles is good; how every hydronic control is a power supply, a switch, or a load; how limit controls are like a safety committee; how to see the friendly side of control panels. *87 pages, 2000*

**71-97160**



## Quick and Basic Troubleshooting Book

This book tells you how to troubleshoot controls and control circuits using a meter, a "hopscotch," "Leapfrog," "daisy chain," and "homerun" methods, a trouble shooting chart, a wiring diagram and your common sense. *80 pages*

**71-97931**



## ControlPro Pneumatic Control Training Manual

This manual is for a two-day in-house course on Honeywell pneumatic controls. It is available separately for use in your own training. *150 pages*

**71-97070**



## The Control Pro On Managing Truck Inventory

Looking for help with your truck inventory? Honeywell's Control Pro is a veteran of over 25 years in the HVAC industry, so when he talks, people listen! In this publication, The Control Pro takes a practical, down-to-earth look at managing truck inventory for the residential heating/air-conditioning contractor. Starting with developing a truck stock list and standardization of the truck stock list, he explains how proper truck inventory reduces the tech's lost time (i.e. chasing parts for that "best buy" is lost gross revenue.) He points out the advantages of stocking universal parts, turning your truck stock often and replacing truck stock. He discusses why taking truck inventory, pricing and cost control are important (their effect on "the bottom line"). This booklet includes valuable suggestions for a truck stock list.

**67-6005**

# Programmed Instruction Books

A programmed instruction course presents information in small, carefully developed steps. At each step, learners are required to apply the new information by answering a question or solving a problem.

We've used these programmed texts successfully in several ways:

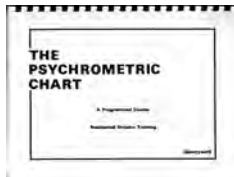
- **Independent instruction** -- for the individual who does not have access to an instructor.
- **Homework assignment** -- provides the required background information in preparation for more advanced classroom presentation
- **Remedial study** -- for use when a student needs additional study in basics to benefit from the classroom presentation



## Fundamentals of Residential Control

A step-by-step, self-instruction workbook in a question and answer format. Students learn the necessary foundation for advanced study in controls while working at their own speed. Ideal for individual student use in preparation for other courses. Topics include: nature of electricity, rules governing electricity, inductive and capacitive circuits, principles of motor operation, power, transformer principles, relay principles, analyzing control circuits. *250 pages*

**71-97083**



## The Psychrometric Chart

A valuable tool for everyone in the HVAC industry. Knowledge of the complex relationship between the various characteristics of the air (temperature, humidity, moisture content, etc.) can be the key to solving a number of air conditioning problems. Text illustrates with examples of how to use psychrometric charts. Use it as a self-instruction text or a class exercise. *100 pages*

**71-97444**

# Service Publications

## Service Handbooks



### Honeywell Service Data Manual

Formerly known as the **Service Handbook Library**, these manuals have been completely updated and published in a new 8-1/2 x 11 in. format to make even more service information available to technicians working on residential and light commercial heating and air conditioning equipment and controls.

71-97932

- **Gas Controls Service Manual**  
All of the technical data and service information needed to safely and efficiently check and repair gas burner controls systems. Includes combination gas controls manufactured in the last 30 years for furnace, boiler and other heating appliance manufacturers, as well as service replacement controls.
- **Gas Electronic Ignition Controls Service Manual**  
Principles of controlling gas heating equipment including intermittent pilot, direct spark ignition and hot surface ignition. Model numbers and specifications for obsolete as well as currently manufactured controls, with information on making replacements of special models made for equipment manufacturers with universal replacement models available for service work. Includes troubleshooting flowcharts for old and new controls.
- **Oil Controls Service Manual**  
Control of oil burners is undergoing a major change as manufacturers are transitioning from electromechanical and electronic controls to microelectronic oil primary controls. This manual includes information on these controls as well as older devices that have been used for years.
- **Commercial Controls Service Manual**  
Introduction and fundamentals of electric and electronic controls used on commercial packaged and other light commercial equipment. Includes: motors and actuators, linkages, dampers and valves, electromechanical controllers, electronic sensors, electromechanical economizers, electronic solid state economizers, reset systems and fan coil systems.



### RA890, R4795 and R7795 Service Handbook

Wiring and checkout, normal operation summary, flame current check, flame simulator, final checkout, service notes and test equipment. *59 pages*

70-8610



### Troubleshooting Flame Safeguard Systems

Generalized troubleshooting information for the controls used on large burners and boilers. Information on recurring shut-downs, random shutdowns, measuring flame signal. Ten commandments for the burner service person, checking system operation and periodic maintenance. *11 pages*

70-8626

## Selection Guides



### Damper Torque Slide Rule/DCA Selector

A compact tool for estimating necessary torque based on damper type, velocity, static pressure and damper size. It is an excellent reminder to consider all of the necessary variables for proper actuator/motor selection. The back of the slide rule is an easy-to-use "DCA Selector" which includes all current spring and non-spring return damper DCA's, including the recently introduced 25 lb-in spring return models. This is a "must have" tool which you will find so valuable you cannot imagine being without it.

63-8437



These manuals and notebooks provide instructional support on the fundamentals of controls for residential and some light commercial heating and cooling applications.

- A **Reference Manual**, or mini-text, is a clearly written text with easy-to-follow diagrams that detail the fundamentals of controls and control systems. Designed for use by the student as well as the instructor and organized so that the instructor can vary the outline to fit specific teaching goals. Includes reproductions of the program's overhead slides.
- A **Student Notebook** reinforces instruction and offers a check on student understanding through the use of exercises and review questions.

## Oil Heating Controls

Oil burner ignition and safety control systems for residential heating. Includes: fuel oil characteristics, oil burner primary controls, stack relay and cad cell flame detection systems, servicing oil burner control systems and general troubleshooting.

Reference Manual

71-97088

Student Notebook

71-97090

## Gas Heating Controls

Gas control systems for residential heating. Information on function of the safety shutoff circuit, pilot burners and pilot flame conditions, residential gas valves, combination gas controls and troubleshooting.

Reference Manual

71-97091

Student Notebook

71-97093

## Electric Heat Controls

The basics of residential electric heating control starting with a brief review of electrical principles and going through to service procedures. Information on influence of humidity, air circulation and radiant temperature on comfort; heating system performance in terms of response time, cycling rate, heat anticipation and timed sequencing; central and decentralized electric heating systems; servicing electric heat systems and troubleshooting.

Reference Manual

71-97306

Student Notebook

71-97308

## Cooling Controls

Electric powered refrigeration equipment, theory of operation and control systems for residential central air conditioning. Information of mechanical refrigeration systems and equipment, typical residential systems, cooling system functions, thermostats, fan relays and fan centers, switching relays, contactors, pressure controllers and transformers.

Reference Manual

71-97094

Student Notebook

71-97096

# Classroom Training

## ControlPro Reference Material

These publications are part of the ControlPro one-day class for heating and air conditioning technicians, and are good references for anyone needing information on Oil or Hydronic Heating Controls.

### Oil Heating Controls Technical Reference



A compilation of all the specification data, installation and service publications on Honeywell's oil heating controls, such as cad cell oil primaries, stack relays and ignition transformers. *204 pages, 2005* **71-97479**

### Controls for Oil-Fired Heating



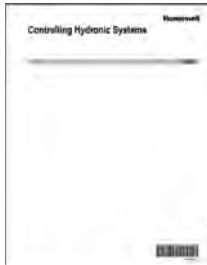
The "textbook" for the ControlPro Oil class. Includes: fuel oil and oil burning equipment, ignition requirements, oil burner control requirements, stack relays, cad cell primary controls, oil primary controls, oil control service and troubleshooting, glossary. *61 pages, 2005* **71-97406**

### Hydronic Heating Controls Technical Reference



A compilation of all the specification data, installation and service publications on Honeywell's hydronic heating controls, including Aquastat® controllers, Aquastat® relays, zone controls, outdoor temperature compensation controls, thermostats and hydronic heating controls accessories. *415 pages, 2005* **71-97480**

### Controlling Hydronic Systems



The "textbook" for the ControlPro Hydronic Heating Controls class. Includes: hydronic heating systems, hydronic system reset, why to use hydronic zoning, zone valve systems, zone circulator systems, case and cover relays, multizone hydronic panels, radiant heating, service and troubleshooting and glossary. *54 pages, 2005* **71-97402**

FSG Textbook, "Flame Safeguard Controls: A Honeywell Textbook" 2<sup>nd</sup> edition

The most comprehensive and popular Flame Safeguard textbook available in our industry. It's where the beginners begin and where the "Old Pros" return year after year and problem after problem.



**FSG Textbook, "Flame Safeguard Controls: A Honeywell Textbook", 362 pages**

**71-97558**

Contents:

- *Introduction to Flame Safeguard* – Flame Safeguard functions and controls.
- *Combustion* – explanation of fuel types and flame characteristics.
- *Burners and Boilers* – description of representative burners and boilers.
- *Flame Rod Application* – design and installation of flame rods and rectification systems.
- *Optical Detector Applications* – description, operation, application and checkout of detectors; covering rectifying photocells, infrared, and ultraviolet detectors.
- *Primary Controls* – capabilities and operation of primary controls (RA890, R4795 and R7795) used on smaller burners
- *Programming Controls* – capabilities and operation of programming controls (R4140 and BC7000 Microcomputer Programmable Controls).
- *Troubleshooting FSG Systems* – outlines systematic procedures for isolating common Flame Safeguard problems.
- *Service Equipment* – description and operation of testers, simulators and meters.
- *Auxiliary Equipment* – description, operation, application and checkout of pressure and temperature controllers.
- *Valves and Valve Trains* – description and application of typical Flame Safeguard valves and valve trains.
- *Sizing and Application of Large Gas Valves* – principles and procedures for selecting gas valves (includes selection nomographs).
- *Firing Rate Controls* – covers methods for controlling firing rate, firing rate sequences, programmer switching, motors and valves.
- *Glossary* – Flame Safeguard terminology.



**Student Notebook – Review questions to use with the FSG Textbook, 50 pages**

**71-97555**

# Reference Manuals

These reference manuals are collations of Honeywell publications used to apply, install and service various categories of control products. Combined they represent virtually all of the technical information Honeywell publishes on its residential and light commercial electric and electronic controls.



## THE SOURCE Reference Material for Gas Ignition

These are the publications used with *The Source* gas ignition technical training program.

- **THE SOURCE Technical Reference** 71-97414  
A compilation of all the specification data, installation and service publications on Honeywell's residential gas ignition controls such as gas valves, ignition modules and electronic fan timers. 634 pages, 2004
- **THE SOURCE Class Notes and Lab Exercises** 71-97162  
Reproductions of the visuals used in *The Source* classroom training program along with the lab exercises that make up Honeywell's popular training program on gas ignition controls. 114 pages, 2003



## The Firing Line

A comprehensive manual designed to facilitate the upgrading and replacement of burner and boiler controls in commercial and industrial applications. Extensive information on approval bodies to explain what type of controls are required to meet various codes. Subjects include how to sell control modernization, how to sell replacement, conversion wiring, handy survey guides and worksheets.

70-8900



## The Firing Line CD-ROM Version

The CD-ROM version of *The Firing Line* is a comprehensive reference media designed to facilitate the upgrade/replacement of burner and boiler controls in commercial and industrial applications. 1996

66-1081



## Flame Safeguard Reference Manual

Specification sheet collation on: primary controls, programming controls, gas valves, flame sensors, FSG motors, ignition transformers, pressure controls/limits, reset controls, multiple boiler controls, low water cutoff, and feed water valve.

66-1004



## 2008 Commercial/Industrial Combustion Controls Catalog

This catalog covers the complete line of Honeywell Burner and Boiler controls. In addition to our premier 7800 SERIES Burner Control Systems, BCS 7700 Boiler Control Systems and Communication Interface, the catalog covers flame amplifiers, firing rate motors, pressure/temperature sensors, amplifiers, auxiliary equipment, Flame Safeguard Modutrol IV motors, flame sensors, gas valves ignition transformers, modernization and replacement equipment, pressure controls/limits, primary and relay controls, programmers, test equipment, and commercial hydronic controls. Contains information on Flame Safeguard training materials, reference manuals and demonstrators and lab trainers.

70-8911



## 7800 Series Burner Control Manual

This manual contains promotional literature, features/functions/benefits, product selection submittal information, programmers, semi-automatic programmers, primaries, semiautomatic primaries, subbases, amplifiers, purge cards, optional components, expanded annunciator, communications, tester, accessories, conversion wiring diagrams, diagnostics, and troubleshooting, and cross references. In 3-ring poly binder.

66-1065



## Engineering Manual of Automatic Control for Commercial Buildings - Soft cover

The 21<sup>st</sup> edition of this widely used and extremely valuable manual. Now includes direct digital control and operator workstations, as well as other current control technology and strategies. The 500+ pages guide the reader through the fundamentals of control system theory, direct digital control, building management systems and a dozen other disciplines essential to proper environmental control in buildings. In this edition, microprocessor controls are shown in most of the control applications, rather than pneumatic, electric or electronic controls, to reflect the trends in today's industry. Also included is new information on indoor air quality and district heating. Often referred to as the "Gray Manual," this technical resource has been a standard among engineering design professionals since it was first published in 1934. *Revised 1997*

77-1100



## Zoning Systems Reference Manual

A comprehensive reference on the Honeywell residential zoning capability. Includes Consumer Literature, System Design, Zone and Bypass Dampers, Networked Zoning, TotalZone, EMM Series, MM-2 and MM-3, Thermostats, Control Accessories and Fresh Air. *265 pages, 2002*

63-7067



## Water Control Product Catalog

Honeywell Catalogue - Full Line of Quality Products for Water Management Solutions: Water Controls Products, Hydronic Heating, Plumbing and Energy Products.

- Honeywell Water Products: Mixing Valves, Air Vents, Boiler feed Valves/Back Flow Preventer, Expansion Tanks/Combo Kits, Honeywell Thermometers and Tridicators, DS05, DS06 DialSet Pressure Regulation Valves, T104/V110 High Capacity Thermostatic Radiator Valves, MT100/MT110 Service Tools, F74 Water Sediment Filters, D05/D06 Universal Pressure Regulating Valves, T100/V100 Standard capacity TRV, V135/T100 Loop Controls for radiant floor applications

63-8702



## Honeywell TRADELINE Catalog

Recently updated, this product catalog is an education in itself—over 900 page of specifications and application information on Honeywell's residential, light commercial and burner and boiler controls. Included are Home Control products, Water Control products, Building Control products, Indoor Air Quality Products, Pneumatic Controls and Flame Safeguard Products. *over 966 pages, 2010*

70C-6910



## Honeywell TRADELINE Catalog - CD-ROM

The entire Honeywell TRADELINE catalog, available on a CD-ROM. This PDF format allows for rapid click and searching of products, as well as hyperlinks to web sites for additional product information whenever you are connected to the internet.

70C-E6910

# Lab Trainers

A lab trainer requires the student to actually perform point-to-point wiring to achieve a properly functioned control system.



## DSP3168 Gas Ignition Trainer

The DSP3168 is a suitcase-style hands-on laboratory workstation designed to support instruction in gas ignition controls as used on residential gas heating equipment and some commercial cooking equipment. Using point-to-point wiring, students wire up actual controls to simulate the operation of a number of types of gas ignition systems, using a small propane-fired burner.

The DSP3168 can be set up to simulate the following types of gas ignition systems:

- Intermittent Pilot Ignition utilizing electronic flame detection to provide pilot safety.
- Direct Spark Ignition uses a spark electrode and a separate electronic flame detector electrode to directly light the main burner in a furnace, boiler or some other heating or cooking appliance.
- Hot Surface Ignition uses a hot surface igniter to directly light the main burner.
- SmartValve® uses electronic flame sensing (flame rectification). This combines gas flow control and electronic intermittent pilot sequencing functions into a single unit. The low voltage igniter, and flame sensor on the pilot burner plug directly into the system control.

The DSP3168 lab trainer includes the following control and accessories: Honeywell VR8204, VR8205, and SV9501 gas valves; S8610U, S87D, and S8910U electronic ignition surface modules, and LP regulator and hose, ignition cable, wires with banana plugs, timing tab for S8910U, a propane tank holder, and an accessory box containing a spark adapter, direct spark igniter, intermittent pilot igniter-flame sensor allen wrench and screws. Propane not included.

Using the banana plug wires, the student connects the controls and devices into the proper 120V and 24V circuits, both of which are fused.

Also included: a controls/devices list, lab exercises, a troubleshooting sheet, and reference material from THE SOURCE gas ignition training program.

**DSP3168**



## DSP3548 ControLinks™ Configuration Kit

The Configuration Tool Kit was developed to assist with the commissioning of the ControLinks™ Product line. It contains the Configuration Software, Software Manual, Converter modules and the required cables all in a handy carrying case with handle. ControLinks™ products are restricted to Authorized ControLinks™ Distributors.

**DSP3548**



## DSP3564 ControLinks™ Demonstrator

The DSP3564 is designed for use in training on the Honeywell ControLinks™ Fuel Air Control System. The demonstrator contains the following items:

- One RM7800L1012
- One ST7800A1021
- One R7999A1005
- Four ML7999A1003
- One 1-5K Pot
- Six SPST Toggle Switches
- One R7847A1033
- One Q7800A1005
- One Q7999A1006
- Six Indicator Lights
- One 2-1K Pot
- One Carrying Case with handle (22" x 16" x 6")

**DSP3564**



## DSP3822 ControLinks™ Display Demo

The DSP3822 is a field service tool for the ControLinks™ system. The DSP3822 allows monitoring and configuration of a ControLinks system without a laptop PC and the ZM7999 ControLinks Configuration Software. The DSP3822 also functions as a training and demonstration tool for the Honeywell S7999B ControLinks Configuration Display. The DSP3822 demonstrates the S7999B functions including configuration of the R7999 ControLinks Controller and setup of burner/boiler modulation curve (profile). The display uses a wizard-like interface to assist in the configuration process. The DSP3822 includes an integrated carrying case and internal power supply.

**DSP3822**



## Burner and Boiler Controls Demonstrator Student Workbook

This Manual contains the Operating Training Board Exercises for the student for the DSP3472

**71-97116**



## Burner and Boiler Controls Demonstrator Instructors Manual

This Manual is the Instructor's version of the Operating Training Board Exercises for the DSP3472

**71-97117**

# Ordering Information

## Order online

You can order online at <http://customer.honeywell.com>

If you are already a Honeywell customer, please login with your name and password. You can then go to the quick order form and fill it out to place your order. If you do not know the part number you can click on the Products menu and find the Training Materials under either the Homes or Buildings products.

For a new customer follow these steps.

1. Go to <http://customer.honeywell.com>

2. On the lower left side, click on "Create an Account Now."

The window will change to a page where you will be asked to submit some information about yourselves. If you are unsure of what to select for "Relationship to Honeywell", you can select "Training Materials Customer."

After you have finished the registration process, you should receive an e-mail confirmation. In this confirmation, there will be a link for you to click on to activate your account. Once your account is active, you can place an order for training materials.

Note: You can use either your username or e-mail address to log in. Also, the password is case sensitive.

Once you are logged in and ready to order you can go to the quick order form and fill it out to place your order. If you do not know the part number you can click on the Products menu and find the Training Materials under either the Homes or Buildings products.

Payment must be made by VISA, MasterCard or American Express card.

## Shipping

All U.S. orders for training materials are shipped freight collect, UPS ground. The charges will be added to your total.

## Expedited Orders

When requested, we will expedite an order and ship by air, but you must pay by credit card and you will be billed for the shipping costs.

## International Orders

International orders *MUST* be placed through your local Honeywell subsidiary. They can advise you on ordering and shipping procedures. We cannot accept or ship international orders.

## Returns

Returned items are accepted within four months of purchase. There are no cash refunds, and a \$30 restocking fee *per item* will be deducted from your credit. You are responsible for return shipping costs. The address for returns is printed on the bill of lading. Please call or fax in advance of your return and provide a list of the items that you are returning and a reason as to why you are returning them.

## Form of Payment

### *Credit Card*

For on line orders, payment must be made by VISA, MasterCard, or American Express card.

## Inquiries

If it is necessary to contact us regarding your order, please include the data the order was placed, your account number, the web order number (found on the order confirmation) and the reference number.

Contact us at:

Honeywell International Inc.  
MN10-131A  
1985 Douglas Drive North  
Golden Valley, MN 55422  
FAX: 800-356-0149  
PHONE: 763-954-5720

Honeywell Limited  
35 Dynamic Drive  
Scarborough, Ontario  
M1V 4Z9

FAX: 416-332-3313  
PHONE: 416-332-3419

***Note: Please allow 1 to 2 weeks to process and fill your order.***







# Notes

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# Notes

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# Honeywell

## AUTOMATION AND CONTROL SOLUTIONS PRODUCTS WARRANTY POLICY

Honeywell warrants the products in this catalog (except those parts designated on Honeywell's price lists as not covered by this warranty) to be free from defects due to workmanship or materials, under normal use and service, for the following warranty periods. Honeywell VisionPRO®, Commercial VisionPRO™, FocusPRO®, PRO 4000, PRO 3000, LineVolt™ PRO, Digital Round™, and Modern Round™ (T87K, N) Series Thermostats with a date code of 0501 or later: sixty (60) months from date of installation. CommercialPRO, PRO 2000 and PRO 1000 thermostats: twenty-four (24) months from date of installation. AUBE branded thermostats, timers, and switches: thirty-six (36) months from date of installation. All other Honeywell thermostats and thermostats with a date code of 0452 or earlier: twelve (12) months from date of installation, unless specified otherwise. Honeywell Air Cleaners, Humidifiers, Ventilators, Ultraviolet Treatment and Zoning Products with a date code of 0501 or later, excluding replacement maintenance parts: sixty (60) months from date of installation. Indoor air quality parts F50, F52, F300, F200, F150, UV100E, HE225, HE265, HE365, with date codes of 0452 or earlier, excluding replacement maintenance parts: sixty (60) months from date of installation. All other Honeywell indoor air quality and zoning products with a date code of 0452 or earlier: twenty-four (24) months from date of installation, unless specified otherwise. Variable frequency drive devices (VFD) and accessories: new products for thirty-six (36) months and factory refurbished drives for twelve (12) months from date of installation when start-up and commissioning is performed by Honeywell VFD Authorized and trained personnel. All VFD warranty return products must have prior authorization (Form No. 87-0284) and be returned only to the VFD Service Center in Chattanooga, TN. MS, MN and Fact Acting 2-position Direct Coupled Actuators: sixty (60) months from date of installation. The warranty period for all other products is twelve (12) months from date of installation.

If a product is defective due to workmanship or materials, is removed within the applicable warranty period, and is returned to Honeywell in accordance with the procedure described below, Honeywell will, at its option, either repair, replace or credit the customer for the purchase price of the product, in accordance with the procedure described below. This warranty extends only to persons or organizations who purchase products in this catalog for resale.

The expressed warranty above constitutes the entire warranty of Honeywell with respect to the products in this catalog and IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL HONEYWELL BE RESPONSIBLE FOR ANY CONSEQUENTIAL DAMAGES OF ANY NATURE WHATSOEVER.

### INSTRUCTIONS—INSTALLING OR SERVICING CONTRACTOR OR DEALER

When replacing a Honeywell product under warranty, including those products furnished on original heating and/or cooling equipment, you should rely on your local Honeywell Wholesaler or Distributor for prompt and efficient product replacement service.

A Honeywell Returned Goods Identification Tag (form 87-0030) or an electronic data notification system must be completed and approved by the servicing dealer/contractor prior to submitting the product to the Honeywell Wholesaler or Distributor. (Tags may be obtained from the Wholesaler or Distributor in advance.) No warranty claim for product replacement or credit will be honored by the Wholesaler/Distributor without a completed warranty tag attached or electronic notification.

### INSTRUCTIONS—WHOLESALE OR DISTRIBUTOR

The following will apply to the return of any product to Honeywell under this warranty:

Any products which are not variable frequency drives and are:

- (i) identified with Honeywell's Returned Goods Identification Tag (form 87-0030), or electronic notification system;
- (ii) are listed individually with Returned Goods ID Tag numbers and date codes

- (iii) packed separately from other returns and protected from shipping damage;
- (iv) have certification by the installer or servicing dealer that the product was removed, due to failure, within the applicable warranty period;
- (v) are received transportation pre-paid at:  
Honeywell Return Goods  
Dock 4 MN10-3860  
1885 Douglas Drive  
Golden Valley, MN 55422
- (vi) and are found by Honeywell's inspection to be defective in workmanship or materials under normal use and service will be handled in accordance with one of the two following procedures, as specified by the customer making the return:

All VFD warranty return products must have prior authorization (Form No. 87-0284) and be returned only to the VFD Service Center in Chattanooga, TN.

1. **CREDIT PROCEDURE.** Honeywell will issue credit, at Honeywell's lowest wholesaler net price in effect at the time of the return (as set forth on Honeywell's then current price sheet) or at the actual invoice amount if a copy of that invoice is attached to the packing list. (TRADELINE Replacement Exchange Products will be at Honeywell's lowest replacement exchange net price in effect at the time

- of such return, as shown on Honeywell's then current price sheet.) Honeywell reserves the right to disallow this credit option in cases of warranty abuse.
2. **REPAIR OR REPLACEMENT PROCEDURE.** Honeywell will, at its option, either repair or replace the product free of charge and return it or its replacement lowest cost transportation prepaid. The replacement will be a functionally equivalent new TRADELINE product. Premium transportation will be used at customer's request and expense.

The warranty will not be honored if:

- (i) product is damaged or missing parts or accessory items including batteries.
- (ii) product exhibits evidence of field misapplications.

Final disposition of any warranty claim will be determined solely by Honeywell. If inspection by Honeywell does not disclose any defect covered by the warranty, the product will be returned or scrapped as instructed by the customer and Honeywell's regular service charges will apply. Products returned to the customer may be sent shipping charges collect.

If you have any questions relative to product returns to Honeywell, contact your Customer Care Representative:

Honeywell International Inc.  
Customer Care MN10-131A  
1985 Douglas Drive  
Golden Valley, MN 55422  
(763) 954-5720

### SPECIAL MESSAGE TO INDUSTRIAL USERS AND BUILDING OWNERS

Thank you for using Honeywell products.

As a user, when you purchase a Honeywell product from this catalog you should expect performance from the product and, if it fails, replacement of the product by the installing dealer.

Typically, you will have purchased a Honeywell product under the following circumstances:

1. To modernize or refurbish your existing commercial and/or process control system.
2. You have purchased new commercial and/or process heating, cooling, air cleaning or humidification equipment that

is furnished with Honeywell controls or components (refer to your owner's manual furnished with the equipment).

3. A control has failed on your existing commercial and/or process heating and/or cooling equipment and is replaced by a Honeywell TRADELINE product.

With few exceptions, you utilize the services of a competent plumbing, heating and/or cooling dealer/contractor for new or replacement work performed.

Although our warranty does not extend to you, Honeywell does extend a warranty to your supplier.

Your supplier can rely on its local Honeywell Wholesaler/Distributor or Honeywell for prompt replacement.

If you have any questions, need additional information or would like to comment on Honeywell's products or services, please write or phone:

Honeywell International Inc.  
Customer Care MN10-131A  
1985 Douglas Drive North  
Golden Valley, MN 55422-4386  
(763) 954-5720

or check your telephone directory (white pages) for one of many Honeywell field sales offices.

**Automation and Control Solutions**  
Honeywell Limited-Honeywell Limitée  
35 Dynamic Drive  
Toronto, Ontario M1V 4Z9

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1985 Douglas Drive North  
Golden Valley, MN 55422

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