iSeries

MONOGRAM®

⅛ DIN Temperature, Process and Strain PID Controllers

- High Qualty
- 5-Year Warranty
- High Accuracy: ±0.5°C (±0.9°F), 0.03% Reading
- User-Friendly, Simple to Configure
- Free Software
- Full Autotune PID Control
- Universal Inputs: RTD, Thermocouple, Process Voltage/Current, Strain
- Totally Programmable Color Displays Standard
- Built-In Excitation Standard
- 2 Control or Alarm Outputs: DC Pulse, Mechanical Relays, Analog Voltage and Current
- Embedded Internet Connectivity Available

CNi8 Series

5 YEAR WARRANTY

Shown smaller than actual size.

The universal temperature and process instrument (CNi models) handles 10 common types of thermocouples, multiple RTDs, and several process (DC) voltage and current ranges. This model also features built-in excitation, 24 Vdc @ 25 mA. With its wide choice of signal inputs, this model is an excellent choice for measuring or controlling temperature with a thermocouple, RTD, or 4 to 20 mA transmitter.

The strain and process instruments (CNiS models) measure inputs from load cells, pressure transducers, and most any strain gage sensor as well as process voltage and current ranges. The CNiS has built-in 5 or 10 Vdc excitation for bridge transducers, 5 Vdc @ 40 mA or 10 Vdc @ 60 mA (any excitation voltage between 5 and 24 Vdc is available by special order). This CNiS model supports 4- and 6-wire bridge configurations, ratiometric and non-ratiometric measurements. The CNiS features fast and easy "in process" calibration/scaling of the signal inputs to any engineering units. This model also features 10-point linearization which allows the user to linearize the signal input from extremely nonlinear transducers of all kinds.

The OMEGA® CNi8 is a ⅛ DIN size [96 x 48 mm (3.7 x 1.9")] digital panel meter featuring the big iSeries color-changing display. The digits are twice the size of typical ⅛ DIN panel meters. The iSeries meters feature the only LED displays that can be programmed to change color between **GREEN, AMBER,** and **RED** at any setpoint or alarm point. The "CNi8" model is available as an extremely accurate programmable digital panel meter with no outputs or with dual outputs for controlling or alarming functions. Other options include isolated programmable analog output, serial communications, MODBUS and Ethernet. The user can easily program the CNi8 for any control or alarming requirement from simple on/off to full autotune PID with a choice of form C SPDT relays, solid state relays, DC pulse, and analog (voltage and current) outputs.

Fully isolated analog output for retransmission of the process value is available in addition to the control and alarm relays (specify model CNi8A33).

The CNi8 covers a broad selection of transducer and transmitter inputs with 2 input models.

Input Type		Range	Accuracy
Universal Process			
Process Voltage		0 to 100 mV, 0 to 1 V, 0 to 10 Vdc	0.03% rdg
Process Current		0 to 20 mA (4 to 20 mA)	0.03% rdg
Excitation		24 V @ 25 mA	—
Universal Strain/Process			
Process Voltage		0 to 100 mV, -100 to 1 V, 0 to 10 Vdc	0.03% rdg
Process Current		0 to 20 mA (4 to 20 mA)	0.03% rdg
Excitation		5 V @ 40 mA, 10 V @ 60 mV	—
Nickel RTD Input (FS Required)			
RTD-1N (Nickel MIL-T-7990B)		0 to 200°C (32 to 392°F)	0.1°C (0.2°F)
RTD-2N (Nickel MIL-T-7990B)		-40 to 300°C (-40 to 572°F)	0.3°C (0.5°F)
Temperature			
J	Iron-Constantan	-210 to 760°C (-346 to 1400°F)	0.4°C (0.7°F)
K	CHROMEGA™-ALOMEGA™	-270 to -160°C/-160 to 1372°C (-454 to -256°F/-256 to 2502°F)	1.0°C/0.4°C (1.8°F/0.7°F)
T	Copper-Constantan	-270 to -190°C/-190 to 400°C (-454 to -310°F/-310 to 752°F)	1.0°C/0.4°C (1.8°F/0.7°F)
E	CHROMEGA™-Constantan	-270 to -220°C/-220 to 1000°C (-454 to -364°F/-364 to 1832°F)	1.0°C/0.4°C (1.8°F/0.7°F)
R	Pt/13%Rh-Pt	-50 to 40°C/40 to 1768°C (-58 to 104°F/104 to 3214°F)	1.0°C/0.5°C (1.8°F/0.9°F)
S	Pt/10%Rh-Pt	-50 to 100°C/100 to 1768°C (-58 to 212°F/212 to 3214°F)	1.0°C/0.5°C (1.8°F/0.9°F)
B	30%Rh-Pt/6%Rh-Pt	100 to 640°C/640 to 1820°C (212 to 1184°F/1184 to 3308°F)	1.0°C/0.5°C (1.8°F/0.9°F)
C	5%Re-W/26%Re-W	0 to 2320°C (32 to 4208°F)	0.4°C (0.7°F)
N	Nicrosil-nisil	-250 to -100°C/-100 to 1300°C (-418 to -148°F/-148 to 2372°F)	1.0°C/0.4°C (1.8°F/0.7°F)
L	J DIN	-200 to 900°C (-328 to 1652°F)	0.4°C (0.7°F)
RTD	Pt, 0.00385, 100, 500, 1000	-200 to 900°C (-328 to 1652°F)	0.4°C (0.7°F)
RTD	Pt, 0.00392, 100, 500, 1000	-200 to 850°C (-328 to 1652°F)	0.4°C (0.7°F)

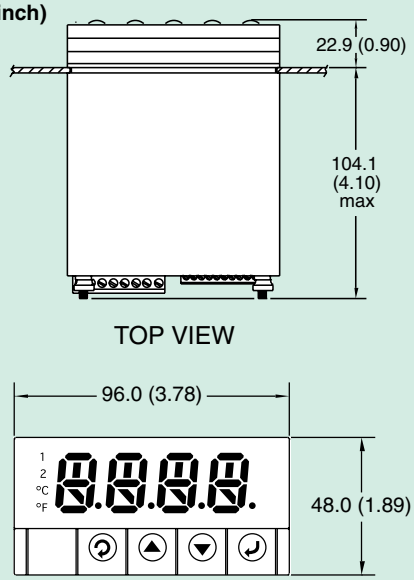
i Series change color

PATENTED

Totally Programmable Color Displays

The OMEGA® i/8, i/16, and i/32 are the first complete series of ⅛, 1/16 and 1/32 DIN process control instruments with totally programmable color displays. The display can be programmed to change color at any setpoint or alarm point.

Dimensions: mm (inch)



Options

Ordering Suffix	Description
-AL	Limit alarm version (simplified menu, alarms only, no PID control)*3*4
-SM	Simplified menu (on/off control or alarms, no PID)*6
Network Options	
-EI	Ethernet with embedded Web server
-C24	Isolated RS232 and RS485/422, 300 to 19.2 Kb*2
-C4EI	Ethernet with embedded Web server + isolated RS485/422 hub for up to 31 devices*1
Power Supply	
-DC	2 to 36 Vac/dc, 24 Vac*2*5
Factory Setup	
-FS	Factory setup and configuration
-FS(RTD-1N)	Factory scaled for MIL-T-7990B nickel RTD input, 0 to 200°C (32 to 392°F)
-FS(RTD-2N)	Factory scaled for MIL-T-7990B nickel RTD input,-40 to 300°C (-40 to 572°F)
Software (Requires Network Option)	
OPC-SERVER LICENSE	OPC server/driver software license

**1 Ethernet options are not availabe for the i8A controller.*
2 **"-DC", "-C24", and **"-C4EI"** not available with excitation.*
3 Analog output is not available with **"-AL" units.*
4 **CNi8A-AL contains 1 alarm and 1 analog retransmission.*
**5 20 to 36 Vdc for CNi8A.*
6 **"-SM" option not avaialbe on CNiS strain models.*

To Order *Visit omega.com/cni8_series for Pricing and Details*

Model No.	Output 1	Output 2
2 Control Outputs		
CNi833	Relay	Relay
CNi844	DC pulse	DC pulse
CNi843	DC pulse	Relay
CNi842	DC pulse	0.5 A SSR
CNi822	0.5 A SSR	0.5 A SSR
CNi823	0.5 A SSR	Relay
CNi824	0.5 A SSR	DC pulse
CNi853	Analog	Relay
CNi854	Analog	DC pulse
CNi852	Analog	0.5 A SSR
2 Control Outputs with Isolated Analog Output		
CNi8A33	Relay	Relay
CNi8A44	DC pulse	DC pulse
CNi8A43	DC pulse	Relay
CNi8A42	DC pulse	0.5 A SSR
CNi8A22	0.5 A SSR	0.5 A SSR
CNi8A23	0.5 A SSR	Relay
CNi8A24	0.5 A SSR	DC pulse
Strain/Process Input with 2 Control Outputs		
CNiS833	Relay	Relay
CNiS834	Relay	DC pulse
CNiS844	DC pulse	DC pulse
CNiS843	DC pulse	Relay
CNiS842	DC pulse	0.5 A SSR
CNiS822	0.5 A SSR	0.5 A SSR
CNiS823	0.5 A SSR	Relay
CNiS824	0.5 A SSR	DC pulse
CNiS853	Analog	Relay
CNiS854	Analog	DC pulse
CNiS852	Analog	0.5 A SSR

Comes complete with operator's manual.

***Ordering Examples: CNi8A22**, ⅛ DIN temperature/process controller with isolated analog output and 2 SSR outputs. **CNiS833**, ⅛ DIN strain/process controller with 2-relay outputs.*

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i Series Common Specifications (All i/8, i/16, i/32 DIN)

Universal Temperature and Process Input (DPi/CNi Models)

Accuracy: ±0.5°C temp; 0.03% rdg
Resolution: 1°/0.1°; 10 µV process
Temperature Stability:
RTD: 0.04°C/°C
TC @ 25°C (77°F): 0.05°C/°C
Cold Junction Compensation
Process: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples/s
Digital Filter: Programmable
Display: 4-digit 9-segment LED 10.2 mm (0.40"); i32, i16, i16D, i8DV 21 mm (0.83"); i8 10.2 mm (0.40") and 21 mm (0.83"); i8DH **RED**, **GREEN,** and **AMBER** programmable colors for process variable, setpoint and temperature units
Input Types: Thermocouple, RTD, analog voltage, analog current
Thermocouple Lead Resistance: 100 Ω max
Thermocouple Types (ITS 90): J, K, T, E, R, S, B, C, N, L (J DIN)
RTD Input (ITS 68): 100/500/1000 Ω Pt sensor, 2-, 3- or 4-wire; 0.00385 or 0.00392 curve
Voltage Input: 0 to 100 mV, 0 to 1V, 0 to 10 Vdc
Input Impedance: 10 MΩ for 100 mV 1 MΩ for 1 or 10 Vdc
Current Input: 0 to 20 mA (5 Ω load)
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection:
Temperature: None, 0.1
Process: None, 0.1, 0.01 or 0.001
Setpoint Adjustment: -1999 to 9999 counts
Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -1999 to 9999
Excitation (Not Included with Communication): 24 Vdc @ 25 mA (not available for low-power option)

Universal Strain and Process Input (DPiS/CNiS Models)

Accuracy: 0.03% reading
Resolution: 10/1µV
Temperature Stability: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples/s
Digital Filter: Programmable
Input Types: Analog voltage and current
Voltage Input: 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc
Input Impedance: 10 MΩ for 100 mV; 1 MΩ for 1V or 10 Vdc
Current Input: 0 to 20 mA (5 Ω load)
Linearization Points: Up to 10
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1, 0.01 or 0.001
Setpoint Adjustment: -1999 to 9999 counts
Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -1999 to 9999
Excitation (Optional In Place Of Communication): 5 Vdc @ 40 mA; 10 Vdc @ 60 mA

Control

Action: Reverse (heat) or direct (cool)
Modes: Time and amplitude proportional control; selectable manual or auto PID, proportional, proportional with integral, proportional with derivative and anti-reset Windup, and on/off
Rate: 0 to 399.9 s
Reset: 0 to 3999 s
Cycle Time: 1 to 199 s; set to 0 for on/off
Gain: 0.5 to 100% of span; setpoints 1 or 2
Damping: 0000 to 0008
Soak: 00.00 to 99.59 (HH:MM), or OFF
Ramp to Setpoint: 00.00 to 99.59 (HH:MM), or OFF
Auto Tune: Operator initiated from front panel

Control Output 1 and 2

Relay: 250 Vac or 30 Vdc @ 3 A (resistive load); configurable for on/off, PID and ramp and soak
Output 1: SPDT, can be configured as alarm 1 output
Output 2: SPDT, can be configured as alarm 2 output
SSR: 20 to 265 Vac @ 0.05 to 0.5 A (resistive load); continuous
DC Pulse: Non-isolated; 10 Vdc @ 20 mA
Analog Output (Output 1 Only): Non-isolated, proportional 0 to 10 Vdc or 0 to 20 mA; 500 Ω max

Network and Communications

Ethernet: Standards compliance IEEE 802.3 10 Base-T
Supported Protocols: TCP/IP, ARP, HTTPGET
RS232/RS422/RS485: Selectable from menu; both ASCII and MODBUS protocol selectable from menu; programmable 300 to 19.2 Kb; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS485: Addressable from 0 to 199
Connection: Screw terminals

Alarm 1 and 2 (Programmable)

Type: Same as output 1 and 2
Operation: High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations
Analog Output (Programmable): Non-isolated, retransmission 0 to 10 Vdc or 0 to 20 mA, 500 Ω max (output 1 only); accuracy is ± 1% of FS when following conditions are satisfied: input is not scaled below 1% of input FS, analog output is not scaled below 3% of output FS

General

Power: 90 to 240 Vac ±10%, 50 to 400 Hz*, 110 to 375 Vdc, equivalent voltage
Low Voltage Power Option: 24 Vac**, 12 to 36 Vdc for i/8, i/16, 1/32; 20 to 36 Vdc for CNi8DH, CNi8DV, CNi16D from qualified safety approved source

Isolation

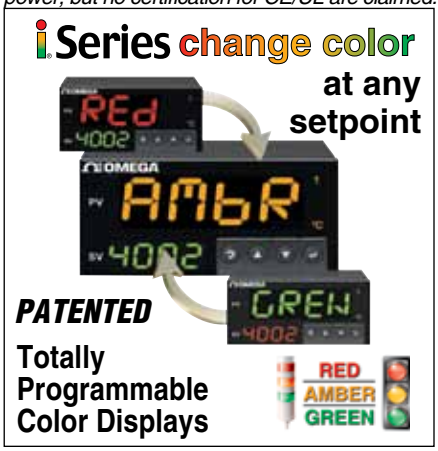
Power to Input/Output: 2300 Vac per 1 minute test
For Low Voltage Power Option: 1500 Vac per 1 minute test
Power to Relay/SSR Output: 2300 Vac per 1 minute test
Relay/SSR to Relay/SSR Output: 2300 Vac per 1 minute test
RS232/485 to Input/Output: 500 Vac per 1 minute test
Environmental Conditions:
All Models: 0 to 55°C (32 to 131°F) 90% RH non-condensing
CNi8DV, CNi8DH, CNi16D: 0 to 50°C (32 to 122°F), 90% RH non-condensing (for UL only)
Protection:
CNi32, CNi16, CNi16D, CNi8C: NEMA 4X/Type 4 (IP65) front bezel
CNi8, CNi8DH, CNi8DV: NEMA 1/Type 1 front bezel
Approvals: UL, C-UL, CE per EN61010- 1:2001

Dimensions
i/8 Series: 48 H x 96 W x 127 mm D (1.89 x 3.78 x 5")
i/16 Series: 48 H x 48 W x 127 mm D (1.89 x 1.89 x 5")
i/32 Series: 25.4 H x 48 W x 127 mm D (1.0 x 1.89 x 5")

Panel Cutout
i/8 Series: 45 H x 92 mm W (1.772 x 3.622"), 1/8 DIN
i/16 Series: 45 mm (1.772") square, 1/16 DIN
i/32 Series: 22.5 H x 45 mm W (0.886 x 1.772"), 1/32 DIN

Weight
i/8 Series: 295 g (0.65 lb)
i/16 Series: 159 g (0.35 lb)
i/32 Series: 127 g (0.28 lb)

** No CE compliance above 60 Hz.*
*** Units can be powered safely with 24 Vac power, but no certification for CE/UL are claimed.*



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