The Total Solution for Your EMC and RF Testing Needs

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2020

rf/microwave instrumentation



AR is a multi-national corporation that's made up of a family of companies, each providing innovative solutions and exceptional support and service. These companies include—

AR RF/Microwave Instrumentation

AR RF/Microwave Instrumentation provides Total RF Test Solutions by offering customers RF test instrumentation, RF test systems, EMC test software, and chambers. In addition to the complete array of product solutions also comes world-class, customer-facing service and applications support.

AR Modular RF

AR modular RF designs and manufactures Rack Mount and Amplifier Systems that cover a wide frequency spectrum and offer diverse ranges of power. Some of the most innovative, dependable, and durable RF Amplifier Modules and broadband solid-state RF amplifier systems in the world, these systems are used for communications and medical, scientific, and industrial applications.

SunAR RF Motion

SunAR RF Motion, a division of AR, manufactures turntables, motorized and manual antenna positioning towers, a system controller, distributed antenna systems (DAS), emission antennas, and reverberation chamber tuners for EMC and wireless testing.

AR Europe

AR Europe represents AR's deep commitment to the European marketplace. Through a network of partners strategically located throughout Europe, the company supplies systems, antennas, chambers, modules, and power amplifiers for EMC testing and wireless, medical, and industrial applications.

With the combined resources of the AR companies, we're able to offer our customers more options, more solutions, and more innovations. In the world of EMC, wireless, and beyond, AR is the one company with infinite solutions.



Find It Fast
RF Solid State Amplifiers
Microwave Amplifiers—"S" Series
Microwave Amplifiers—"T" Series
Antennas
RF Solid State Amplifiers
"U" Series—Solid State. Single 1, 2.5, 5, 10, 25, or 50 watt, 10 kHz-1,000 MHz and 100, 250, or
500 watt amplifiers, 100 kHz-1,000 MHz
"A" Series—Solid State DC to 400 MHz, 25 to 50,000 watts
"W" Series—Solid State DC to 1,000 MHz, 50 to 10,000 watts
Microwave Amplifiers
"S" Series—Solid State. 0.7 to 18 GHz, 15 to 3,000 watts
"S" Series—Solid State Dual Band Amplifiers 0.7 to 18 GHz, 15 to 60 watts; 10 kHz to 1,000 MHz, 60 watts38
Class AB Amplifiers—1 to 6 GHz, 30 to 100 watts
Solid State Pulsed Amplifiers
Octave Frequencies: .8 to 2.5 GHz, 1 to 2 GHz and 2 to 4 GHz
Narrowband Frequencies: 1.2 to 1.4 GHz and 2.7 to 3.1 GHz. Power Levels: 1 kW to 150 kW
"T" Series—TWTAs: 2.5 to 50 GHz, 40 to 1,500 watts
"TP" Series—Pulsed TWTAs: 1 to 18 GHz, 1,000 to 20,000 watts
Systems
Chambers
Antennas
Log periodic, high-gain RF horns, microwave horns, E-field generators, tripods, and stands
Accessories for RF Testing
Field monitors, field probes, field analyzers, EMC test software, system controllers, couplers,
power-measuring equipment, leak detectors and RF conducted probes and clamps
All matched to our amplifiers
Service and Support
SunAR RF Motion
AR Modular RF
AR Europe
Find Your Local AR Sales Associates

Individual specification sheets for all models are available for download from our website: www.arworld.us

rf/microwave instrumentation • modular rf • sunar rf motion • ar europe

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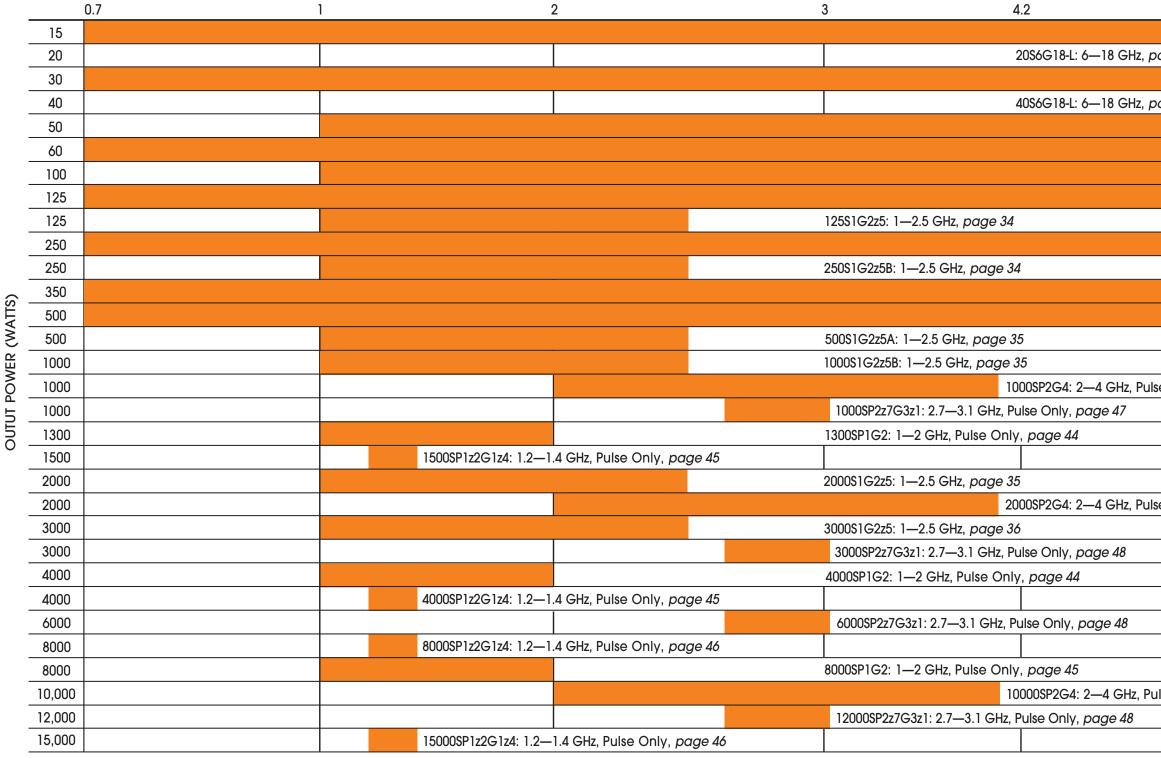


Find It Fast. RF Solid State Amplifiers

		FREQUENCY								FREQUENCY		
I		kHz		1 1						MHz		
DC	10	100	500	1	5	80	100	200	300	400	500	
									1U1000: 10 kH	lz—1000 MHz, po	age 11	
.5										Hz—1000 MHz, p		
										Iz—1000 MHz, po		
0									10U1000: 10 kH	lz—1000 MHz, p	age 12	
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00									10011000, 1001		000D: 50 MHz-	- I GHZ
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50						7				150W/1000B	80 MHz—1 G	Hz pa
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		<u> </u>			350A400: 10 kHz-	–400 MHz, pa	ge 24					
)				500A250D:	10 kHz—250 MHz, <i>p</i>	bage 22	-					
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(1000A400: 10 kHz	2—400 MHz, p	age 24					
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5k											: 80 MHz—1 G	
<										2000W1000D	: 80 MHz—1 G	SHz, pa
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k											: 80 MHz—1 G	
k										4000W1000B	: 80 MHz—1 G	Hz, pa
k				5000A225A: 10	0 kHz—225 MHz, p	age 20						
k										6000W1000	: 80 MHz—1 G	Hz, pa
0k			1	0000A225A-A: 1	0 kHz—225 MHz, p	age 20						011
)k										10000W1000	A: 80 MHz—1	GHz, p
2.5k					0 kHz—225 MHz, po							
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)k			2	0000A225A-L: 10	0 kHz—225 MHz, po	age 21						



Find It Fast. Microwave Solid State Amplifiers—"S" Series



"S" Series Dual Band Amplifiers On Page 38 (10 kHz-18 GHz)

Frequency (GHz)

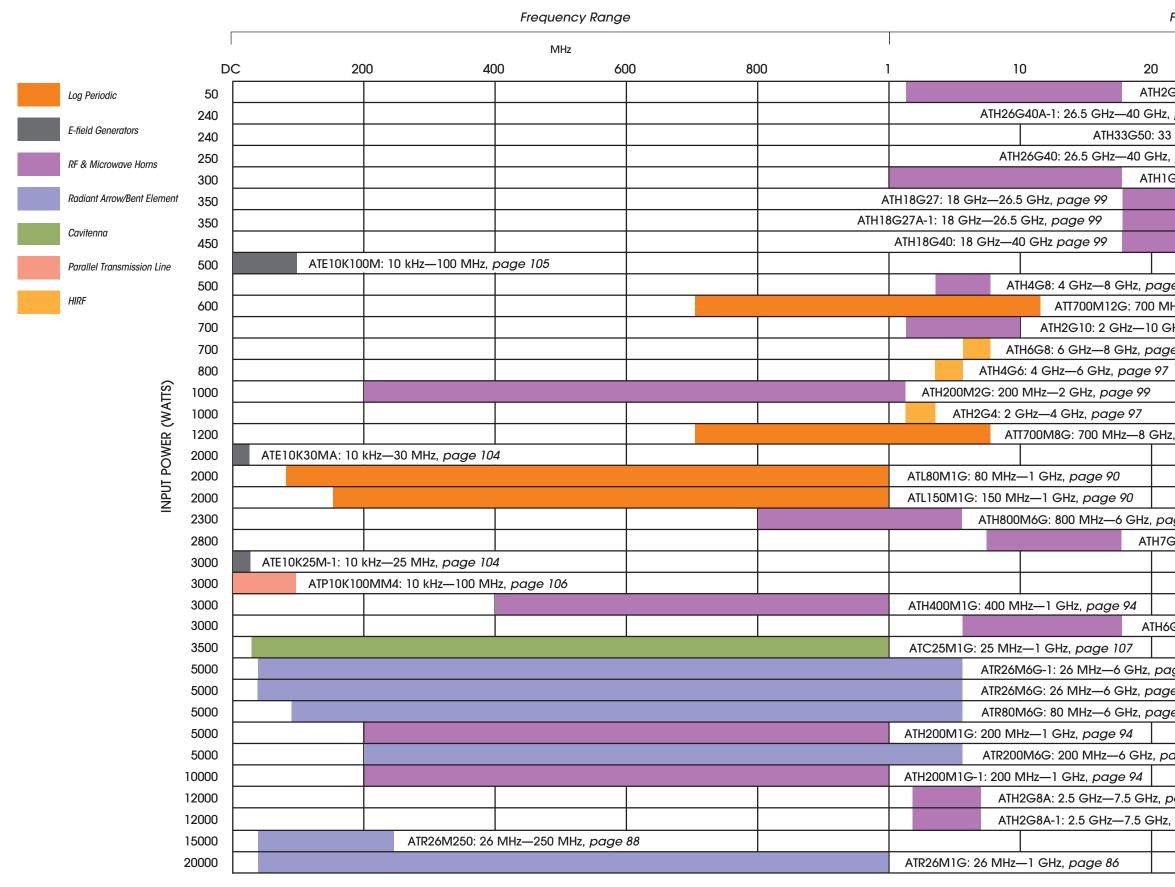
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Find It Fast. Microwave Traveling Wave Tube Amplifiers—"T" Series

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740	I			7400TP4G8: 4—8	3 GHz, Pulse Only, page 59		
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Frequency (GHz)

Find It Fast. Antennas



Frequency Range

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101000

Single-Band Amplifier Covers 10 kHz-1,000 MHz Frequency Band



AR "U" (Universal) Series Amplifiers 10 kHz-1,000 MHz

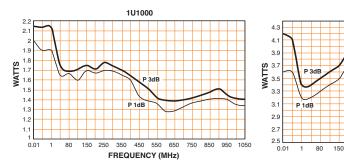
AR has done it. We figured out a way to take a single amplifier and enable it to span the entire frequency range of 10 kHz-1,000 MHz. We did it with our 1, 2.5, 5, 10, 25, and 50 RF amplifiers and our 100, 250, and 500 watts have a frequency range of 100 kHz-1,000 MHz.

They're compact, affordable, high performance, and very reliable. These "U" Series amplifiers can serve unlimited applications across multiple industries. Just imagine the possibilities.





1 watt CW, 10 kHz-1,000 MHz Rated Output Power 1 watt min. Rated Output Power Input for Rated Output 1.0 milliwatt max. Input for Rated Output Power Output @ 3 dB compression Power Output @ 3 dB compression Typ. 1.5 watts / min. 1 watt Typ. 3.0 watts / min. 2.5 watts Power Output @ 1 dB compression Typ. 1.5 watts / min. 1 watt Power Output @ 1 dB compression Tvp. 2.5 watts / min. 2 watts ±0.8 dB typ., ±1.0 dB max. Flatness Flatness Frequency Response 10 kHz-1,000 MHz instantaneously Frequency Response Gain (at max. setting) 30 dB min Gain (at max. setting) Gain Adjustment (continuous range) 20 dB min. Gain Adjustment (continuous range) Input Impedance 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal Output Impedance Mismatch Tolerance Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Modulation Capability Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. appearing on the input signal. Third Order Intercept Point 42 dBm typ. Third Order Intercept Point Noise Figure 8 dB max., 6 dB typ. Noise Figure Harmonic Distortion Harmonic Distortion Minus 20 dBc max. at 1 watt, minus 30 dBc typ. Spurious Minus 73 dBc typ. Spurious Primary Power (selected automatically) Primary Power (selected automatically) 90-264 VAC 50/60 Hz, 50 watts 90-264 VAC 50/60 Hz, 50 watts Connectors Connectors RF Input Type N female on front panel RF Input RF Output RF Output Type N female on front panel Cooling Cooling Forced air (self-contained fans) Weight Weight 4.5 kg (11 lb.) Size (WxHxD) 26.0 x 11.4 x 28.2 cm / 10.25 x 4.5 x 11.1 in. Size (WxHxD) 26.0 x 11.4 x 28.2 cm / 10.25 x 4.5 x 11.1 in. Export classification EAR99 Export classification



2.501000

501000



2.5 watts CW, 10 kHz-1,000 MHz

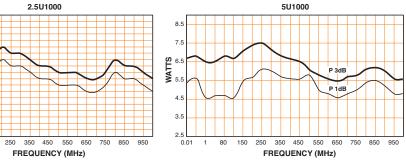
1.0 milliwatt max. ±0.8 dB typ., ±1.0 dB max. 10 kHz-1,000 MHz instantaneously 33 dB min. 20 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Will faithfully repróduce AM, FM, or pulse modulation 45 dBm typ. 8 dB max., 6 dB typ. Minus 20 dBc max. at 2 watts Minus 73 dBc typ. Type N female on front panel Type N female on front panel Forced air (self-contained fans) 4.5 kg (11 lb.)

FAR99



5 watts CW, 10 kHz-1,000 MHz

2.5 watts min. Rated Output Power 5 watts min Input for Rated Output 1.0 milliwatt max Power Output @ 3 dB compression Typ. 5.0 watts / min. 4.5 watts Power Output @ 1 dB compression Tvp. 4 watts / min. 3.5 watts Flatness ±1.3 dB typ., ±1.5 dB max Frequency Response 10 kHz-1,000 MHz instantaneously 37 dB min. Gain (at max. setting) Gain Adjustment (continuous range) 20 dB min. Input Impedance 50 ohms, VSWR 2.0:1 max. Output Impedance 50 ohms, nominal Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Modulation Capability Will faithfully repróduce AM, FM, or pulse modulation appearing on the input signal. 46 dBm typ Third Order Intercept Point 8 dB max., 6 dB typ. Noise Figure Harmonic Distortion Minus 20 dBc max. at 3.5 watts Spurious Minus 73 dBc typ. Primary Power (selected automatically 90-264 VAC 50/60 Hz, 70 watts Connectors Type N female on front panel RF Input RF Output Type N female on front panel Forced air (self-contained fans) Cooling Weight 4.5 kg (11 lb.) Size (WxHxD) 26.0 x 11.4 x 28.2 cm / 10.25 x 4.5 x 11.1 in. EAR99 Export classification



RF Solid State Amplifiers 10 kHz-1,000 MHz

1001000

TELLET LANS

10 watts CW, 10 kHz-1,000 MHz

Will operate without damage or oscillation when connected to

any load impedance without the aid of foldback circuitry.

Will faithfully reproduce AM, FM, or pulse modulation

. . (A

15 watts typ., 10 watts min.

±1.0 dB typ., ±1.5 dB max.

50 ohms, VSWR 2.0:1 max.

Minus 20 dBc max. at 10 watts

9-pin subminiature D (female)

Forced air (self-contained fans)

50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in.

48.3 x 13.2 x 55.1 cm / 19 x 5.2 x 21.7 in.

ST Conn Tx and Rx RS-232

15-pin subminiature D

17.7 kg (41 lk

9.5 kg (23 lb.)

10 kHz-1,000 MHz instantaneously

1.0 milliwatt max.

40 dB min.

20 dB min.

50 dBm typ.

Minus 73 dBc typ.

Type N female

Type N female

24-pin female

Type E

ŔJ-45

FAR99

8 dB typ.

50 ohms, nominal

0

Rated Output Power

Flatness

Input for Rated Output

Frequency Response

Gain (at max. setting)

Input Impedance

Output Impedance

Mismatch Tolerance

Modulation Capability

Noise Figure

Spurious

Connectors

RF Input

RF Output

Remotes Package

Fiber optic

Safety Interlock

With Cabinet

With Cabinet

Export classification

Without Cabinet

Without Cabinet

USB 2.0

Ethernet

Size (WxHxD)

Cooling

Weight

IFFF-488

RS-232

Harmonic Distortion

Third Order Intercept Point

50/60 Hz, 150 watts

Power Output @ 3 dB compression

Typ. 15 watts / min. 10 watts

Power Output @ 1 dB compression

Tvp. 12 watts / min. 10 watts

Gain Adjustment (continuous range)

appearing on the input signal.

Primary Power (selected automatically) 100–240 VAC



..... 64

0

Rated Output Power

Flatness

Input for Rated Output

Frequency Response

Gain (at max. setting)

Input Impedance

Output Impedance

Mismatch Tolerance

Modulation Capability

Harmonic Distortion

100-240 VAC

50/60 Hz, 200 watts

Noise Figure

Spurious

Connectors

RF Input

RF Output

IFFF-488

RS-232

USB 2.0

Ethernet

Size (WxHxD)

Cooling

Weight

Remotes Package

Fiber optic

Safety Interlock

With Cabinet

With Cabinet

Export classification

Without Cabinet

Without Cabinet

Third Order Intercept Point

Power Output @ 3 dB compression

Typ. 30 watts / min. 25 watts

Power Output @ 1 dB compression

Tvp. 25 watts / min. 20 watts

Gain Adjustment (continuous range)

appearing on the input signal.

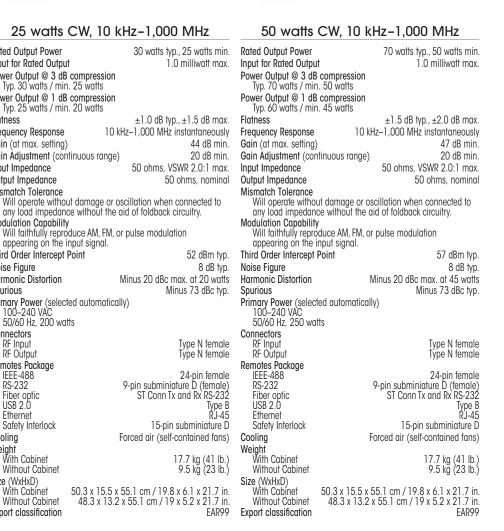
Primary Power (selected automatically)



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50U1000

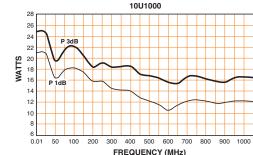


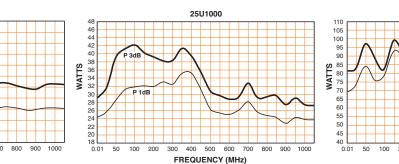


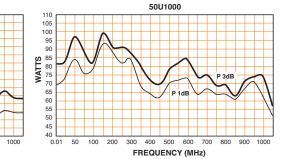
100 watts CW, 100 kHz to 1,000 MHz

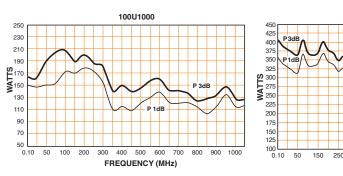
10001000

Rated Output Power	120 watts typ., 100 watts min.	Rated Output Power 0.1–650 MHz:
Input for Rated Outpu		650–1,000 MHz:
Power Output @ 3 dE		Input for Rated Output
Typ. 120 watts / m		Power Output @ 3 dB comp
Power Output @ 1 dE Typ. 100 watts / m		0.1–650 MHz:
Flatness		650-1,000 MHz:
	±1.5 dB typ., ±2.0 dB max.	Power Output @ 1 dB comp
Frequency Response		0.1-650 MHz:
Gain (at max. setting)		650–1,000 MHz:
Gain Adjustment (cor		Flatness Fraguency Decrease
Input Impedance	50 ohms, VSWR 2.0:1 max.	Frequency Response
Output Impedance	50 ohms, nominal	Gain (at max. setting) Gain Adjustment (continuou
Mismatch Tolerance	ut demons or costllation when connected to	Input Impedance
	ut damage or oscillation when connected to ce without the aid of foldback circuitry.	Output Impedance
Modulation Capabilit		Mismatch Tolerance
	y oduce AM, FM, or pulse modulation	Will operate without dam
appearing on the		any load impedance with
Third Order Intercept		Modulation Capability
Noise Figure	8.5 dB typ.	Will faithfully reproduce A
Harmonic Distortion	Minus 20 dBc max. at 100 watts	appearing on the input si
	Minus 30 dBc typical at 100 watts	Third Order Intercept Point Noise Figure
Spurious	Minus 73 dBc typ.	Harmonic Distortion
Primary Power (selec		Harmonic Distornon
100–240 VAC		Spurious
50/60 Hz, 700 wa	tts	Primary Power (selected aut
Connectors	T N/()	100–240 VAC
RF Input	Type N female	50/60 Hz, 1,100 watts
RF Output Remotes Package	Type N female	Connectors
IEEE-488	24-pin female	RF Input RF Output
RS-232	9-pin subminiature D (female)	Remotes Package
Fiber optic	ST Conn Tx and Rx RS-232	IEEE-488
USB 2.0	Туре В	RS-232
Ethernet	ŔJ-45	Fiber optic
Safety Interlock	15-pin subminiature D	USB 2.0
Cooling	Forced air (self-contained fans)	Ethernet
Weight With Cabinet	25 kg (77 lb)	Safety Interlock Cooling
Without Cabinet	35 kg (77 lb.) 24 kg (52 lb.)	Weight
Size (WxHxD)	24 Kg (02 10.)	With Cabinet
With Cabinet	50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in.	Without Cabinet
Without Cabinet	48.3 x 17.7 x 74.9 cm / 19 x 7.0 x 29.5 in.	Size (WxHxD)
Export classification	EAR99	With Cabinet 50.3
•		Without Cabinet 48.











12

25001000

250 watts CW, 100 kHz to 1,000 MHz

275 watts typ., 250 watts min. 225 watts typ., 200 watts min. 1.0 milliwatt max. tput @ 3 dB compressior 265 watts typ., 240 watts min. 215 watts typ., 190 watts min. utput @ 1 dB compressior 50 MHz: 250 watts typ., 210 watts min. 200 watts typ., 175 watts min. ±1.5 dB typ., ±2.0 dB max. 100 kHz-1,000 MHz instantaneously 54 dB min. ustment (continuous range) 20 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal perate without damage or oscillation when connected to ad impedance without the aid of foldback circuitry ithfully reproduce AM, FM, or pulse modulation ring on the input signal. 62 dBm typ. 8.5 dB typ. Minus 20 dBc max. at 200 watts Minus 30 dBc typical at 200 watts Minus 73 dBc typ. ower (selected automatically) Type N female Type N female

24-pin female 9-pin subminiature D (female) ST Conn Tx and Rx RS-232 lvpe RJ-45 15-pin subminiature D Forced air (self-contained fans)

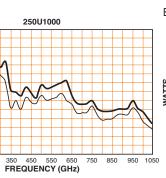
> 45 kg (99 lb. 34 kg (74 lb.)

> > 0.10

50 150 250

50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. 48.3 x 17.7 x 74.9 cm / 19 x 7.0 x 29.5 in. EAR99

Export classification



50001000



500 watts CW, 100 kHz to 1,000 MHz

Rated Output Power 650 watts typ., 500 watts min. 525 watts typ., 400 watts min. 0.1-350 MHz: 350-650 MHz: 400 watts typ., 325 watts min. 1.0 milliwatt max. 650-1,000 MHz: Input for Rated Output Power Output @ 3 dB compression 0.1-350 MHz: 650 watts typ., 500 watts min 350-650 MHz 500 watts typ., 375 watts min. 650-1 000 MHz 375 watts typ., 300 watts min. Power Output @ 1 dB compression 0.1-350 MHz: 550 watts typ., 400 watts min. 350-650 MHz 450 watts typ., 325 watts min. 650-1,000 MHz: 350 watts typ., 275 watts min. Flatness ±2.0 dB typ., ±2.5 dB max 100 kHz-1,000 MHz instantaneously Frequency Response 57 dB min. 20 dB min. Gain (at max, setting) Gain Adjustment (continuous range) 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal **Mismatch Tolerance** 100% of rated power without foldback up to 6.0:1 mismatch above which may limit to 250 watts reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. See Application Note-Importance of Mismatch Tolerance for Amplifiers Used in Susceptibility Testing. Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. Third Order Intercept Point 65 dBm tvp. Noise Figure 8 dB typ. Harmonic Distortion <-20 dBc for the output power at 1 dB compression min. limit <-17 dBc for the output power at 3 dB compression min. limit Minus 73 dBc typ Spurious Primary Power (selected automatically) 200-240 VAC 50/60 Hz, 2,100 watts max Connectors RF Input Type N female Type N female RF Output Remotes Package IEEE-488 24-pin female 9-pin subminiature D (female) Type ST Type B RJ-45 RS-232 Fiber optic USB 2.0 Ethernet 15-pin subminiature D Safety Interlock Cooling Forced air (self-contained fans) Weight With Cabinet 79.4 kg (175 lb Without Cabinet 60.8 kg (134 lb.) Size (WxHxD) With Cabinet 50.3 x 38.1 x 74.9 cm / 19.8 x 15.0 x 29.5 in. Without Cabinet 48.3 x 35.6 x 74.9 cm / 19 x 14.0 x 29.5 in Export classification FAR99 500U1000

750 850 950

FREQUENCY (GHz)

Always Building the Reliable, High Power and Frequency Range Amplifiers You Need

www.arworld.us



AR's history of providing broadband, high power amplifiers has remained constant through the years. Applying the latest technology has enabled us to break new ground in very high power, solid state amplifier design.

Facility

We made an investment in 2016 to create a large amplifier integration and test area. Not only did this open up floor space to support the building of multiple systems, but it also brought added HVAC capabilities for the amplifiers and primary AC power to properly conduct factory testing. Engineers now have the freedom to create designs to accommodate multiple configurations and optimize performance. The area also supports customer factory acceptance testing as required.

Air vs. Liquid Cooling

Liquid cooling of the amplifier's solid-state transistors has a number of advantages. First, it allows for precise temperature control of the devices. The number-one factor determining the reliability of solid state devices is temperature. By carefully controlling the temperature, engineers can optimize the performance of the amplifier without sacrificing reliability.

Second, it reduces the size of the amplifier. Air-cooled amplifiers use large metal heat sinks over which air is forced to carry away heat. In a liquid-cooled amplifier, the transistors are mounted on cooling plates through which water flows. The plates are much smaller than heat sinks, and because you don't have to accommodate air flow, they can be built closer together.

Third, it reduces the heat load on the amplifier room and its resulting HVAC requirements. Since most of the heat generated is carried away by the cooling liquid, room HVAC requirements are reduced.

Fourth, it allows for fewer fans. This makes the amplifier audibly quieter. By reducing the noise, operators can work in a safer, more pleasant environment without fatigue. Fifth, it gives customers the option of using existing cooling infrastructure to save costs. Liquid cooling options include an external chiller or the use of chilled water supplied by the customer's facility. By utilizing existing infrastructure, operating costs can be reduced Visit http://bit.ly/CoolAR for more information on AR's Liquid Cooling capabilities.



AR Ultra High Power Amplifier Capabilities

"A" and "W" Series Amplifiers Provide a Wide Range of Features and Benefits

AR's complete in-house approach allows for a holistic view of amplifier design and production. This approach with the "A" and "W" series allows AR to focus improvements on the most critical features, and in turn, offers customers what is most important to them. As a result, "A" and "W" series amplifiers offer customers the advantages shown below:

- Highest output power in the class of broadband amplifiers
- Global service, support, and warranty
- Rugged
- Highly efficient
- Mismatch capability—will operate into any load
- Lower acoustical noise
- Smaller footprint than competition's
- Modular designs to reduce cost

10000W1000A 10,000 watts CW, 80 MHz-1,000 MHz



Liquid Cooling for Large High-Power RF Amplifiers

Temperature is a major factor in determining the reliability of solid state devices used in highpower RF amplifiers. Reducing the temperature that the semiconductor devices see greatly improves reliability, longevity, and performance.

Liquid cooling not only allows for lower overall temperatures resulting in the benefits, but also offers a number of other important advantages:

- Liquid-cooled amplifiers are smaller than air-cooled amplifiers. Air-cooled amplifiers use large metal heat sinks over which air is forced to carry away heat. In a liquid-cooled amplifier, the closer together.
- bills and more comfortable surroundings.
- Quieter amplifiers. Fans are the noisiest component of an amplifier. Liquid cooling an amplifier reduces the need for fans, and as a result, noise is decreased. By reducing the noise, operators can work in a safer, more pleasant environment without fatigue.
- Using existing cooling infrastructure. Often, labs with larger amplifiers have existing liquid cooling available to them. The cooling options include an external chiller or the use of chilled water supplied by the customer's facility. By utilizing one's existing infrastructure, operating costs are greatly reduced.

CoolAR Chillers

Another great addition to AR's product offerings, CoolAR chillers can accompany any liquid-cooled amplifier AR offers. AR also offers custom solutions to meet customers' requirements.

In addition, AR chillers are provisioned to handle the unique requirements of test amplifiers and to interface with the amplifier controller for fault monitoring. Support and service are provided through a well-established, worldwide network of distributors.

transistors are mounted on cooling plates through which liquid coolant flows. The plates are much smaller than heat sinks, and because you don't have to accommodate airflow, they can be built

• HVAC requirements are reduced. Liquid cooling reduces the heat load on the Amplifier Room. Most of the heat generated is carried away by the liquid coolant, which results in reduced utility

00

coolor

T. 3

10 Hz to 1 MHz

10 kHz to 3 MHz 4 kHz to 400 MHz

10 kHz to 100 MHz 10 kHz to 225 MHz

350AH1A

350 watts CW, 10 Hz-1 MHz

Will faithfully reproduce AM, FM, or pulse modulation

Operation

Flatness

Input Signal

Gain (Power)

Input Impedance

Primary Power

RF Input

RF Output

Remote Control

IEEE-488

RS-232 USB

Ethernet

Safety Interlock

Weight With cabinet

Size (WxHxD)

Without cabinet

With cabinet

Export classification

Without cabinet

Cooling

Connectors

Output Impedance

Mismatch Tolerance

Modulation Capability

appearing on the input signal

CW. min

Power Output (1.79 Ohm load)

Voltage Output, min.

Current Output, min.

Power Gain Control Ranae

Frequency Response



100 watts CW, 4 kHz-400 MHz

61

Class AB Linear Rated Output Power Into 500:

350 watts, 10 Hz–300 kHz

25 Vrms, 10 Hz-300 kHz

14 Arms, 10 Hz-300 kHz

±1.0 dB, 10 Hz-300 kHz

±4.0 dB, 300 kHz-1 MHz

0–2 Vrms

48 dB min.

 $<1\Omega$ typ.

600 ohms typ.

90-260 VAC

24-pin female

Type B female

25 kg (55 lb.) 18.2 kg (40 lb.)

R.I-45

EAR99

350-55 watts, 300 kHz-1 MHz

25-10 Vrms, 300 kHz-1 MHz

14-5.5 Arms, 300 kHz-1 MHz

10 Hz–1 MHz instantaneously

47 dB min., 10 Hz-300 kHz

39 dB min., 300 kHz-1 MHz

100% of rated power without fail

Type BNC female on front panel

9-pin subminiature D female

Forced air (self-contained fans)

50.3 x 19.9 x 37.6 cm / 19.8 x 7.85 x 14.8 in.

48.3 x 17.8 x 37.6 cm / 19.0 x 7 x 14.8 in.

15-pin subminiature D

5-way binding posts on front panel

47-63 Hz, single phase, 1,200 watts max.

.

WAA



800 watts CW. 10 kHz-3 MHz

6 0-

Rated Output Power

800 watts

150A100D

150 watts CW, 10 kHz-100 MHz

100% of rated power without foldback. Will operate without

damage or oscillation with any magnitude and phase of source

6

Power Output @ 3 dB compression

Power Output @ 1 dB compression

Gain Adjustment (continuous range)

Minus 20 dBc max. at 100 watts

Minus 30 dBc typ. at 70 watts

Typical: 165 watts / min. 140 watts

Typical: 135 watts / min. 110 watts

Rated Output Power

Frequency Response

Gain (at max. setting)

Input Impedance

Output Impedance

Noise Figure

Spurious

Primary Power

50/60 Hz

500 watts

Connectors

RF Input

RF Output

IEEE-488

Fiber optic

Safety Interlock

With cabinet

With cabinet

Size (WxHxD)

225

200

17

100

75

50

S

Without cabinet

Without cabinet

Export classification

USB 2.0

Ethernet

Cooling

Weight

RS-232

Remote Interfaces

100-240 VAC

Mismatch Tolerance*

Harmonic Distortion

and load impedance.

Third Order Intercept Point

Flatness

Input for Rated Output

. . .

NA A

1.0 milliwatt max.

51.8 dB min.

50 ohms nominal.

20 dB min.

9 dB tvp.

55 dBm tvp.

Type N female

Type N female

24-pin female

Type B RJ-45

FAR99

9-pin subminiature D (female)

Forced air (self-contained fans)

50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in.

48.3 x 13.2 x 55.1 cm / 19.0 x 5.2 x 21.7 in

ST Conn Tx and Rx RS-232

15-pin subminiature D

18.5 kg (41 lb.)

10.4 kg (23 lb.)

Minus 73 dBc typ.

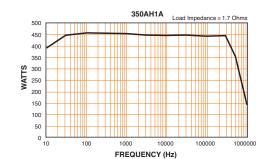
 ± 1.0 dB tvp., ± 1.5 dB max.

50 ohms, VSWR 2.0:1 max.

10 kHz-100 MHz instantaneously

1,200 watts CW, 10 kHz-225 MHz

180 watts typ., 150 watts min. Rated Output Power Input for Rated Output Power Output @ 3 dB compression Power Output @ 1 dB compression Flatness Frequency Response Gain (at max. setting) Gain Adjustment (continuous range) Input Impedance Output Impedance Mismatch Tolerance above which may limit to 600W reflected power. Harmonic Distortion Third Order Intercept Point Primary Power 200-240 VAC single-phase 50/60 Hz 4.6 ks Connectors RF Input RF Output: Remote Contro **IEEE-488** RS-232 Fiber optic USB 2.0 Ethernet Safety Interlock Cooling liquid cooling) Weight Size (WxHxD) 56.1 x 115.0 x 88.9 cm / 22.1 x 45.25 x 35 in. Export classification





FREQUENCY (MHz

175 225 275 325 375

Rated Output Power I		Rated Output Power	800 ωαπς
4 kHz-100 kHz: 10 v	vatts min. rising to 100 watts min. at 100 kHz	Input for Rated Output	1.0 milliwatt max.
	125 watts, typ.; 100 watts min.	Power Output @ 3 dB compression	
Input for Rated Outpu		Nominal 800 watts	Min. 800 watts, 10 kHz–2 MHz
	Compression Into 50Ω :		Min. 700 watts, 2–3 MHz
	watts min. rising to 100 watts min. at 100 kHz	Power Output @ 1 dB compression	atta
	125 watts typ.; 100 watts min.	Nominal 500 watts / min. 400 w	
	Compression Into 50Ω :	Flatness	± 1.0 dB max.
	watts min. rising to 75 watts at 100 kHz	Frequency Response	10 kHz–3 MHz instantaneously
	85 watts typ.; 75 watts min. ±1.0 dB typ. / ±1.5 dB max, 100 kHz–400 MHz	Gain (at max. setting)	60 dB min.
Frequency Response	4 kHz-400 MHz instantaneously	Gain Adjustment (continuous range	
Gain (at max. setting)		Input Impedance	50 ohms, nominal
50 dB min., 100 kH	, z–400 MHz; <50 dB below 100 kHz	Output Impedance (switch select; m	
Gain Adjustment (cor		12.5, 25, 50, 100, 150, 200, 40	ju onms nominai
Input Impedance	50 ohms, VSWR 2.0:1 max.	(10 kHz–3 MHz) on front panel Mismatch Tolerance*	
Output Impedance	50 ohms, nominal	Will operate without damage or	oscillation with any magnitude
Mismatch Tolerance*		and phase of source and load in	
	er without foldback. Will operate without	without foldback up to 6.0:1 mis	
and load impedanc	on with any magnitude and phase of source	to 400 watts reflected power.	
Harmonic Distortion	σ.	Harmonic Distortion	
Minus 20 dBc max.	at 75 watts.	Minus 20 dBc max. at 400 watts	power output
	al at 50 watts (.01–400 MHz)	Connectors	
Spurious	Minus 73 dBc typ.	RF Input RF Output	Type N female on front panel Type N female on front panel
Third Order Intercept		Remote Control	Type in territole off from purier
Noise Figure	8 dB typ.		to remote control and power
Primary Power 100–240 VAC, 50 /	60 Hz 500 watto	an external impedance transi	
Connectors	00 HZ, 500 WUIIS	RF Power Display	
RF Input	Type N female	0-1,000 watts full scale. Direction	
RF Output	Type N female	separate display of forward and	
Remote Interfaces	,,	Cooling	Forced air (self-contained fans)
IEEE-488	24-pin female	Primary Power	
RS-232	9-pin Subminiature D female	190–240 VAC 50–60 Hz, 2,500 watts max.	
Fiber optic USB 2.0	ST Conn Tx and Rx RS-232 Type B		
Ethernet	RJ-45	Weight (max.) With cabinet	36.4 kg (80 lb.)
Safety Interlock	15-pin Subminiature D	Without cabinet	29.4 kg (65 lb.)
Cooling	Forced air (self-contained fans)	Size (WxHxD)	_/// (g (00 i.s.))
Weight		With cabinet 50.3 x 34 x	55.1 cm / 19.8 x 13.4 x 21.7 in.
With cabinet	18.5 kg (41 lb.)	Without cabinet 48.3 x 30.5	x 54.4 cm / 19.0 x 12 x 21.4 in.
Without cabinet	10.4 kg (23 lb.)	For external impedance transformer	options, see specification sheet
Size (WxHxD) With cabinet	50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in.	for IT2000 Series impedance transfo	
Without cabinet	48.3 x 13.2 x 55.1 cm / 19.0 x 5.2 x 21.7 in.	Export classification	EAR99
Export classification	40.0 x 10.2 x 00.1 0m/ 17.0 x 0.2 x 21.7 m. EAR99		

800A3B

FREQUENCY (MHz)

					150A	100	D						_	
														1900
														1700
	\sim		_	_	Р	@0dl	3m in	put		_				1500
			\sim		-	P3dE			\sim					SLL 1300
	<u> </u>	-				P1dB					-	-		≱ 1100
														900
														700
														500
0 90	.5	5 1		5 3 FRE(5 5 NCY			58	85 9	95	105		.0



* See Application Note—Importance of Mismatch Tolerance for Amplifiers Used in Susceptibility Testina

0.004 0.006 0.008 0.0

18

Typ.: 1,300 watts, min. 1,200 watts, .01–100 MHz Typ.: 1,200 watts, min. 1,100 watts, 100–225 MHz 1.0 milliwatt max. Typ.: 1,300 watts, min. 1,200 watts, .01–100 MHz Typ.: 1,200 watts, min. 1,100 watts, 100–225 MHz Typ.: 1,250 watts, min. 1,100 watts, .01–100 MHz Typ.: 1,050 watts, min. 800 watts, 100–225 MHz ±2.0 dB typ., ±2.5 dB max. 10 kHz-225 MHz instantaneously 61.8 dB min. 20 dB 50 ohms, VSWR 1.5:1 max. 50 ohms nominal 100% of rated power without foldback up to 6.0:1 mismatch,

Minus 30 dBc typical, minus 20 dBc maximum at 750 watts 78 dBm typ.

N female 7/16 DIN female 24-pin female 9-pin subminiature D (female ST Conn Tx and Rx RS-232 Ŕ.1-45 15-pin subminiature D

Forced air (self-contained fans with internal self-contained

139 kg (305 lb.)

EAR99

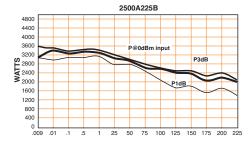
1200A225 P@0dBm inpu PIdB 009 .01 .1 .5 1 25 50 75 100 125 150 175 200 225 250 FREQUENCY (MHz)

2500A225B



2,500 watts CW, 10 kHz-225 MHz Rated Output Power Typ.: 2,800 watts, min. 2,500 watts, .01–100 MHz Typ.: 2,300 watts, min. 2,000 watts, 100–225 MHz Input for Rated Output 1.0 milliwatt max Power Output @ 3 dB compression Typ.: 2,800 watts, min. 2,500 watts, .01-100 MHz Typ.: 2,300 watts, min. 2,000 watts, 100–200 MHz Typ.: 2,000 watts, min. 1,800 watts, 200–225 MHz Power Output @ 1 dB compression Typ.: 2,400 watts, min. 2,000 watts, .01–100 MHz Typ.: 1,900 watts, min. 1,500 watts, 100-200 MHz Typ.: 1,500 watts, min. 1,300 watts, 200–225 MHz Flatness ±2.0 dB typ., ±2.5 dB max Frequency Response 10 kHz-225 MHz instantaneously Gain (at max. setting) 64 dB min Gain Adjustment (continuous range) 20 dE 50 ohms, VSWR 1.5:1 max. Input Impedance 50 ohms nominal Output Impedance Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Mismatch Canability Will faithfully reproduce AM, FM, or pulse modulation appearing on input signal. Harmonic Distortion Minus 30 dBc typical, minus 20 dBc maximum at 1,750 watts Third Order Intercept Point 74 dBm typ. Minus 70 dBc typ. Spurious Primary Power (user must specify 200-240 VAC or 380-415 VAC 3-phase 50/60 Hz 8.5 kWatts Connectors N female RF Input: **RF** Output 7/16 DIN female Sample Ports N female Remote Package 24-pin female IEEE-488 RS-232 9-pin subminiature D (female Fiber optic ST Conn Tx and Rx RS-232 Type B RJ-45 USB 2.0 Ethernet Safety Interlock 15-pin subminiature D Cooling Forced air (self-contained fans with internal self-contained liquid cooling) Weiaht 159 kg (350 lb.) Size (WxHxD) 56.1 x 132.1 x 82.4 cm / 22.1 x 52 x 32.5 in. EAR99

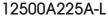
Export classification



10 kHz to 225 MHz

5000A225A

10000A225A-A



12,500 watts CW, 10 kHz-225 MHz

12,500 watts

1.0 milliwatt max.

10,000 watts, .01–100 MHz, 6,000 watts, 100–225 MHz





5,000 watts CW, 10 kHz-225 MHz

Rated Output Power Typ.: 5,500 watts, min. 5,000 watts, .01–100 MHz Typ.: 4,500 watts, min. 3,500 watts, 100–225 MHz Input for Rated Output 1.0 milliwatt max. Power Output @ 3 dB compression Typ.: 4,500 watts, min. 5,000 watts, .01–100 MHz Typ.: 4,500 watts, min. 3,500 watts, .100–225 MHz Power Output @ 1 dB compression Typ.: 5,000 watts, min. 4,000 watts, .100–225 MHz Power Output @ 1 dB compression Typ.: 4,000 watts, min. 4,000 watts, .100–225 MHz Flatness ±2.0 dB typ., ±2.5 dB max.
Frequency Response 10 kHz–225 MHz instantaneously Gain (at max. setting) 67 dB min.
Gain Adjustment (continuous range) 20 dB
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms nominal
Mismatch Tolerance 100% of rated power without foldback up to 6.0:1 mismatch, above which may limit to 2,500W reflected power. Harmonic Distortion
Minus 30 dBc typ., minus 20 dBc max. at 3,000 watts
Third Order Intercept Point 74 dBm typ.
Spurious Minus 70 dBc typ. Primary Power (user must specify):
200–240 VAC or 380–415 VAC 3-phase 50/60 Hz 20 kWatts
Connectors
RF Input: N female RF Output: EIA 1-5/8 male, rear
Remote Control
IEEE-488 24-pin female RS-232 9-pin subminiature D (female) Fiber optic ST Conn Tx and Rx RS-232 USB 2.0 Type B Ethernet RJ-45
Safety Interlock 15-pin subminiature D
Cooling Forced air (self-contained fans with internal self-contained
liquid cooling)
Weight 250 kg (550 lb.)
Size (WxHxD) 56.1 x 173.0 x 88.9 cm / 22.1 x 68.15 x 35 in.
Export classification EAR99

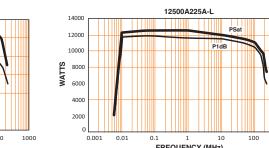
 2

10,000 watts CW, 10 kHz-225 MHz

	Rated Output Power Nominal Minimum	11,000 watts 10,000 watts, .01–100 MHz,	Rated Output Power Nominal Minimum
/att max.	Input for Rated Output	6,000 watts, 100–225 MHz 1.0 milliwatt max.	Input for Rated Output
	Power Output for 1 dB compress		Power Output for 1 dB c
	Nominal Minimum	8,000 watts 7,000 watts, .01–100 MHz, 4,000 watts, 100–225 MHz	Nominal Minimum
	Flatness	±3.0 dB max.	Flatness
dB max.		±1.0 dB with internal leveling	
aneously	Frequency Response	10 kHz–225 MHz instantaneously 70 dB min.	Frequency Response
dB min.	Gain (at max. setting) Gain Adjustment (continuous rat		Gain (at max. setting) Gain Adjustment (contir
20 dB 0:1 max.	Input Impedance	50 ohms, VSWR 2.0:1 max.	Input Impedance
nominal	Output Impedance	50 ohms, nominal	Output Impedance
nominui	Mismatch Tolerance		Mismatch Tolerance
atch,		ldback up to 6.0:1 mismatch	100% rated power w
	10 kHz to 100 MHz. Limited t 100 MHz to 225 MHz.	00 watts reflected power, from o 3,000 watts reflected power from	above which may lin 10 kHz to 100 MHz. 100 MHz to 225 MHz
dBm typ.	Harmonic Distortion	Minus 20 dBc max. at 6,000 watts	Harmonic Distortion
dBc typ.	Third Order Intercept Point RF Power Display	77 dBm typ. 0–15.000 watts full scale	Third Order Intercept Po
/1	RF Rise/Fall Time	150 nanoseconds max.	RF Power Display RF Rise/Fall Time
	Primary Power (user must specif		Primary Power (user mu
	190–240 VAC, Delta (4 wire)	.,	190–240 VAC Delta
	380–480 VAC, Delta (4 wire)		380-480 VAC, Delta
V female	47–63 Hz, 3-phase 40,000 watts max. at .95 P.F.	tvn	47–63 Hz, 3-phase 45.000 watts max. a
nale, rear	Connectors	.,p.	Connectors
n female	RF Input	Type N female on rear panel	RF Input
(female)	RF Output	Type ElÄ 1-5/8 male on rear panel	RF Output
(RS-232	Forward Sample	Type N female on front panel (coupling factor 80 dB typ.)	Forward Sample
Type B	Reverse Sample	Type N female on front panel	Reverse Sample
RJ-45 niature D		(coupling factor 80 dB typ.)	Kovoloo oumpio
	Pulse Modulation Input	Type BNC female on rear panel	Pulse Modulation Inp
ed	Safety Interlock Remote Control	15-pin female Type D on rear panel	Safety Interlock Remote Control
	IEEE-488	24-pin female on rear panel	IEEE-488
(550 lb.)	RS-232	9-pin female Type D on rear panel	RS-232
	RS-232 (fiber optic):	Type ST, rear panel	USB 2.0
EAR99	USB 2.0: Ethernet:	Type B female, rear panel RJ-45	Ethernet
E/ ((/) /	Cooling	10 40	Cooling Liquid cooled via ext
	Forced air (self-contained far	ns with internal liquid cooling)	Weight (max.)
	Weight	500 kg (1,100 lb.)	Size (WxHxD)
	Size (WxHxD) 112.1 x 82.4 x 165.3 cm / 4	1 1 2 v 3 2 1 3 v 6 5 1 in	112.1 x 82.4 x 165.
	Fyport eleccification	4.12 X 32.43 X 03.1 III. EADOO	Export classification

ill max.	input for Raled Output	I.U miniwan max.
	Power Output for 1 dB compre	
0 watts	Nominal	11,000 watts
DO MHz,	Minimum	10,000 watts, .01–100 MHz,
25 MHz		5,000 watts, 100–225 MHz
IB max.	Flatness	±3.0 dB max.
eveling		±1.0 dB with internal leveling
neously	Frequency Response	10 kHz–225 MHz instantaneously
dB min.	Gain (at max. setting)	71 dB min.
dB min.	Gain Adjustment (continuous	
:1 max.	Input Impedance	50 ohms, VSWR 2.0:1 max.
ominal	Output Impedance	50 ohms, nominal
IOIIIIIII		50 011115, 1101111101
h	Mismatch Tolerance	foldback up to 6 0.1 mismatch
m		foldback up to 6.0:1 mismatch
er from		5,000 watts reflected power, from
	100 MHz to 225 MHz.	d to 3,000 watts reflected power from
0 watts		Minue 20 dBe may at 2 000 watte
	Harmonic Distortion	Minus 20 dBc max. at 8,000 watts
Bm typ.	Third Order Intercept Point	77 dBm typ.
II scale	RF Power Display	0–15,000 watts full scale
ds max.	RF Rise/Fall Time	150 nanoseconds max.
	Primary Power (user must spe	
	190-240 VAC Delta (4 wire	e)
	380–480 VAC, Delta (4 wir	e)
	47–63 Hz, 3-phase	
	45,000 watts max. at .95 F	P.F. typ.
ام میں م	Connectors	
ir panel	RF Input	Type N female on rear panel
ir panel	RF Output	Type EIA 1-5/8 male on rear panel
t panel	Forward Sample	Type N female on front panel
dB typ.)		(coupling factor 80 dB typical)
t panel	Reverse Sample	Type N female on front panel
dB typ.)		(coupling factor 80 dB typical)
ir panel	Pulse Modulation Input	Type BNC female, rear panel
ir panel	Safety Interlock	15-pin female Type D on rear panel
ır panel	Remote Control	
ir panel	IEEE-488	24-pin female on rear panel
ir panel	RS-232	9-pin female Type D on rear panel
ir panel	USB 2.0	Type B female, rear
RJ-45	Ethernet	RJ-45
10-40	Cooling	
n)	Liquid cooled via external o	
1) 100 lb.)	Weight (max.)	500 kg (1,100 lb.)
100 lb.)	Size (WxHxD)	44 10 - 20 42 - 75 1 -
	112.1 x 82.4 x 165.3 cm /	44.12 x 32.43 x 65.1 in.

Export classification FAR99

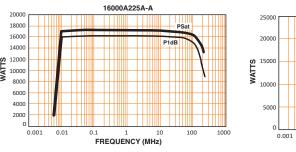


EAR99

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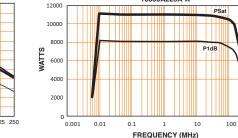
16,000 watts CW, 10 kHz-225 MHz

		20,00
Rated Output Power	17,000	Rated Outpu
Nominal Minimum	17,000 watts 16,000 watts, .01–100 MHz, 12,000 watts, 100–225 MHz	Nominal Minimum
Input for Rated Output	1.0 milliwatt max.	Input for Rat
Power Output for 1 dB compression Nominal	15,000 watts	Power Outpu Nominal
Minimum	14,000 watts, .01–100 MHz,	Minimum
latness	8,000 watts, 100–225 MHz ±3.0 dB max.	Flatness
	±1.0 dB with internal leveling	TIUMESS
	0 kHz-225 MHz instantaneously	Frequency R
G ain (at max. setting) G ain Adjustmen t (continuous range	72.05 dB min.	Gain (at max
nput Impedance	50 ohms, VSWR 2.0:1 max.	Gain Adjustr
Dutput Impedance	50 ohms, nominal	Output Impe
lismatch Tolerance* 100% rated power without foldbo	ack up to 6.0:1 mismatch	Mismatch To
above which may limit to 8,000	watts reflected power from	100% ra above wł
10 kHz–100 MHź. Limited to 7,00 100 MHz–225 MHz.	JU watts reflected power from	10 kHz-1
Iodulation Capability		100 MHz Modulation
Will faithfully reproduce AM, FM of	or pulse modulation	Will faith
appearing on the input signal. Iarmonic Distortion Min	us 20 dBc max. at 10,000 watts	appearin
hird Order Intercept Point	77 dBm typ.	Harmonic D Third Order
RF Power Display RF Rise/Fall Time	0–20,000 watts full scale 150 nanoseconds max.	RF Power Di
Primary Power (user must specify)		RF Rise/Fall
190–240 VAC, Delta (4 wire) ' 380–480 VAC, Delta (4 wire)		Primary Pov 380–480
47–63 Hz, 3-phase		47–63 H
75,000 watts max. at .95 P.F. typ.		85,000 v
Connectors RF Input	Type N female on rear panel	Connectors RF Input
RF Output Ty	pe ElÄ 3-1/8 male on rear panel	RF Oùtpu
	ront (coupling factor 84 dB typ.) ront (coupling factor 84 dB typ.)	Forward Reverse
Pulse Modulation Input	BNC female on rear panel	Pulse Mo
Safety Interlock 15-	pin female Type D on rear panel	Safety In
Remote Control IEEE-488:	24-pin female, rear	Remote (IEEE-4
RS-232:	9-pin female D, rear	RS-23
RS-232 (fiber optic): USB 2.0:	Type ST, rear Type B female, rear	RS-23 USB 2
Ethernet:	RJ-45	Etheri
Cooling Forced air (self-contained fans w	rith internal liquid cooling)	Cooling
Veight	997 kg (2,200 lb.)	Liquid co Weight
Size (WxHxD) 226.7 x 99.1 x 177.8 cm / 89.2	5 v 30 v 70 in	Size (WxHxD
zzo.7 x 99.1 x 177.6 cm / 69.23	EAR99	226.7 x 9
	Entropy	Export class



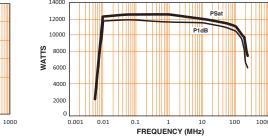
7000 6500 5500 <u>ہ</u> 5000 \$ 4000 3500 3000 2500 2000 1500 .009 .01 25 50 75 100 125 150 175 200 225 250 FREQUENCY (MHz)

5000A225A



10000A225A-A

Export classification



20	* See Application Note—Importance of Mismatch	n Tolerance for Amplifiers Used in S	Susceptibility Testing
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7500

out Power

20,000 watts 18,000 watts, .01–100 MHz, 13,000 watts, 100–225 MHz m ated Output 1.0 milliwatt max. put for 1 dB compression 17.000 watts 16,000 watts, .01-100 MHz, 10,000 watts, 100-225 MHz ±3.0 dB max. ±1.0 dB with internal leveling 10 kHz-225 MHz instantaneously Response nax. setting) 72.5 dB min. ment (continuous range) 20 dB min. 50 ohms, VSWR 2.0:1 max. lance edance 50 ohms, nominal olerance* ated power without foldback up to 6.0:1 mismatch hich may limit to 9,000 watts reflected power from

z–225 MHz. Capability ng on the input signal. istortion Intercept Point isplay Time ower (user must specify) 80 VAC, Delta (4 wire) Hz, 3-phase watts max. at .95 P.F. typ.

Sample Sample odulation Input nterlock Control -488: 32 (fiber optic) 2.0 rnet:

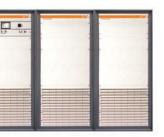
226.7 x 99.1 x 177.8 cm / 89.25 x 39 x 70 in. Export classification

0.01

10 kHz to 250 MHz

20000A225A-L

25A250B



20,000 watts CW, 10 kHz-225 MHz

100 MHz. Limited to 7,000 watts reflected power from

fully reproduce AM, FM, or pulse modulation Minus 20 dBc max. at 12,000 watts 77 dBm typ. 0-25,000 watts full scale 150 nanoseconds max.

Type N female on rear panel Type EIA 3-1/8 male on rear panel N female, front (coupling factor 84 dB typ.) N female, front (coupling factor 84 dB typ.) BNC female on rear panel 15-pin female Type D on rear panel

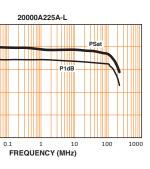
> 24-pin female, rear 9-pin female D, rear Type ST, rear Type B female, rear RJ-45

coled via external chilled water supply

997 kg (2,200 lb.) Export classification



Without cabinet

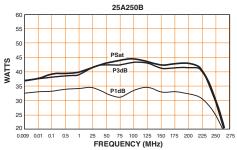




25 watts CW. 10 kHz-250 MHz

Rated Output Power 35 watts typ., 25 watts min. Input for Rated Output 1.0 milliwatt max. Power Output @ 3 dB compression Typ. 35 watts / min. 25 watts Power Output @ 1 dB compression Typ. 30 watts / min. 20 watts Flatness ±1.0 dB typ. / ±1.5 dB max. 10 kHz-250 MHz instantaneously Frequency Response Gain (at max. setting) 44 dB min. Gain Adjustment (continuous range) 20 dB min. 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal Mismatch Tolerance* 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. Harmonic Distortion Minus 20 dBc max. at 20 watts, Minus 35 dBc typ. at 15 watts Spurious Minus 73 dBc typ. Third Order Intercept Point 55 dBm typ. 8 dB typ. Noise Figure Primary Power 100–240 VAC 50 / 60 Hz, 200 watts Connectors Type N female Type N female RF Input RF Output **Remote Interfaces** 24-pin female 9-pin Subminiature D female IEEE-488 RS-232 Fiber optic ST Conn Tx and Rx RS-232 USB 2.0 Type B RJ-45 Ethernet Safety Interlock 15-pin Subminiature D Cooling Forced air (self-contained fans) Weight With cabinet 16.7 kg (37 lb.) 8.6 kg (19 lb.) Without cabinet Size (WxHxD) With cabinet

50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in. 48.3 x 13.2 x 55.1 cm / 19 x 5.2 x 21.7 in. EAR99



10 kHz to 250 MHz

10 kHz to 400 MHz

50A250

125A250

500A250D

01=

0 44

0 0-

6

100A400A





50 watts CW. 10 kHz-250 MHz.

Rated Output Power Input for Rated Outpu Power Output @ 3 dB Typ. 70 watts / mir Power Output @ 1 dB Typ. 55 watts / mir	compression n. 50 watts compression	70 watts typ., 50 watts min. 1.0 milliwatt max.
Flatness		±1.0 dB typ. / ±1.5 dB max.
Frequency Response	10	kHz–250 MHz instantaneously
Gain (at max. setting)		47 dB min.
Gain Àdjustment (cor	ntinuous range)	20 dB min.
Input Impedance	• /	50 ohms, VSWR 2.0:1 max.
Output Impedance		50 ohms, nominal
	tion with any ma	ack. Will operate without gnitude and phase of source
Harmonic Distortion		
Minus 20 dBc may		
Minus 30 dBc typ. Spurious	ui su wuiis	Minus 73 dBc typ.
Third Order Intercept	Point	55 dBm typ.
Noise Figure	I UIIII	8 dB typ.
Primary Power 100–240 VAC 50 / 60 Hz, 250 w	atts	0 ab 179.
Connectors		
RF Input		Type N female Type N female
RF Output Remote Interfaces		Type in ternule
IEEE-488 RS-232 Fiber optic USB 2.0 Ethernet		24-pin female 9-pin Subminiature D female ST Conn Tx and Rx RS-232 Type B RJ-45
Safety Interlock		15-pin Subminiature D
Cooling	F	orced air (self-contained fans)
Weight	1	
With cabinet Without cabinet		16.7 kg (37 lb.) 8.6 kg (19 lb.)
Size (WxHxD) With cabinet Without cabinet Export classification		i5.1 cm / 19.8 x 6.1 x 21.7 in. x 55.1 cm / 19 x 5.2 x 21.7 in. EAR99

				-		
9	_	_	_	-	-	9
Colorest Industry	-					

125 watts CW, 10 kHz-250 MHz ited Output Power 150 watts typ., 125 wat put for Rated Output 1.0 milliwat wer Output @ 3 dB compression Typical: 145 watts / min. 125 watts wer Output @ 1 dB compression Typical: 110 watts / min. 90 watts ±1.0 dB typ., ±1.5 dB otness 10 kHz-250 MHz instantan equency Response ain (at max. setting) 50 d ain Adjustment (continuous range) 20 d put Impedance 50 ohms, VSWR 2.0: utput Impedance 50 ohms noi smatch Tolerance* 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of s and load impedance. oise Figure 8 Irmonic Distortion Minus 20 dBc max. at 90 watts Minus 30 dBc typ. at 70 watts 55 dB ird Order Intercept Point Minus 73 dE ourious imary Power 100–240 VAC 50/60 Hz 500 watts onnectors Type N Type N **RF** Input RF Output mote Interfaces IEEE-488 24-pin RS-232 9-pin subminiature D (f Fiber optic USB 2.0 ST Conn Tx and Rx Ethernet Safety Interlock 15-pin subminio oling Forced air (self-contained with cabinet 18.5 kg (Without cabinet 10.4 kg (ze (WxHxD) 50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 2 With cabinet 48.3 x 13.2 x 55.1 cm / 19.0 x 5.2 x 2 Without cabinet Export classification

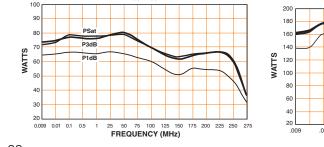
z	500 wat	ts CW, 10 kHz-250 MHz
atts min. att max.	Power Output @ 3 d 600 watts typ., 50	00 watts min., .01–200 MHz
dB max. ineously dB min. dB min. b:1 max. iominal.	Power Output @ 1 d 525 walts typ., 40 425 walts typ., 37 Flatness Frequency Response Gain (at max. setting Gain Adjustment (co Input Impedance	00 watfs min., 01-200 MHz 75 wafts min., 200 MHz-250 MHz ±1.5 dB typ., ±2.0 dB max. • 10 kHz-250 MHz instantaneously (1) 57 dB min. 57 dB min. 50 ohms, VSWR 2.0:1 max.
out source	Output Impedance Mismatch Tolerance 100% of rated po	* 50 ohms nominal. * www.without foldback. Will operate without
8 dB typ.		ation with any magnitude and phase of source
IBm typ. dBc typ.	Harmonic Distortion Minus 20 dBc mc Third Order Intercept Spurious	ux. at 400 watts; <-20 dBc typ. at 500 watts
	Primary Power 200–240 VAC 50 / 60 Hz, 2,400) watts
l female I female	Connectors RF Input RF Output RF Sample Ports	Type N female Type N female Type N female (optional)
r female (female) RS-232 Type B RJ-45 iature D ed fans)	Remote Interfaces IEEE-488 RS-232 Fiber optic USB 2.0 Ethernet Safety Interlock Cooling	24-pin female 9-pin subminiature D (female) ST Conn Tx and Rx RS-232 Type B RJ-45 15-pin subminiature D Forced air (self-contained fans)
(41 lb.) (23 lb.)	Weight With Cabinet Without Cabinet	78 kg (171 lb.) 58 kg (128 lb.)
21.7 in. 21.7 in. EAR99	Size (WxHxD) With Cabinet Without Cabinet Export classification	50.3 x 38.1 x 75.5 cm / 19.8 x 15.0 x 29.7 in. 48.3 x 35.6 x 75.5 cm / 19 x 14.0 x 29.7 in. EAR99



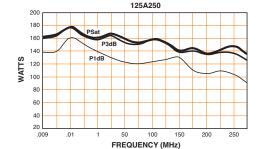


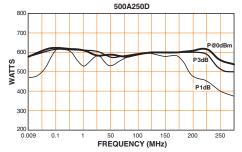
100 watts CW, 10 kHz-400 MHz

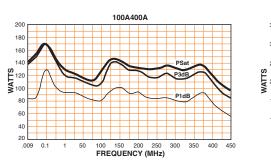
	,				
Rated Output Power Input for Rated Outpu Power Output @ 3 dB Typ. 125 watts / m	compression in. 100 watts	130 watts typ., 1 1.0	00 watts min. milliwatt max.	Rated Output Power Input for Rated Output Power Output @ 3 df Typ. 210 watts / m	<mark>3 comp</mark> nin. 165
Power Output @ 1 dB Typ. 85 watts / min				Power Output @ 1 df Typ. 165 watts / m	<mark>3 comp</mark> nin. 125
Flatness		±1.0 dB typ. /		Flatness	
Frequency Response		kHz-400 MHz in	,	Frequency Response	
Gain (at max. setting)			50 dB min.	Gain (at max. setting	/
Gain Adjustment (con	itinuous range)		20 dB min.	Gain Adjustment (co	ntinuou
Input Impedance		50 ohms, VSV		Input Impedance	
Output Impedance		50 o	hms, nominal	Output Impedance	
Mismatch Tolerance* 100% of rated pow damage or oscillat and load impedan	tion with any m			Mismatch Tolerance* 100% of rated po damage or oscillo and load impedar	wer wit ition wit
Harmonic Distortion Minus 20 dBc max Minus 30 dBc typic				Harmonic Distortion Minus 20 dBc ma Spurious	x. at 15
Spurious		Min	us 73 dBc typ.	Third Order Intercept	Point
Third Order Intercept	Point		55 dBm typ.	Noise Figure	
Noise Figure Primary Power 100–240 VAC	atta		8 dB typ.	Primary Power 100–240 VAC 50 / 60 Hz, 770 w	vatts
50 / 60 Hz, 500 w	ulis			Connectors	
Connectors RF Input		т	ype N female	RF Input RF Output	
RF Output		İ	ype N female	Remote Interfaces	
Remote Interfaces			//	IEEE-488	
IEEE-488			24-pin female	RS-232	
RS-232		9-pin Subminia	ture D female	Fiber optic	
Fiber optic USB 2.0		ST Conn Ix a	nd Rx RS-232	USB 2.0	
Ethernet			Type B RJ-45	Ethernet	
Safety Interlock		15-nin Si	ubminiature D	Safety Interlock	
Cooling		Forced air (self-co		Cooling	
Weight				Weight With cabinet	
With cabinet Without cabinet		18 10	8.5 kg (41 lb.) 0.4 kg (23 lb.)	Without cabinet Size (WxHxD)	
Size (WxHxD)				With cabinet	50.3
With cabinet Without cabinet Export classification	50.3 x 15.5 x 48.3 x 13.2 x	55.1 cm / 19.8 x 55.1 cm / 19.8 x	6.1 x 21.7 in. 5.2 x 21.7 in. EAR99	Without cabinet Export Classification	4
			LAIL77		



504250







* See Application Note—Importance of Mismatch Tolerance for Amplifiers Used in Susceptibility Testing

22

175A400

250A400

175 watts CW, 10 kHz-400 MHz

225 watts typ., 175 watts min. Rated Output Power Output @ 3 dB compression 210 watts / min. 165 watts Output @ 1 dB compression 165 watts / min. 125 watts ± 0.9 dB typ. / ± 1.5 dB max. Flatness 10 kHz-400 MHz instantaneously Frequency Response justment (continuous range) 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal Output Impedance % of rated power without foldback. Will operate without age or oscillation with any magnitude and phase of source us 20 dBc max. at 150 watts Minus 73 dBc typ. Spurious 8.5 dB typ. Noise Figure Type N female Type N female 24-pin female

9-pin Subminiature D female ST Conn Tx and Rx RS-232 Type B RJ-45 15-pin Subminiature D Forced air (self-contained fans) Cooling

33 kg (73 lb.) 22 kg (48 lb.)

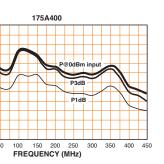
50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. 48.3 x 17.7 x 74.9 cm / 19 x 7 x 29.5 in. EAR99



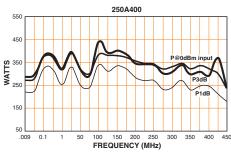
250 watts CW, 10 kHz-400 MHz

325 watts typ., 250 watts min. 1.0 milliwatt max. Input for Rated Output 1.0 milliwatt max. Power Output @ 3 dB compression Typ. 325 watts / min. 250 watts Power Output @ 1 dB compression Typ. 250 watts / min. 200 watts ±1.5 dB typ. / ±2.0 dB max. 10 kHz-400 MHz instantaneously 52.5 dB min. Gain (at max. setting) 54 dB min. 20 dB min. Gain Adjustment (continuous range) 20 dB min. Input Impedance 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal Mismatch Tolerance* 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Harmonic Distortion Minus 20 dBc max. at 200 watts Minus 73 dBc typ. 65 dBm typ. 60 dBm typ. Third Order Intercept Point 8.5 dB typ. Primary Power 100–240 VAC 50 / 60 Hz, 1,350 watts Connectors RF Input Type N female RF Output Type N female Remote Interfaces IEEE-488 24-pin female RS-232 9-pin Subminiature D female Fiber optic ST Conn Tx and Rx RS-232 Type B RJ-45 USB 2.0 Ethernet Safety Interlock 15-pin Subminiature D Forced air (self-contained fans) Weight With cabinet 45 kg (98 lb.) 33 kg (73 lb.) Without cabinet Size (WxHxD) 50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. With cabinet

Without cabinet Export Classification 48.3 x 17.7 x 74.9 cm / 19 x 7 x 29.5 in. EAR99



.009 0.1



RF Solid State Amplifiers 10 kHz to 400 MHz

50 to 1,000 MHz

350A400



350 watts CW, 10 kHz-400 MHz **Rated Output Power** 425 watts typ., 350 watts min. Input for Rated Output 1.0 milliwatt max. Power Output @ 3 dB compression Typ. 400 watts / min. 325 watts Power Output @ 1 dB compression Typ. 325 watts / min. 225 watts Flatness ±1.5 dB typ. / ±2.0 dB max. 10 kHz-400 MHz instantaneously Frequency Response 55.5 dB min. Gain (at max. setting) 20 dB min. Gain Adjustment (continuous range) 50 ohms, VSWR 2.0:1 max. Input Impedance 50 ohms, nominal Output Impedance Mismatch Tolerance* 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Harmonic Distortion Minus 20 dBc max. at 300 watts Spurious Minus 73 dBc typ. 65 dBm typ. Third Order Intercept Point Noise Figure 8.5 dB typ. Primary Power 100–240 VAC 50 / 60 Hz, 1,750 watts Connectors Type N female Type N female **RF** Input RF Output **Remote Interfaces** IEEE-488 24-pin female RS-232 9-pin Subminiature D female Fiber optic ST Conn Tx and Rx RS-232 Type B RJ-45 USB 2.0 Ethernet Safety Interlock 15-pin Subminiature D Cooling Forced air (self-contained fans) Weight With cabinet 48 kg (104 lb.) 35 kg (78 lb.) Without cabinet Size (WxHxD) 50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. With cabinet Without cabinet 48.3 x 17.7 x 74.9 cm / 19 x 7 x 29.5 in. Export Classification EAR99

Contraction international	
)

600A400

600 watts CW, 10 kHz-400 MHz Rated Output Power 700 watts typ., 600 watts min.; .01–250 MHz

600 watts typ., 5	00 watts min., 250 MHz–400 MHz
Power Output @ 3 d	B compression
650 watts typ., 6	00 watts min.; .01–250 MHz
	00 watts min., 250 MHz–400 MHz
Power Output @ 1 d	B compression
5/5 Watts typ., 5	00 watts min.; .01–250 MHz
Flatness	00 watts min., 250 MHz–400 MHz
	±1.5 dB typ. / ±2.0 dB n 10 kHz–400 MHz instantaneo
Frequency Response Gain (at max. setting	
· · ·	5/
Gain Adjustment (co	50 ohms, VSWR 2.0:1 n
Input Impedance	
Output Impedance Mismatch Tolerance	* 50 ohms, nom
	; ower without foldback. Will operate without
	ation with any magnitude and phase of sour
and load impede	
Harmonic Distortion	
Minus 20 dBc m	
Spurious	Minus 73 dBc
Third Order Intercep	
Noise Figure	7.5 dB
Primary Power	
200–240 VAC	0 watto
50 / 60 Hz, 2,95	U wulls
Connectors RF Input	Type N fen
RF Output	Type 7/16
RF Sample Ports:	
Remote Interfaces	
IEEE-488	24-pin fen
RS-232	9-pin Subminiature D fen
Fiber optic USB 2.0	ST Conn Tx and Rx RS-
Ethernet	Tyr R.
Safety Interlock	15-pin Subminiatu
Cooling	Forced air (self-contained for
Weight	
With cabinet	87 kg (191
Without cabinet	68 kg (148
Size (WxHxD)	
With cabinet Without cabinet	50.3 x 38.1 x 75.5 cm / 19.8 x 15.0 x 29.3 48.3 x 35.6 x 75.5 cm / 19 x 14.0 x 29.3
Export Classification	

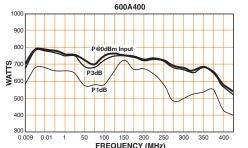
lz	1,000 watts C	CW, 10 kHz-400 MHz
	Rated Output Power Input for Rated Output Power Output @ 3 dB comp	1,200 watts typ., 1,000 watts min. 1.0 milliwatt max.
	Typ. 1,200 watts / min. 1 Power Output @ 1 dB comp Typ. 1,000 watts / min. 8	ression
	Flatness	±1.5 dB typ. / ±2.0 dB max.
	Frequency Response	10 kHz-400 MHz instantaneously
dB max.	Gain (at max. setting)	60 dB min.
aneously	Gain Adjustment (continuou	
dB min.	Input Impedance	50 ohms, VSWR 2.0:1 max.
dB min.	Output Impedance Mismatch Tolerance	50 ohms, nominal
0:1 max. nominal	Will operate without dam	nage or oscillation when connected to not the aid of foldback circuitry.
nout source	Modulation Capability	AM, FM, or pulse modulation
	Harmonic Distortion Minus 20 dBc max. at 1,	000 watts
dBc typ.	Spurious	Minus 73 dBc typ.
dBm typ.	Third Order Intercept Point	68 dBm typ.
5 dB typ.	Noise Figure	8 dB typ.
o ao iyp.	Primary Power 200–240 VAC 3-phase, 50/60 Hz, 5.2 k	W
	Connectors	
N female	RF Input RF Output	Type N female 7-16 DIN female, rear
7/16 DIN	Remote Interfaces	7-10 Din lettule, leur
optional)	IEEE-488	24-pin female
n female	RS-232	9-pin Subminiature D female
D female	Fiber optic USB 2.0	ST Conn Tx and Rx RS-232 Type B
(RS-232	Ethernet	RJ-45
Type B RJ-45	Safety Interlock	15-pin Subminiature D
niature D	Cooling	Forced air (self-contained fans)
ed fans)	Weight	124.8 kg (275 lb.)
	· · · ·	97.8 x 82.5 cm / 22.1 x 38.5 x 32.5 in.
(191 lb.)	Environmental	
(148 lb.)	Operating Temperature:	5°C / +40°C
20 7 in	Operating Altitude:	Up to 2,000 M
29.7 in.	Shock and vibration:	Normal Truck Transport
EAR99	Regulatory Compliance EMC	EN 61326-1
	Safety	UL 61010-1, CAN/CSA C22.2 #61010-1
	outory	CENELEC EN 61010-1
	RoHS	DIRECTIVE 2011/65/EU
	Export Classification	EAR99

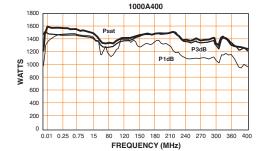
1000A400

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350A400

FREQUENCY (MHz)



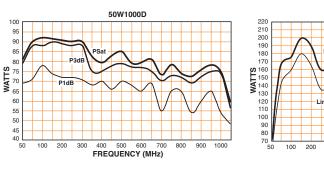




50W1000D

~	-	
	1.0	

50 wa	tts CW, 50	-1,000 MHz	150 watts
Rated Output Power Input for Rated Output Power Output @ 3 dl Typ. 70 watts / mi	B compression n. 60 watts	70 watts typ., 50 watts min 1.0 milliwatt may	 Input for Rated Output Power Output @ 3 dB com Nominal 150 watts / m
Power Output @ 1 dl Typ. 60 watts / mi			Power Output @ 1 dB com Nominal 125 watts / m
Flatness		±1.0 dB typ. / ±1.5 dB max	
Frequency Response		z–1,000 MHz instantaneousl	,
Gain (at max. setting		48 dB min	oun (un max. coming)
Gain Adjustment (co	ntinuous range)	20 dB min	
Input Impedance		50 ohms, VSWR 2.0:1 max	
Output Impedance Mismatch Tolerance		50 ohms, nomino	e aipai inipeaanee
Will operate witho		cillation when connected to id of foldback circuitry.	Mismatch Tolerance Will operate without do any load impedance w
Modulation Capabilit Will faithfully repr appearing on the	óduce AM, FM, or	pulse modulation	Modulation Capability Will faithfully reproduce appearing on input sign
Harmonic Distortion	inpar orginali		Noise Figure
Minus 20 dBc mo			Harmonic Distortion
Minus 30 dBc typ	. at 50 watts	Minus 72 dDs hu	Minus 20 dBc maximur
Spurious Third Order Intercept	Doint	Minus 73 dBc typ 55 dBm typ	² . 100 watts
Noise Figure	FUIII	8 dB ty	
Primary Power		O OD IV	opunous
100–240 VAC			Primary Power 100-240 VAC
50 / 60 Hz, 250 v	vatts		50/60 Hz, 650 watts
Connectors RF Input		Type N femal	
RF Output		Type N femal	e RF Input
Remote Interfaces		/1	RF Output
IEEE-488 RS-232		24-pin femal	
Fiber optic		9-pin Subminiature D femal ST Conn Tx and Rx RS-23	
USB 2.0		Type	B Fiber Ontic
Ethernet		ŔJ-4	^ວ USB 2 ຕໍ່
Safety Interlock	-	15-pin Subminiature I) Ethernet
Cooling	F	orced air (self-contained fans) Safety Interlock
Weight With cabinet		17.7 ka (39 lb	Cooling
Without cabinet		17.7 kg (39 lb. 9.5 kg (21 lb.	Weight
Size (WxHxD)			With cabinet
With cabinet		5.1 cm / 19.8 x 6.1 x 21.7 ir	
Without cabinet Export classification	48.3 X 13.2 X 5	5.1 cm / 19.8 x 5.2 x 21.7 ir EAR99	" With a shine to t
Evhour cinsellication		EAKY	Without cabinet 4



* See Application Note—Importance of Mismatch Tolerance for Amplifiers Used in Susceptibility Testing

300 350 400 450

24

80 to 1,000 MHz

150W1000B

250W1000C



150 watts CW, 80-1,000 MHz

160 watts typical, 130 watts min. Rated Output Power 1.0 milliwatt max. compression s / min. 125 watts compression / min. 100 watts ±1.5 dB typ. / ±2.0 dB max. 80-1,000 MHz instantaneously 52 dB min. 20 dB min. tinuous range) 50 ohms, VSWR 1.5:1 max. 50 ohms, nominal ut damage or oscillation when connected to ce without the aid of foldback circuitry. luce AM, FM, or pulse modulation signal. 8 dB max.; 6 dB typ. imum at 100 watts; minus 30 dBc typical at 58 dBm typ. Minus 73 dBc typ. Type N female on front panel Type N female on front panel 24-pin female

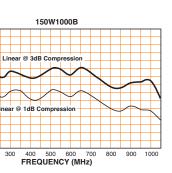
9-pin Subminiature D (female) ST Conn Tx and Rx RS-232 Type B ŔJ-45 15-pin Subminiature D Forced air (self-contained fans)

36.7 kg (81 lb.) 25.4 kg (56 lb.)

50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. 48.3 x 17.7 x 74.9 cm / 19 x 7.0 x 29.5 in. EAR99

Without cabinet

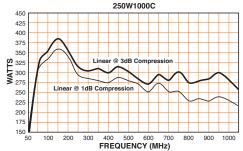
Export Classification





250 watts CW, 80-1,000 MHz

300 watts typ., 250 watts min. Input for Rated Output 1.0 milliwatt max Power Output @ 3 dB compression Typical: 300 watts, Minimum: 275 watts up to 500 MHz; 250 watts 500–1,000 MHz Power Output @ 1 dB compression Typical: 250 watts, Minimum: 225 watts up to 500 MHz; 200 watts 500-1,000 MHz Flatness ±2.0 dB max. / 1.5 dB typ. 80-1.000 MHz instantaneously Frequency Response 54 dB min. Gain (at max. setting) Gain Adjustment (continuous range) 20 dB min. 50 ohms, VSWR 1.5:1 max. Input Impedance **Output Impedance** 50 ohms, nominal Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on input signal. Noise Figure 8 dB max.; 6 dB typ. Harmonic Distortion Minus 20 dBc maximum at 200 watts; minus 30 dBc typical at 200 watts Third Order Intercept Point 62 dBm typ. Minus 73 dBc typ. Spurious Primary Power 100–240 VAC 50/60 Hz, 1,000 watts Connectors **RF** Input Type N female on front panel RF Output Type N female on front panel **Remote Interfaces** IEEE-488 24-pin female RS-232 9-pin Subminiature D (female) ST Conn Tx and Rx RS-232 Fiber Optic USB 2.0 Type B RJ-45 Ethernet Safety Interlock 15-pin Subminiature D Cooling Forced air (self-contained fans) Weight With cabinet 42.6 kg (94 lb.) 31.3 kg (69 lb.) Without cabinet Size (WxHxD) 50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. 48.3 x 17.7 x 74.9 cm / 19 x 7.0 x 29.5 in. With cabinet Without cabinet Export Classification EAR99



RF Solid State Amplifiers 80 to 1,000 MHz

500W1000C



500 watts CW, 80-1,000 MHz

Rated Output Power Input for Rated Output	600 watts typ., 500 watts Minimum 1.0 mW max.	Rated Output Po Input for Rated C
Power Output @ 3 dB Typical: 575 watts, 475 watts 700-1,0	Minimum: 525 watts up to 700 MHz;	Power Output @ Typical: 900 v 725 watts 70
Power Output @ 1 dB	compression Minimum:450 watts up to 700 MHz;	Power Output @ Typical: 750 v 650 watts 70
+1.0 dB max. / 1.5		Flatness ±1.5 dB max.
Frequency Response Gain (at max. setting)	80–1,000 MHz instantaneously 57 dB min.	Frequency Respo Gain (at max. se
Gain Adjustment (con		Gain Adjustment
Input Impedance	50 ohms, VSWR 1.5:1 max.	Input Impedance
Output Impedance	50 ohms, nominal	Output Impedance
	ut damage or oscillation when connected to ce without the aid of foldback circuitry.	Mismatch Tolera Will operate any load imp
Modulation Capability Will faithfully repro-	duce AM, FM, or pulse modulation	Modulation Capo Will faithfully
appearing on input Noise Figure		appearing on Noise Figure
Harmonic Distortion	8 dB max.; 6 dB typ. imum at 425 watts; minus 30 dBc typical at	Harmonic Distori Minus 20 dBc
425 watts		750 watts
Third Order Intercept I		Third Order Inter
Spurious	Minus 73 dBc typ.	Spurious
Primary Power 100–240 VAC 50/60 Hz, 1,800 w	atts	Primary Power 200–240 VAC 50/60 Hz, 2,8
Connectors		Connectors
RF Input RF Output	Type N female Type N female	RF Input RF Output
Remote Interfaces	24-pin female	Remote Interface
RS-232	9-pin Subminiature D (female)	RS-232
Fiber Optic	ST Conn Tx and Rx RS-232	Fiber Optic USB 2.0
USB 2.0	Туре В	Ethernet
Ethernet	RJ-45	Safety Interlock
Safety Interlock	15-pin Subminiature D	Cooling
Cooling	Forced air (self-contained fans)	Weight
Weight With cabinet Without cabinet	69.4 kg (153 lb.) 50.8 kg (112 lb.)	Size (WxHxD) 56.1 x 97.8 x Export Classifica
Size (WxHxD)		Export Glussificu
With cabinet Without cabinet Export Classification	50.3 x 38.1 x 74.9 cm / 19.8 x 15 x 29.5 in. 48.3 x 35.6 x 74.9 cm / 19 x 14.0 x 29.5 in. EAR99	
Export Glussification	EAK99	

750W1000B



750 watts CW, 80-1,000 MHz Rated Output P

700 650

600

550

500

	,	.,	
	850 watts typ., 750 watts min.	Rated Output Power	
Input for Rated Output	1.0 milliwatt max.	Input for Rated Output	1.0
Power Output @ 3 dB compressi Typical: 900 watts, Minimum: 725 watts 700–1,000 MHz	on 775 watts up to 700 MHz;	Power Output @ 3 dB com Typical: 1,200 watts / 1 950 watts from 700 to	,100 watts min. up to 700
Power Output @ 1 dB compressi Typical: 750 watts, Minimum: 650 watts 700–1,000 MHz	on 700 watts up to 700 MHz;	Power Output @ 1 dB com Typical: 1,000 watts / 9 900 watts from 700 to	75 watts min. up to 700 N
Flatness		Flatness	±1.5 dB m
±1.5 dB max. / 1.0 dB typ.		Frequency Response	80–1,000 MHz i
Frequency Response	80–1,000 MHz instantaneously	Gain (at max. setting)	
Gain (at max. setting)	58.8 dB min.	Gain Adjustment (continue	ous range)
Gain Adjustment (continuous rar		Input Impedance	50 ohms, VS
Input Impedance	50 ohms, VSWR 1.5:1 max.	Output Impedance	50
Output Impedance	50 ohms, nominal	Mismatch Tolerance	
Mismatch Tolerance		Will operate without da	mage or oscillation when
Will operate without damage	or oscillation when connected to		thout the aid of foldback of
any load impedance without	The did of foldback circulity.	Modulation Capability	M FM or pulse medulat
Modulation Capability Will faithfully reproduce AM, F	M or pulse modulation	appearing on input sign	e AM, FM, or pulse modulat
appearing on input signal.	in, or pulse modulation	Harmonic Distortion	iui.
Noise Figure	8 dB max.; 6 dB typ.	Minus 20 dBc max. at 9	200 watts
Harmonic Distortion		Minus 20 dBc typ. @ 1,	
	00 watts; minus 20 dBc typical at	Third Order Intercept Point	
750 watts		Spurious	Mi
Third Order Intercept Point	64 dBm typ.	Noise Figure	8 dB
Spurious	Minus 73 dBc typ.	Primary Power	
Primary Power		200–240 VAC	
200–240 VAC 50/60 Hz, 2,800 watts		50 / 60 Hz, 3,400 watt	5
Connectors		Connectors RF Input	
RF Input	Type N female on front panel	RF Output	Type 7-16 DIN femal
	ype 7-16 DIN female on rear panel	Remote Interfaces	
Remote Interfaces		IEEE-488	
IEEE-488	24-pin female	RS-232	9-pin Subminia
RS-232 Fiber Optic	9-pin Subminiature D (female) ST Conn Tx and Rx RS-232	Fiber Optic USB 2.0	ST Conn Tx
USB 2.0	Type B	Ethernet	
Ethernet	RJ-45	Safety Interlock	15-pin
Safety Interlock	15-pin Subminiature D	Cooling	Forced air (self
Cooling	Forced air (self-contained fans)	Weight	124
Weight	113.4 kg (250 lb.)	Size (WxHxD)	
Size (WxHxD)		56.1 x 97.8 x 82.5 cm	/ 22.1 x 38.5 x 32.5 in.
56.1 x 97.8 x 82.5 cm / 22.1		Export Classification	
Export Classification	EAR99		

1000W1000G

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1,000 watts CW, 80-1,000 MHz

	, 00-1,000 MINZ
out Power ated Output out @ 3 dB compressio	1,200 watts typ., 1,000 watts min. 1.0 milliwatt max. n
1,200 watts / 1,100 wa tts from 700 to 1,000 N out @ 1 dB compressio	itts min. up to 700 MHz; IHz
1,000 watts / 975 watts tts from 700 to 1,000 N	s min. up to 700 MHz, IHz
Deenenee	±1.5 dB max; ±1.0 dB typ.
Response ax. setting)	80–1,000 MHz instantaneously 60 dB min.
tment (continuous rang	
dance	50 ohms, VSWR 1.5:1 max.
edance	50 ohms, nominal
Tolerance	30 011113, 1101111101
erate without damage of d impedance without th	r oscillation when connected to e aid of foldback circuitry.
n Capability hfully reproduce AM, FM ng on input signal.	, or pulse modulation
Distortion	
0 dBc max. at 900 wat	
20 dBc typ. @ 1,000 wat	
r Intercept Point	66 dBm typ.
1 0	Minus 73 dBc typ.
re	8 dB max., 6 dB typ.
wer 10 VAC Hz, 3,400 watts	
8 †	Type N female
	be 7-16 DIN female on rear panel
erfaces	
8	24-pin female
otic	9-pin Subminiature D (female) ST Conn Tx and Rx RS-232
)	Type B
t	RJ-45
rlock	15-pin Subminiature D
	Forced air (self-contained fans
	124.8 kg (275 lb.)
:D) 97.8 x 82.5 cm / 22.1 x	20 5 v 20 5 in
sification	38.5 X 32.5 III. EAR99
Sinculturi	LAR77

1500W1000A









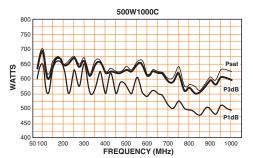
1,500 watts CW, 80-1,000 MHz

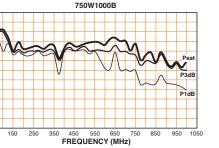
Rated Output Power 1,600 watts typ., 1,500 watts min. Rated Output Power Input for Rated Output 1.0 milliwatt max. Input for Rated Output Power Output @ 3 dB compression Power Output @ 3 dB compression Nominal 1,600 watts / 1,500 watts min. up to 700 MHz; 1,400 watts from 700 to 1,000 MHz Power Output @ 1 dB compression Nominal 1,450 watts / 1,400 watts min. up to 700 MHz; Power Output @ 1 dB compression 1,250 watts min. from 700 to 1,000 MHz Flatness ±2.0 dB max. / ±1.5 dB typ. Flatness Frequency Response 80–1,000 MHz instantaneously Frequency Response Gain (at max. setting) 61.8 dB min. Gain (at max. setting) Gain Adjustment (continuous range) 25 dB min. Gain Adjustment (continuous range) 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ. Input Impedance Input Impedance Output Impedance 50 ohms, nominal Output Impedance Mismatch Tolerance Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Minus 20 dBc max. at 1,250 watts, Harmonic Distortion Harmonic Distortion -20 dBc typ. at 1,500 watts Third Order Intercept Point 68 dBm typ. Spurious Minus 73 dBc typ. Spurious Noise Figure 8 dB max., 6 dB typ. Noise Figure Primary Power (user must specify) 200-240 VAC, Delta-connected (4-wire) 380-415 VAC, Wye-connected (5-wire) 50 / 60 Hz, 3 phase, 7,000 wafts

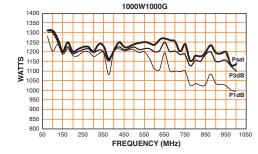
and the state of the state		
Connectors		Co
RF Input	Type N female on rear panel	
RF Output	Type 1 5/8 female on rear panel	
Forward Sample	Type N female, front (-63 dBc) Type N female, front (-63 dBc)	
Reverse Sample	Type IN temate, front (-63 aBC)	
Remote Interfaces: IEEE-488	0.4 nin fomalo	
RS-232	24-pin female 9-pin Subminiature D, female	
Fiber Optic	ST Conn Tx and Rx RS-232	
USB 2.0	Type B	
Ethernet	RJ-45	
Safety Interlock	15-pin female subminiature D, rear panel	
Cooling	ro pinternale subminiarare D, rear paner	C
	ned fans), enters front and bottom	W
`	,	
Weight (approximate)	182 kg (400 lb.)	Si
Size (WxHxD)		_
	m / 22.1 x 69 x 38.4 in.	Ex
Export Classification	EAR99	

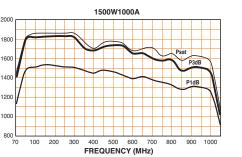
Third Order Intercept Point Primary Power (user must specify) 200-240 VAC, Delta-connected (4-wire) 380-415 VAC, Wye-connected (5-wire) 50 / 60 Hz, 3 pháse, 9,000 watts Connectors **RF** Input RF Output Forward Sample Reverse Sample Remote Interfaces: IEEE-488 RS-232 Fiber Optic USB 2.0 Fthernet Safety Interlock Cooling

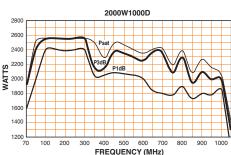
Veight (approximate) Size (WxHxD) (3 cabinets) 56.1 x 175.3 x 97.6 cm / 22.1 x 69 x 38.4 in. Export Classification











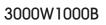
26

2000W1000D



2,000 watts CW, 80-1,000 MHz

2,200 watts typ., 2,000 watts min. Rated Output Power Nominal 2,200 watts / 2,000 watts min. up to 700 MHz; 1,800 watts from 700 to 1,000 MHz Nominal 1,850 watts / 1,750 watts min. up to 700 MHz; 1,600 watts min. from 700 to 1,000 MHz ±2.0 dB max. / ±1.5 dB typ. 80–1,000 MHz instantaneously Frequency Response 25 dB min. 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ. Input Impedance 50 ohms, nominal Output Impedance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. Minus 20 dBc max. at 1,800 watts, -20 dBc typ. at 2,000 watts 70 dBm typ. Minus 73 dBc typ. 8 dB max., 6 dB typ. Type N female on rear panel Type 1 5/8 female on rear panel N female, front (-63 dBc) N female, front (-63 dBc) 24-pin female 9-pin Subminiature D, female ST Conn Tx and Rx RS-232 Type B RJ-45 15-pin female subminiature D, rear panel Forced air (self-contained fans) 218 kg (480 lb.) EAR99





3,000 watts CW, 80-1,000 MHz

2,800 watts min. 1.0 milliwatt max. Input for Rated Output 1.0 milliwatt max. Power Output @ 3 dB compression Nominal 3,000 watts / 2,600 watts min. up to 500 MHz; 2,400 watts from 500 to 1,000 MHz Power Output @ 1 dB compression Nominal 2,500 watts / 2,250 watts min. up to 500 MHz; 1.850 watts from 500 to 1.000 MHz Flatness ±2.0 dB max. / ±1.5 dB typ. 80-1,000 MHz instantaneously 63 dB min. Gain (at max. setting) 64.8 dB min. Gain Adjustment (continuous range) 25 dB min. 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ. 50 ohms, nominal Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry However, mismatch above 6.0:1 may limit output to 1,500 watts reflected power. Harmonic Distortion Minus 20 dBc max. at 2,400 watts -20 dBc typ. at 3,000 watts Third Order Intercept Point 72 dBm typ. Noise Figure 8 dB max., 6 dB typ. Primary Power (user must specify) 200-240 VAC, Delta connected (4-wire) 360-435 VAC, Wye connected (5-wire) 50 / 60 Hz, 3 phase, 14 kVA Connectors **RF** Input Type N female on rear panel RF Output Type 1 5/8 female on rear panel Forward Sample Type N female, front (-70 dBc) Reverse Sample Type N female, front (-70 dBc) Remote Interfaces IEEE-488 24-pin female 9-pin Subminiature D, female RS-232 Fiber Optic ST Conn Tx and Rx RS-232 USB 2.0 Type B RJ-45 Ethernet Safety Interlock 15-pin female subminiature D, rear panel Cooling Forced air (self-contained fans), enters front and bottom Weight (approximate) 364 kg (800 lb.)

Size (WxHxD) (2 joined cabinets) 111.8 x 177.8 x 97.6 cm / 44 x 70 x 38.4 in Export classification

3000W1000E 600 700 800 FREQUENCY (MHz)

EAR99

80 to 1,000 MHz

4000W1000B

6000W1000

10000W1000A

10 000 watte CW 80-1 000 MHz

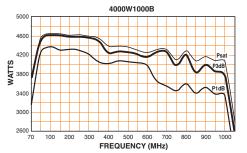


4,000 watts CW, 80-1,000 MHz

Rated Output Power		watts min.	Rated Output Power	
Input for Rated Output		iwatt max.	Input for Rated Output	
Power Output @ 3 dB co Nominal 4,000 watts 3,400 watts from 500	/ 3,600 watts min. up to 500 MH	Z;	Power Output @ 3 dB c Nominal 6,000 watt 5,100 watts from 70	s / 5,500 watts
Power Output @ 1 dB co Nominal 3,500 watts 2,500 watts from 500	/ 3,000 watts min. up to 500 MH	Z;	Power Output @ 1 dB c Nominal 5,500 watt 4,500 watts from 70	s / 5,000 watts
Flatness	±2.0 dB max. / ±	1.5 dB typ.	Flatness	
Frequency Response	80–1,000 MHz instar	ntaneously	Frequency Response	8
Gain (at may setting)	ł.	, 66 dB min.	Gain (at max. setting)	
Gain Adjustment (continu	uous range)	25 dB min.	Gain Adjustment (conti	nuous ranae)
Input Impedance	50 ohms, VSWR 1.5:1 max.	: 1.3:1 tvp.	Input Impedance	• • •
Output Impedance	50 ohm		Output Impedance	
Mismatch Tolerance*		-,	Mismatch Tolerance*	
Will operate without o	lamage or oscillation when conn e without the aid of foldback circ	ected	Will operate without to any load impedar	damage or os
However, mismatch al reflected power.	pove 6.0:1 may limit output to 2,	000 watts	However, mismatch	
	Minus 20 dPo may at 2	100 watto	reflected power. Harmonic Distortion	Minu
	Minus 20 dBc max. at 3, -20 dBc typ. at 4	,000 watts	-20 dBc typ. at 6,	,000 watts
Third Order Intercept Poi	nt 73	3 dBm typ.	Third Order Intercept Po	oint
Noise Figure	8 dB max	., 6 dB typ.	Noise Figure	
Primary Power (user mus 200–240 VAC, Delta a 360–435 VAC, Wye ca 50 / 60 Hz, 3 phase,	st specify) connected (4-wire) pnnected (5-wire)		Primary Power (user mi 200–240 VAC, Delta 360–435 VAC, Wye o 50 / 60 Hz, 3 phase	-4) connected connected (5-v
Connectors			Connectors	
RF Input	Type N female on		RF Input	
RF Output	Type 1 5/8 female on		RF Output	Туре З
Forward Sample Reverse Sample	Type N female, front Type N female, front		Forward Sample Reverse Sample	
Remote Interfaces:	Type in ternule, norm	(-70 ubc)	Remote Interfaces:	
IEEE-488	24-	pin female	IEEE-488	
RS-232	9-pin Subminiature	D, female	RS-232	
Fiber Optic	ST Conn Tx and	Rx RS-232	Fiber Optic	
USB 2.0		Type B	USB 2.0	
Ethernet Safety Interlock	15-pin female subminiature D,	ŔJ-45	Ethernet Safety Interlock	15 nin form
Cooling	i o-pin ternule subminidule D,	ieui puilel	Safety Interlock Cooling	10-piii ielii
	ned fans), enters front and botto	m	Forced air (self-cont	ained fans) er
Weight (approximate)		g (950 lb.)	Weight (approximate)	
		9 (700 10.)		

Weight (approximate)	432 kg (950 lb.)	Weight (approximate)
Size (WxHxD) (2 joined cabinets) 111.8 x 177.8 x 82.3 cm / 44 x 70 x 38.4 in.	• • • •	Size (WxHxD) (3 joine 170.0 x 183.0 x 9
111.8 x 177.8 x 82.3 cm / 44 x 70 x 38.4 in.		170.0 x 183.0 x 9
Export classification	EAR99	Export classification

Export classification



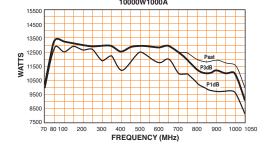


6,000 watts CW, 80-1.000 MHz

FREQUENCY (MHz)

900

6,000 watts	CW, 80–1,000 MHz	10,000 watts	CW, 80-1,000 MHz
Rated Output Power	6,000 watts min.	Rated Output Power	Nominal, 12,500 watts
Input for Rated Output	1.0 milliwatt max.	12,000 watts min. up t	
Power Output @ 3 dB comp	pression	10,500 watts min., 700	
Nominal 6,000 watts / 5	5,500 watts min. up to 700 MHz;	Input for Rated Output	1.0 milliwatt max.
5,100 watts from 700 to		Power Output @ 3 dB compre	ession
Power Output @ 1 dB comp Nominal 5,500 watts / 5 4,500 watts from 700 to	5,000 watts min. up to 700 MHz;	Nominal 12,500 watts / 12 10,000 watts from 700 to	2,000 watts min. up to 700 MHz; 1,000 MHz
Flatness	± 2.0 dB max. / ± 1.5 dB typ.	Power Output @ 1 dB compre	SSION
Frequency Response	80–1,000 MHz instantaneously	9,500 watts from 700 to 1	D,500 watts min. up to 700 MHz;
Gain (at max. setting)	67.8 dB min.	Flatness	±2.0 dB max. / ±1.5 dB typ.
Gain Adjustment (continuo		Frequency Response	80–1,000 MHz instantaneously
Input Impedance	50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.	Gain (at max. setting)	70 dB min.
Output Impedance	50 ohms, nominal	Gain Adjustment (continuous	
Mismatch Tolerance*	oo onnis, noninar		50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Will operate without dar	nage or oscillation when connected	Output Impedance	50 ohms, nominal
to any load impedance	nage or oscillation when connected without the aid of foldback circuitry.	Mismatch Tolerance	00 01113, 11011110
	ve 6.0:1 may limit output to 3,000 watts	Will operate without dama	ge or oscillation when connected
reflected power.	Minute OO alDa anama at E EOO a antha	to any load impedance wit	thout the aid of foldback circuitry.
Harmonic Distortion -20 dBc typ. at 6,000	Minus 20 dBc max. at 5,500 watts,		6.0:1 may limit output to 6,000 watts
Third Order Intercept Point	75 dBm typ.	reflected power.	
Noise Figure	8 dB max., 6 dB typ.	Modulation Capability	M, or pulse modulation appearing on
Primary Power (user must s		input signal.	in, or pulse modulation appearing on
200–240 VAC, Delta cor	nnected (4-wire)	Harmonic Distortion	Minus 20 dBc max. at 10,000 watts,
360-435 VAC, Wye conr		-25 dBc typ. at 10,000	watts
50 / 60 Hz, 3 phase, 24	kVA	Third Order Intercept Point	78 dBm typ.
Connectors RF Input	Tupo N fomalo on roar papol	Noise Figure	8 dB max., 6 dB typ.
RF Output	Type N female on rear panel Type 3 1/8 EIA female on rear panel	Primary Power (specify voltag 200–240 VAC, Delta conne	e) acted (A-wire)
Forward Sample	Type N female, front (-70 dBc)	360–435 VAC, Wye connect	cted (4-wire)
Reverse Sample	Type N female, front (-70 dBc)	50 / 60 Hz, three phase, 48	8,000W
Remote Interfaces: IEEE-488	04 pip fomale	Connectors	
RS-232	24-pin female 9-pin Subminiature D, female	RF Input	Type N female on rear panel
Fiber Optic	ST Conn Tx and Rx RS-232	RF Output Forward Sample	Type 4-1/16 EIA, rear panel N female, front (-70 dBc)
USB 2.0	Туре В	Reverse Sample	N female, front (-70 dBc)
Ethernet	RJ-45	Remote Interfaces:	
Safety Interlock 1 Cooling	15-pin female subminiature D, rear panel	IEEE-488	24-pin female
	ed fans), enters front and bottom	RS-232 Fiber Optic	9-pin Subminiature D, female ST Conn Tx and Rx RS-232
Weight (approximate)	703 kg (1,550 lb.)	USB 2.0	Type B
Size (WxHxD) (3 joined cab	vinets)	Ethernet	ŔJ-45
Size (WxHxD) (3 joined cab 170.0 x 183.0 x 99.0 cr	n / 67 x 72 x 39 in.	'	pin female subminiature D, rear panel
Export classification	EAR99	Cooling	(mar) and an frank and hatten
-			fans), enters front and bottom
		SYSTEM (2 3-bay racks):	1 407 1/2 (2 100 1/2)
		Weight (approximate)	1,407 kg (3,100 lb.)
		Size (WxHxD) 340.0 x 183.0 x 99.0 cm /	/ 1.34 x 72 x 39 in
		Export classification	EAR99
	6000W1000	•	
8000	000011000		10000W1000A



Built-In Web Control

AR's web enabled amplifiers give you the ability to monitor and control your amplifier remotely without the need for any other software. When the user switches to remote, the front panel locks, and the user can control the amplifier from a web page via an ethernet connection. Through this web page, the operator can view the hours of operation and the amplifier's output power, the hours of operation, manage all the controls remotely that are normally done from the front panel of the amplifier, and much more. AR has embedded this ampwebwARe feature in our CW Solid State amplifiers. Benefits include—

- All information shown on one web page
- Simple user interface
- Allows for remote diagnostics
- Monitor status from anywhere
- Multiple simultaneous browser connections
- Support for many web browsers

Whether the amplifier is in a lab or on a remote location, the user has an alternative method of controlling and viewing AR's solid state CW amplifiers features.

Mondair 2000 Minis 85 - 1000 Minis Mill Writes



ampwebwARe



Performance and Reliability That Exceed Your **Highest Expectations**

Our "S" Series Solid State Amplifiers Span Numerous Industrial and Technology Applications

500S1G6A 500 Watts Class A CW 0.7-6.0 GHz



350S1G6A 350 Watts Class A CW 0.7-6.0 GHz



Others talk about advanced technology. AR delivers. We created the first single band 0.7 to 6 GHz power amplifiers with output powers from 15 to 500 watts. There's no need to switch between amplifiers/bands to provide power to the load. You use less power and save more money.

These innovative Class A amplifiers offer low harmonic distortion, ∞ :1 mismatch capability, and excellent noise figures for your most demanding EMC or wireless applications.

Extensive control and status reporting capabilities are available both locally and remotely. The touch-screen panels are intuitive, convenient, and easy to use.

AR Amplifiers Use the Latest Technology

• Produce more power in a smaller package compared to the competition

 Internal self-contained liquid cooling technology **Reduced Power Consumption**

- This results in a greener product with savings on input power and lower cooling needs
- AR Quality Built into Every Amplifier
- Designed for years of use
- Wide Instantaneous Bandwidth
- Allows for continuous testing without interruption associated with switching of amplifiers while providing the user with a lower overall cost when compared to two amplifiers and a switch

Low Spurious Signal Levels

• Makes these amplifiers ideal for use as a driver amplifier for wireless, communication-component, and subsystem testing



3000S1G2z5 3,000 Watts CW 1.0-2.5 GHz

0.7 to 6 GHz

15S1G6 Solid State Amplifier

30S1G6 Solid State Amplifier

60S1G6 Solid State Amplifier

125S1G6 Solid State Amplifier



15 watts CW, 0.7-6.0 GHz

Rated Power Output Input for Rated Output		15 watts min. 1 milliwatt max.
Power Output @ 3 dB Nominal 20 watts /		
Power Output @ 1 dB (Nominal 15 watts /		
Flatness		±1.5 dB typ. / ±2.0 dB max. 0.7–6 GHz instantaneously
Frequency Response Gain (at max. setting)		43 dB min.
Gain Adjustment (cont (4096 steps remote		10 dB min.
Input Impedance Output Impedance		50 ohms, VSWR 2.0:1 max. 50 ohms, nominal
Mismatch Tolerance*	damago or os	cillation when connected to
any load impedance		d of foldback circuitry.
Modulation Capability Will faithfully reproc	uce AM, FM, or	pulse modulation
appearing on the in Third Order Intercept P		48 dBm typ.
Noise Figure	•••••	10 dB typ.
Harmonic Distortion		c max. at 15 watts (1–6 GHz)
Spurious	Minus 20 dBc	max. at 15 watts (0.7–6 GHz) Minus 73 dBc typ.
Primary Power (selecte	d automaticall	
90–132, 180–264 50/60 Hz, single ph	ase	
210 watts max.		
RF input		Type N female on front panel
RF output Standard Remote Ir	iterfaces Incluc	Type N female on front panel
Remote Interfaces IEEE-488		24-pin female
RS-232 RS-232 (fiber optic)		P-pin Subminiature D (female)
USB `´´´		Type ST 2.0 Type B
Ethernet Safety Interlock		RJ-45 15-pin Subminiature D
Cooling	F	prced air (self-contained fans)
Weight With Cabinet Without Cabinet		15.9 kg (35 lb.) 10.2 kg (22.5 lb.)
Size (WxHxD)		0,
With Cabinet Without Cabinet Export Classification:	50.3 x 15.5 x 3 48.3 x 12.7 x 3	57.6 cm / 19.8 x 6.1 x 14.8 in. 57.6 cm / 19.0 x 5.0 x 14.8 in. EAR99
		LANZ

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	and between taking	8			_		
			and the second s			- mar	an automation

30 watts CW, 0.7-6.0 GHz Rated Power Output Input for Rated Output 1 m Power Output @ 3 dB compression Nominal 35 watts / min. 26 watts Power Output @ 1 dB compression Nominal 30 watts / min. 22 watts ±1.5 dB typ. / : Small Signal Gain Flatness Frequency Response 0.7-6 GHz inst Gain (at max. setting) Gain Adjustment (continuous range) (4096 steps remote) Input Impedance 50 ohms, VSW Output Impedance 50 oh Mismatch Tolerance Will operate without damage or oscillation when cor any load impedance without the aid of foldback circ Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. Third Order Intercept Point Noise Figure Harmonic Distortion Minus 20 dBc max Spurious Minu Primary Power (selected automatically) 90–132, 180–264 VAC 50/60 Hz, single phase 300 watts max. Connectors Type N female o Type N female o RF input RF output Remote Interfaces IEEE-488 RS-232 RS-232 (fiber optic) 9-pin Subminiatur USB 2.0 Ethernet Safety Interlock 15-pin Su Cooling Forced air (self-con Weight With Cabinet Without Cabinet 12.5 Size (WxHxD) 50.3 x 15.5 x 37.6 cm / 19.8 x With Cabinet Without Cabinet 48.3 x 12.7 x 37.6 cm / 19.0 x Export Classification:

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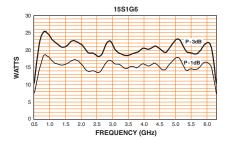
60 watts CW, 0.7-6.0 GHz

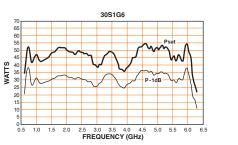
30 watts min. milliwatt max.	Rated Power Output Input for Rated Output Power Output @ 3 dB Nominal 80 watts, Power Output @ 1 dB Nominal 60 watts,	compression / min. 65 watts compression	60 watts min. (0.7–6 GHz) 1 milliwatt max.
±2.0 dB max. stantaneously 44 dB min. 10 dB min.	Flatness Frequency Response Gain (at max. setting) Gain Adjustment (con (4096 steps remot	tinuous range)	±1.5 dB typ. / ±2.5 dB max. 0.7–6 GHz instantaneously 48 dB min. 10 dB min.
VR 2.0:1 max. hms, nominal	Input Impedance Output Impedance Mismatch Tolerance	0)	50 ohms, VSWR 2.0:1 max. 50 ohms, nominal
onnected to rcuitry.	Will operate withou any load impedant Modulation Capability	ce without the ai 1	cillation when connected to id of foldback circuitry.
n	Will faithfully repro		pulse modulation
50 dBm typ. 10 dB typ.	appearing on the i Third Order Intercept Noise Figure		56 dBm typ. 10 dB typ.
ux. at 30 watts us 73 dBc typ.	Harmonic Distortion Spurious Phase Linearity Primary Power (select 90–132, 180–250 50/60 Hz, single p 550 wdts max.	ed automatically VAC	max. at 60 watts (0.7–6 GHz) Minus 73 dBc typ. ±1 deg/100 MHz, typ. y)
on front panel on front panel	Connectors RF		Type N female on front panel
24-pin female ure D (female) Type ST Type B RJ-45	Remote Interfaces IEEE-488 RS-232 RS-232 (fiber optic USB 2.0 Ethernet	;)	24-pin 9-pin Subminiature D Type ST Type B RJ-45
ubminiature D ontained fans)	Safety Interlock Cooling	F	15-pin Subminiature D orced air (self-contained fans)
8.2 kg (40 lb.) 5 kg (27.5 lb.)	Weight With Cabinet Without Cabinet		28.4 kg (62.5 lb.) 20.2 kg (44.5 lb.)
6.1 x 14.8 in. 5.0 x 14.8 in. EAR99	Size (WxHxD) With Cabinet Without Cabinet Export Classification:	50.3 x 20.3 x 5 48.3 x 17.8 x 5	i4.6 cm / 19.8 x 8.0 x 21.5 in. i4.6 cm / 19.0 x 7.0 x 21.5 in. 3A001

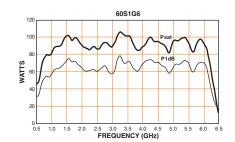


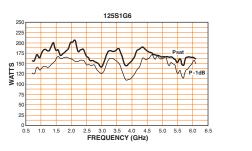
125 watts CW. 0.7-6.0 GHz

125 WO	iffs CW, U	./-6.0 GH	Z	250 wa
Rated Power Output Input for Rated Output Power Output @ 3 dB c Nominal 125 watts / Power Output @ 1 dB c Nominal 120 watts /	/ min. 120 watts compression		5 watts min. illiwatt max.	Rated Power Output Input for Rated Output Power Output @ 3 dB c Nominal 250 watts / Power Output @ 1 dB c Nominal 220 watts /
Flatness		±1.5 dB typ. / ±	2.5 dB max.	Flatness
Frequency Response		0.7–6 GHz inst	antaneously	Frequency Response
Gain (at max. setting) Gain Adjustment (contin (4096 steps remote			52 dB min. 10 dB min.	Gain (at max. setting) Gain Adjustment (contin (4096 steps remote)
Input Impedance		50 ohms, VSWF	2.0:1 max.	Input Impedance
Output Impedance		50 ohr	ms, nominal	Output Impedance
Mismatch Tolerance Will operate without any load impedance Modulation Capability Will faithfully reprod	without the aid	of foldback circui		Mismatch Tolerance Will operate without any load impedance Modulation Capability Will faithfully reprodu
appearing on the in	out signal.			appearing on the inp
Third Order Intercept Po	pint		58 dBm typ.	Third Order Intercept Po
Noise Figure			10 dB typ.	Noise Figure
Harmonic Distortion				Harmonic Distortion
	Minus 20 dBc m	ax. at 125 watts (Minu
Spurious			73 dBc typ.	Spurious
Phase Linearity		±1 deg/10	00 MHz, typ.	Phase Linearity
Primary Power (selecte 90–132, 180–264 V 50/60 Hz, single pho 1,200 watts max.	AC			Primary Power (selected 200–250 VAC 50/60 Hz, single pho 2,500 watts max.
Connectors				Connectors
RF Demote Interference		Type N female or	n front panel	RF
Remote Interfaces IEEE-488 RS-232 RS-232 (fiber optic) USB 2.0 Ethernet		9-pin S	24-pin ubminiature Type ST Type B RJ-45	Remote Interfaces IEEE-488 RS-232 RS-232 (fiber optic) USB 2.0 Ethernet
Safety Interlock		15-pin Sub	ominiature D	
Cooling	Fc	rced air (self-con	tained fans)	Safety Interlock Cooling
Weight With Cabinet Without Cabinet		45 34.5	kg (100 lb.) 5 kg (76 lb.)	Weight With Cabinet Without Cabinet
Size (WxHxD)				Size (WxHxD)
With Cabinet Without Cabinet Export Classification:		1.0 cm / 19.8 x 1 1.0 cm / 19.0 x 1		With Cabinet Without Cabinet Export Classification:











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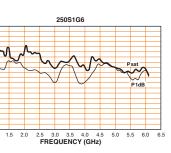
250 watts CW, 0.7-6.0 GHz

250 watts min. Rated Power Output 1 milliwatt max. 3 dB compression watts / min. 225 watts dB compression watts / min. 200 watts ±1.5 dB typ. / ±2.5 dB max. 0.7–6 GHz instantaneously 54 dB min. (continuous range) 10 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal ithout damage or oscillation when connected to edance without the aid of foldback circuitry. reproduce AM, FM, or pulse modulation 60 dBm typ. 10 dB typ. Minus 20 dBc max. at 250 watts (0.75–6.0 GHz); 18 dBc typ. (0.7–0.75 GHz) Minus 73 dBc typ. ±1 deg/100 MHz, typ. elected automatically) Type N female on front panel 24-pin

9-pin Subminiature Type ST Type B ŔJ-45 15-pin Subminiature D Forced air (self-contained fans)

> 64 kg (140 lb. 12.5 kg (27.5 lb.)

50.3 x 47 x 61.0 cm / 19.8 x 18.5 x 24 in. 48.3 x 44.3 x 58.5 cm / 19.0 x 17.3 x 23 in 3A001

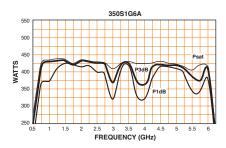


250S1G6 Solid State Amplifier 350S1G6A Solid State Amplifier



350 watts CW, 0.7-6.0 GHz

350 watts min. Input for Rated Output 1 milliwatt max. Power Output @ 3 dB compression Nominal 370 watts / min. 315 watts Power Output @ 1 dB compression Nominal 300 watts / min. 250 watts ±1.5 dB typ. / ±2.5 dB max. Flatness Frequency Response 0.7-6 GHz instantaneously Gain (at max. setting) 56 dB min. Gain Adjustment (continuous range) 10 dB min. (4096 steps remote) 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal Mismatch Tolerance Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry. However, mismatch above 6.0:1 may limit output to 175 watts reflected power. Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal Third Order Intercept Point 58 dBm typ. Harmonic Distortion Minus 20 dBc maximum at 300 watts (1.0-6.0 GHz) Minus 20 dBc typical at 300 watts (0.7-1.0 GHz) Primary Power (selected automatically) 200–260 VAC 50/60 Hz, single phase 3,600 watts max. Connectors Type N female on rear panel Type 7-16 DIN female on rear panel RF input RF output Safety Interlock 15-pin female subminiature D, rear Remote computer interface IEEE-488 (GPIB) and RS-232 connector, rear Remote Computer Interface (Fiber Optic) ST Conn Tx, RS-232 Rx USB 2.0 Type B Ethernet ŔJ-45 Coolina Forced air (self-contained fans) 136 kg (300 lb.) Weight Size (WxHxD) 50.3 x 127.0 x 61.0 cm / 19.8 x 50 x 24 in. 3A001 Export Classification:



0.7 to 6 GHz

500S1G6A Solid State Amplifier 125S1G2z5 Solid State Amplifier 250S1G2z5B Solid State Amplifier

1.0 to 2.5 GHz

44 60

500S1G2z5A Solid State Amplifier





Power Output @ 1 dB compression	ło
Nominal 450 watts / min. 400 wat Flatness	±1.5 dB typ. / ±2.5 dB max.
Frequency Response	0.7–6 GHz instantaneously
Gain (at max. setting)	57 dB min.
Gain Adjustment (continuous range)	10 dB min.
Input Impedance	50 ohms, VSWR 2.0:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	50 onins, nonindi
Will operate without damage or os	cillation when connected
to any load impedance without the	aid of foldback circuitry.
However, mismatch above 6.0:1 m	ay limit output to 250 watts
reflected power.	
Modulation Capability	
Will faithfully reproduce AM, FM, or	pulse modulation
appearing on the input signal.	42 dBm tun
Third Order Intercept Point Harmonic Distortion	63 dBm typ.
	max. at 400 watts (1–6 GHz);
	typ. at 400 watts (0.7–1 GHz)
Primary Power (selected automatically	
200–260 VAC	
50/60 Hz, single phase	
3,800 watts	
Connectors	Tuno N formalo on roar nanol
RF Input RF Output Type 7	Type N female on rear panel -16 DIN female on rear panel
Remote Interfaces	To bird ternale off fear parter
IEEE-488 (GPIB) and RS-232 conne	ector, rear
ST Conn Tx, RS-232 Rx (fiber optic)	
USB 2.0	Type B
Ethernet	Ŕj-45
Safety Interlock	15-pin Subminiature D, rear
IEEE-488 (GPIB) Interface and RS-232	<u>/</u> I frant nanal controls avaant
Allows control and monitoring of al keylock position control	i ironi panel controis except
	proced air (self-contained fans)
Weight	136 kg (300 lb.)
Size (WxHxD)	100 kg (000 lb.)
50.3 x 127.0 x 61.0 cm / 19.8 x 5	0 x 24 in.

0.

) watts min. Iliwatt max.	Input for Rated Output Power Output @ 3 dB compression Typ. 130 watts, min. 115 watts Power Output @ 1 dB compression	
2.5 dB max. antaneously 57 dB min. 10 dB min. 2.0:1 max. ns, nominal	Typ. 110 watts, min. 90 watts Flatness Frequency Response Gain (at max. setting) Gain Adjustment (continuous range Input Impedance Output Impedance Mismatch Tolerance	±1.5 dB typ. / ±2.0 dB max. 1.0–2.5 GHz instantaneously 54 dB min. e) 20 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal
nected rcuitry. 250 watts	Will operate without damage or any load impedance without the Modulation Capability Will faithfully reproduce AM, FM, appearing on the input signal.	e aid of foldback circuitry. or pulse modulation
ó3 dBm typ.	Third Order Intercept Point Noise Figure Harmonic Distortion	60 dBm typ. 12 dB max.; 10 dB typ. Minus 20 dBc max. at 100 watts Minus 30 dBc typ. at 100 watts
(1–6 GHz); 0.7–1 GHz)	Spurious Primary Power (selected automatic 100–240 VAC 50/60 Hz 650 watts	Minus 73 dBc typ.
n rear panel n rear panel	Connectors RF input RF output Remote Interfaces IEEE-488	Type N female Type N female 24-pin female
Type B RJ-45 Iture D, rear	RS-232 Fiber optic: USB 2.0 Ethernet Sofety Interlock	9-pin Subminiature D (female) ST Conn Tx and Rx RS-232 Type B RJ-45 15-pin Subminiature D
ols except	Cooling Acoustical Noise @ 1 Meter Front: 60 dBA	Forced air (self-contained fans)
ained fans) kg (300 lb.)	Side: 59 dBA Rear: 66 dBA Weight	
3A001	With Cabinet Without Cabinet Size (WxHxD)	36.7 kg (81 lb.) 25.4 kg (56 lb.)
	With cabinet 50.3 x 20.5	x 74.9 cm / 19.8 x 8.1 x 29.5 in. 7 x 74.9 cm / 19 x 7.0 x 29.5 in.
	Storage Temperature Export Classification:	-20°C/+50°C EAR99

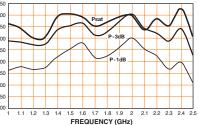
125 watts CW, 1.0-2.5	GHz	250 watts CW	, 1.0–2.5 GHz
	., 125 watts min. .0 milliwatt max.	Rated Power Output Input for Rated Output Power Output @ 3 dB compression Typ. 275 watts, min. 250 watts Power Output @ 1 dB compression	
10 watts, min. 90 watts ±1.5 dB typ cy Response 1.0–2.5 GHz max. setting) ustment (continuous range) pedance 50 ohms, V	o. / ±2.0 dB max. t instantaneously 54 dB min. 20 dB min. /SWR 2.0:1 max. D ohms, nominal	Typ. 225 watts, min. 200 watts Flatness Frequency Response Gain (at max. setting) Gain Adjustment (continuous range Input Impedance Output Impedance Mismatch Tolerance	±1.5 dB typ. / ±2.0 dB max. 1.0–2.5 GHz instantaneously 58 dB min.
n folerance operate without damage or oscillation wher oad impedance without the aid of foldback ion Capability		Will operate without damage or any load impedance without the Modulation Capability	e aid of foldback circuitry.
aithfully repróduce AM, FM, or pulse module aring on the input signal. der Intercept Point gure 12 dB ic Distortion Minus 20 dBc m Minus 30 dBc	60 dBm typ. max.; 10 dB typ. nax. at 100 watts typ. at 100 watts linus 73 dBc typ.	Will faithfully reproduce AM, FM, appearing on the input signal. Third Order Intercept Point Noise Figure Harmonic Distortion Spurious	, or pulse modulation 62 dBm typ. 12 dB max.; 10 dB typ. Minus 20 dBc max. at 200 watts Minus 30 dBc typ. at 200 watts Minus 73 dBc typ.
Power (selected automatically) 240 VAC) Hz watts		Primary Power (selected automatic 100–240 VAC 50/60 Hz, single phase 1,200 watts max.	
ors put itput Interfaces	Type N female Type N female	Connectors RF input RF output Remote Interfaces	Type N female on front panel Type N female on front panel
488 32 9-pin Submini optic: ST Conn T 2.0 net	24-pin female ature D (female) x and Rx RS-232 Type B RJ-45	IEEE-488 RS-232 Fiber optic: USB 2.0 Ethernet	24-pin female 9-pin Subminiature D (female) ST Conn Tx and Rx RS-232 Type B RL-45
terlock 15-pir	f-contained fans)	Safety Interlock Cooling Weight	15-pin Subminiature D Forced air (self-contained fans)
60 dBA 59 dBA 66 dBA		With Cabinet Without Cabinet Size (WxHxD)	42.6 kg (94 lb.) 31.3 kg (69 lb.)
Cabinet Jut Cabinet	36.7 kg (81 lb.) 25.4 kg (56 lb.)	With cabinet 50.3 x 20.5	x 74.9 cm / 19.8 x 8.1 x 29.5 in .7 x 74.9 cm / 19 x 7.0 x 29.5 in EAR99
HxD) cabinet 50.3 x 20.5 x 74.9 cm / 19. out Cabinet 48.3 x 17.7 x 74.9 cm / 14 nental			
ge Temperature Jassification:	-20°C/+50°C		

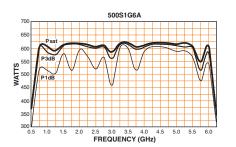
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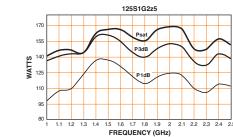


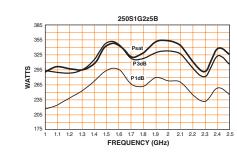
500 watts	CW, 1.0-2.5 GHz	1,000 watts
Rated Power Output	550 watts nominal, 500 watts min.	Rated Power Output
Input for Rated Output	1.0 milliwatt max.	Input for Rated Output (0 dB
Power Output @ 3 dB com Nominal 550 watts / mi		Power Output @ 3 dB comp Nominal 1,000 watts / m
Power Output @ 1 dB com Nominal 400 watts / mi	pression n. 350 watts	Power Output @ 1 dB comp Nominal 850 watts / min
Flatness	±1.5 dB typ. / ±2.0 dB max.	Flatness
	±0.5 dB typ. with internal leveling	Frequency Response
Frequency Response	1.0-2.5 GHz instantaneously	Gain (at max. setting)
Gain (at max. setting)	, 57 dB min.	Gain Adjustment (continuou
Gain Adjustment (continuo		(4096 steps remote)
(4096 steps remote)		Input Impedance
Input Impedance	50 ohms, VSWR 2.0:1 max.	Output Impedance
Output Impedance	50 ohms, nominal	Mismatch Tolerance
Mismatch Tolerance		Will operate without dam
	nage or oscillation when connected to	any load impedance with
	hout the aid of foldback circuitry.	Modulation Capability
Modulation Capability		Will faithfully reproduce A
	AM, FM, or pulse modulation	appearing on the input si
appearing on the input		Third Order Intercept Point
Third Order Intercept Point	66 dBm typ.	Noise Figure
Noise Figure	10 dB typ.	Harmonic Distortion
Harmonic Distortion	Minus 20 dBc max. at 350 watts	
	Minus 20 dBc typ. at 500 watts	Spurious
Constants	Minus 70 JDs tos	

milu Older miercepi		Noise Figure
Noise Figure	10 dB typ.	Harmonic Distortion
Harmonic Distortion	Minus 20 dBc max. at 350 watts	
	Minus 20 dBc typ. at 500 watts	Spurious
Spurious	Minus 73 dBc typ.	Primary Power (selected auto
Phase Linearity	±1.0 deg/100 MHz, typ.	200–240 VAC
Primary Power (select	ted automatically)	50/60 Hz, single phase
100–240 VAC		4,200 watts max.
50/60 Hz		Connectors
2,250 watts max.		RF input
Connectors	Turne Mildersender	RF output
RF input	Type N female	Remote Interfaces
RF output Remote Interfaces	Type 7/16 female	IEEE-488
IEEE-488	24-pin female	RS-232
RS-232		RS-232 (fiber optic)
	9-pin Subminiature D (female)	USB 2.0
Fiber Optic USB 2.0	ST Conn Tx and Rx RS-232	Ethernet
	Type B R.I-45	Safety Interlock
Ethernet		Cooling
Safety Interlock	15-pin Subminiature D	Acoustical Noise @ 1 Meter
Cooling	Forced air (self-contained fans)	Front: 44 dBA
Acoustical Noise @ 1	Meter	Side: 68 dBA
Front: 56 dBA		Rear: 72 dBA
Side: 57 dBA		Weight
Rear: 64 dBA		Size (WxHxD)
Weight With Cabinet	64.9 kg (143 lb.)	56.1 x 97.8 x 82.5 cm / 2
Without Cabinet	50.3 kg (111 lb.)	Environmental
Size (WxHxD)	00.0 kg (111 lb.)	Storage Temperature
With cabinet	50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in.	Export Classification:
Without Cabinet	48.3 x 17.7 x 74.9 cm / 19 x 7.0 x 29.5 in.	
Environmental		
Storage Temperatu	re -20°C/+50°C	
Export Classification:	EAR99	
	500S1G2z5A	
750		1200
700	Peat A	1150









Export Classification



1,000 watts CW, 1.0-2.5 GHz

1,000 watts min. for Rated Output (0 dBm) 1 milliwatt max. r Output @ 3 dB compression ominal 1,000 watts / min. 925 watts r Output @ 1 dB compression ominal 850 watts / min. 725 watts ±1.5 dB typ. / ±2.0 dB max. 1-2.5 GHz instantaneously 60 dB min. Adjustment (continuous range) 20 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal fill operate without damage or oscillation when connected to ny load impedance without the aid of foldback circuitry. ill faithfully reproduce AM, FM, or pulse modulation ppearing on the input signal. 69 dBm typ. 10 dB typ. Minus 20 dBc max. at 800 watts Minus 20 dBc typ. at 1,000 watts Minus 73 dBc typ. Power (selected automatically) Type N female on rear panel Type 7/8 EIA female on rear panel 24-pin female

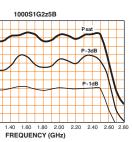
9-pin Subminiature D (female) Type ST Type B ŔJ-45 15-pin Subminiature D Forced air (self-contained fans)

131.5 kg (290 lb.)

/xHxD) 1 x 97.8 x 82.5 cm / 22.1 x 38.5 x 32.5 in.

-20°C/+50°C EAR99

Export Classification:

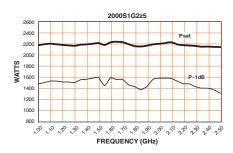


1000S1G2z5B Solid State Amplifier 2000S1G2z5 Solid State Amplifier



2,000 watts CW, 1.0-2.5 GHz Rated Power Output 2,100 watts min. Input for Rated Output 1 milliwatt max Power Output @ 3 dB compression Nominal 1,850 watts / min. 1,750 watts Power Output @ 1 dB compression Nominal 1,500 watts / min. 1,300 watts Average Output Power @ 3.2 GHz and Above: Less than 60 watts Flatness ±1.5 dB typ. / ±2.0 dB max. Frequency Response 1-2.5 GHz instantaneously 63 dB min. Gain (at max. setting) Gain Adjustment (continuous range) 20 dB min. (4096 steps remote) 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal Mismatch Tolerance* 100% of rated power without foldback up to 6.0:1 mismatch above which may limit to 1,000 watts reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. *See Application Note—Importance of Mismatch Tolerance for Amplifiers Used in Susceptibility Testing. Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. Third Order Intercept Point 70 dBm typ. Noise Figure 10 dB typ. Harmonic Distortion Minus 20 dBc max. at 1,400 watts Minus 73 dBc typ. Spurious Primary Power (selected automatically) 208 VAC, WYE (5-wire) 50/60 Hz, 3-phase, 12 kVA Connectors Type N female on rear panel Type 1-5/8 EIA female on rear panel RF input RF output Remote computer interfaces IEEE-488 24-pin RS-232 9-pin subminiature D RS-232 Fiber Optic Type ST USB 2.0 Type B Ethernet ŔJ-45 Safety Interlock 15-pin Subminiature D Forced air (self-contained fans) Cooling Weight 296 kg (650 lb.) Size (WxHxD) 2 joined cabinets: 111.8 x 123.7 x 83 cm / 44.0 x 48.7 x 32.4 in. Base Requirements: 3-in. diameter/2-in. wide casters, height adjustable over 1 in.; must accommodate forklift.

EAR99



1.0 to 2.5 GHz

3000S1G2z5 Solid State Amplifier

20S6G18-L Solid State Amplifier

6 to 18 GHz

40S6G18-L Solid State Amplifier



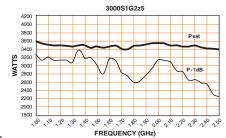
3,000 watts (CW, 1.0-2.5 GHz	20 watts
Rated Power Output Input for Rated Output Power Output @ 3 dB compres Nominal 2,750 watts / min. Power Output @ 1 dB compres Nominal 2,300 watts / min. Average Output Power @ 3.2 G	2,600 watts sion 2,000 watts Hz And Above:	Rated Power Output Input for Rated Output Power Output @ 3 dB co Nominal 25 wotts / m Power Output @ 1 dB co Nominal 22 wotts / m Power Gain Flatness (0 d
Flatness Frequency Response Gain (at max. setting) Gain Adjustment (continuous ro (4096 steps remote) Input Impedance Output Impedance Wismatch Elerance*	Less than 60 watts ±1.5 dB typ. / ±2.0 dB max. 1–2.5 GHz instantaneously 64 dB min. 20 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal	Frequency Response Gain (at max. setting) Gain Adjustment (continu Input Impedance Output Impedance Mismatch Tolerance Will operate without d any load impedance v Modulation Canpolity
above which may limit to 1, operate without damage or and phase of source and loo	ortance of Mismatch Tolerance for bility Testing. FM, or pulse modulation	Modulation Capability Will faithfully reproduc appearing on the inpu Third Order Intercept Poin Harmonic Distortion Primary Power (selected 90–132, 180–264 VA 50/60 Hz, single phas <700 watts max. Connectors RF input RF output
Harmonic Distortion Spurious Primary Power (selected autom 208 VAC, WVE (5-wire) 50/60 Hz, 3-phase, 17.5 kV# Connectors RF input RF output Remote computer interfaces		Remote Interfaces IEEE-488 RS-232 RS-232 (fiber optic) USB 2.0 Ethernet Sofety Interlock Cooling Weight
IEEE-488 RS-232 RS-232 Fiber Optic USB 2.0 Ethernet Safety Interlock Cooling Weight Size (WxHxD) 2 joined cabinets 111.8 x 149.9 x 83 cm / 44 Base Requirements: 3 in. diame	.0 x 59 x 32.4 in.	Size (WxHxD) w/cabinef: 50.3 x 20.6 w/o cabinef: 48.3 x 17 Export Classification:
height adjustable over 1 in. Mu Export Classification:		

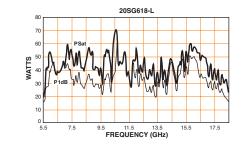


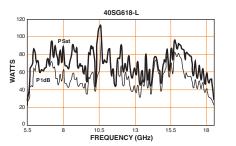


40 watts CW, 6.0-18 GHz

20 watts CW, 6.0-18 GHz	40 watts CW, 6.0-18 GHz
wer Output 20 watts min. Rated Output 1 milliwatt max., 0 dBm utput @ 3 dB compression 1 milliwatt max., 0 dBm nal 25 watts / min. 18 watts 1 milliwatt max., 0 dBm utput @ 1 dB compression 1 milliwatt max., 0 dBm nd 22 watts / min. 15 watts 1 milliwatt max., 0 dBm	Rated Power Output 40 watts min. Input for Rated Output 1 milliwatt max., 0 dBm Power Output @ 3 dB compression 1 milliwatt max., 0 dBm Nominal 45 watts / min. 35 watts 1 milliwatt max., 0 dBm Power Output @ 1 dB compression 1 milliwatt max., 0 dBm Nominal 30 watts / min. 22 watts 1 milliwatt max., 0 dBm
ain Flatness (0 dBm IN) ±2 dB typ. / ±3 dB max. cy Response 6.0–18 GHz instantaneously max. setting) 43 dB min. ustment (continuous range) 10 dB min. predance 50 ohms, VSWR 2.5:1 max. sprace 50 ohms, nominal h Tolerance 50 okms, nominal	Power Gain Flatness (0 dBm IN) ±2 dB typ. / ±3 dB max. Frequency Response 6.0–18 GHz instantaneously Gain (at max. setting) 46 dB min. Gain Adjustment (continuous range) 10 dB min. Input Impedance 50 ohms, VSWR 2.5:1 max. Output Impedance 50 ohms, nominal Mismatch Tolerance Will operate without damage or oscillation when connected to
ad impedance without the aid of foldback circuitry. on Capability aithfully reproduce AM, FM, or pulse modulation aring on the input signal. ler Intercept Point 49 dBm typ. c Distortion Minus 20 dBc max. at 20 watts Power (selected automatically) 32, 180–264 VAC	any load impedance without the aid of foldback circuitry. Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. Third Order Intercept Point 52 dBm typ. Harmonic Distortion Minus 20 dBc max. at 40 watts Primary Power (selected automatically) 100–240 VAC
D Hz, single phase wats max. Drs but Precision N female on front panel tput Precision N female on front panel Interfaces 188 24-pin female 2 (fiber optic) Yep SI 1 yep SI	50/60 Hz, single phase <1,200 watts max.
2.0 Type B net RJ-45 terlock 15-pin Subminiature D Forced air (internal self-contained liquid) w/cabinet: 31.75 kg (70 lb.) w/o cabinet: 20.4 kg (45 lb.) HxD)	USB 2.0 Type B Ethernet RJ-45 Safety Interlock 15-pin Subminiature D Cooling Forced air (internal self-contained liquid) Weight w/cabinet: 35 kg (77 lb.) Size (WxHxD)
oinef: 50.3 x 20.6 x 62.2 cm / 19.8 x 8.1 x 24.5 in. abinef: 48.3 x 17.8 x 62.2 cm / 19.0 x 7.0 x 24.5 in. assification: 3A001	w/cabinef: 50.2 x 20.6 x 63.2 cm / 19.8 x 8.1 x 24.9 in. w/o cabinet: 48.3 x 18.0 x 62.5 cm / 19.0 x 7.1 x 24.6 in. Export Classification: 3A001











Dual-Band, Class A Solid State Amplifiers

We put two of our state-of-the-art Class A CW amplifiers in a single chassis to address your needs and provide an easy to use amplifier system. With AR's dual-band amplifiers, you have freedom like never before. The dual-band amplifiers combine two amplifiers in one package, enabling you to cover a wider

frequency with one dual-band amplifier that requires less space and costs and weighs less than two individual solid state amplifiers.

Our dual-band amplifiers are mismatch tolerant, so they provide damage and oscillation protection when connected to any load impedance. These amplifiers can be used for EMC, EW, and other applications because they are linear and extremely load tolerant. They operate without damage or oscillation with any magnitude and phase of source and load impedance.

All our amplifiers have modulation capability that faithfully reproduces AM, FM, or pulse modulation that appears on the input signal. The AM peak envelope power is limited to specified power.

Some Benefits To Our Customers:

- Single unit eliminates need for external switches, resulting in less complexity and lower unit cost
- Simplify setup and improve throughput by not having to change antenna, coupler, or control interface
- Single unit more compact when space is an issue
- Less bulk and weight results in easier handling
- No foldback provides the maximum power to the load—you get the power you paid for
- Future upgradability results in lower upgrade costs on select models

From 700 MHz To 18 GHz "S" Series Solid State Dual-Band Amplifiers

These dual-band units supply you with up to 60 watts in the first 0.7-6 GHz band split and up to 40 watts output power in the 6-18 GHz split. A few of the applications benefiting from these models include immunity testing, EW, calibration, R&D, and material testing.

These versatile dual-band amplifiers also have the flexibility to be upgraded to higher power levels for each specific frequency range.

From 10 kHz To 1,000 MHz Solid State Dual-Band Amplifiers

Applications specific dual-band amplifiers are ready for the job! With AR's state-of-the-art design capabilities, these dual-band amplifiers help the user be more productive while watching the bottom line. Capabilities allow us to combine the best of our single band amplifiers to exceed requirements of standards such as near-field immunity, IEC EN61000, and MIL-STD 461 CS114 Navy.



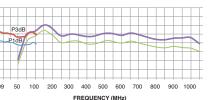
10 kHz to 1,000 MHz 0.7 to 18 GHz

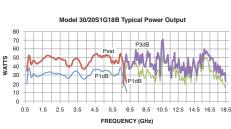
150/150AW1000 Dual-Band Solid State Amplifier



150/130 watts	, 10 kHz-1,000 MHz	30/20 watt
Rated Power Output	150 watts min (10 kHz–100 MHz)	Rated Power Output
Input for Rated Output Power Output @ 3 dB compre Nominal	165 watts (10 kHz–100 MHz)	30 watts min Input for Rated Output Power Output @ 3 dB comp Nominal 35 v
Minimum	150 watts (80–1,000 MHz) 140 watts (10 kHz–100 MHz) 125 watts (80–1,000 MHz)	Minimum 26 v Power Output @ 1 dB comp Nominal 30 v
Power Output @ 1 dB compre Nominal	ession 135 watts (10 kHz–100 MHz) 125 watts (80–1,000 MHz)	Minimum 22 v Power Gain Flatness (0 dBn
Minimum	110 watts (10 kHz–100 MHz) 100 watts (80–1,000 MHz)	Frequency Response
Power Gain Flatness (0 dBm l ±1.0 dB +1.5 d	N) typ., ±1.5 dB max. (10 kHz–100 MHz) dB typ., ±2.0 dB max. (80–1,000 MHz)	Power Gain (at max. setting
Frequency Response	10 kHz–100 MHz instantaneously 80–1,000 MHz instantaneously	Input Impedance Output Impedance
Power Gain (at max. setting)	51.8 dB min. (10 kHz–100 MHz) 52 dB min. (80–1,000 MHz)	Mismatch Tolerance Will operate without dam
Gain Adjustment (continuous Input Impedance Output Impedance	range) 20 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal	any load impedance with Spurious
Mismatch Tolerance Will operate without dama	ge or oscillation when connected to ut the aid of foldback circuitry.	Harmonic Distortion Min Mir
Spurious Harmonic Distortion	Minus 73 dBc typ. Minus 20 dBc max. at 100 watts,	Third Order Intercept Point Noise Figure
	IBc typ. at 70 watts (10 kHz–100 MHz) dBc typ. at 100 watts (80–1,000 MHz) 55 dBm typ. (10 kHz–100 MHz) 58 dBm typ. (80–1,000 MHz)	Primary Power 90–264 VAC 50/60 Hz, single phase
Noise Figure	8 dB typ. (10 kHz–100 MHz) 8 dB max., 6 dB typ. (80–1,000 MHz)	300 watts max. (0.7–6 G 600 watts max. (6–18 G Connectors
Primary Power (Universal; sele 100–240 VAC, 50/60 Hz 500 watts (10 kHz–100 MI 650 watts max. (80–1,000	Hz)	RF input RF output Standard Remote Interfaces
Connectors RF input RF output	Type N female Type N female	IEEE-488 RS-232 RS-232 (fiber optic)
Standard Remote Interfaces IEEE-488 RS-232 RS-232 (fiber optic) USB 2.0	24-pin female 9-pin Subminiature D Female Type ST Type B	USB 2.0 Ethernet Safety Interlock Cooling Weight
	RJ-45 15-pin Subminiature D rced air (internal self-contained liquid)	With Cabinet Without Cabinet Size (WxHxD)
Weight With Cabinet Without Cabinet	42.6 kg (94 lb.) 31.3 kg (69 lb.)	With Cabinet 50.3 Without Cabinet 48.3 x Export Classification:
	20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in. 17.7 x 74.9 cm / 19.0 x 7.0 x 29.5 in. EAR99	

Model 150/150AW1000 Typical Power Output





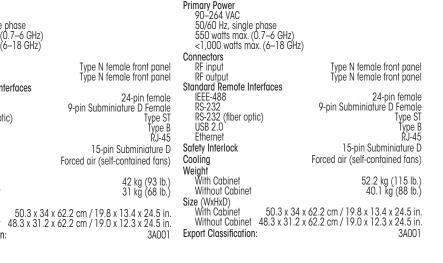
30/20S1G18B Dual-Band Solid State Amplifier



watts, 0.7 GHz-18 GHz

Rated Power Output .. vatts min (0.7–6 GHz), 20 watts min (6–18 GHz) 1.0 milliwatt max., 0 dBm Input for Rated Output dB compression Power Output @ 3 dB compression 35 watts (0.7–6 GHz), 25 watts (6–18 GHz) 26 watts (0.7–6 GHz), 18 watts (6–18 GHz) dB compression 30 watts (0.7–6 GHz), 22 watts (6–18 GHz) 22 watts (0.7–6 GHz), 15 watts (6–18 GHz) Power Output @ 1 dB compression s (0 dBm IN) Power Gain Flatness (0 dBm IN) ±1.5 dB typ., ±2.0 dB max. (0.7–6 GHz) ±2.0 db typ., ±3.0 dB max. (6–18 GHz) 0.7-6 GHz instantaneously Frequency Response 6–18 GHz instantaneous Power Gain (at max. setting) 48 dB min (0.7–6 GHz), 46 dB min (6–18 GHz) setting 44 dB min. (0.7–6 GHz) 43 dB min (6–18 GHz) 50 ohms, VSWR 2.5:1 max. Input Impedance Output Impedance 50 ohms, nominal nout damage or oscillation when connected to ance without the aid of foldback circuitry. Minus 73 dBc typ. Spurious Harmonic Distortion Minus 20 dBc max. at 30 watts (0.7-6 GHz)

Minus 20 dBc max. at 20 watts (6-18 GHz) 50 dBm typ. (0.7–6 GHz) 49 dBm typ. (6–18 GHz 10 dB tvp



Nominal

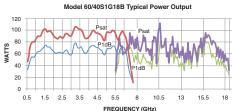
Minimum

Nominal Minimum

Mismatch Tolerance

Third Order Intercept Point

Noise Figure



60/40S1G18B Dual-Band Solid State Amplifier



60/40 watts, 0.7 GHz-18 GHz

Will operate without damage or oscillation when connected to

any load impedance without the aid of foldback circuitry.

60 watts min (0.7–6 GHz), 40 watts min (6–18 GHz)

60 watts (0.7-6 GHz), 46 watts (6-18 GHz)

55 watts (0.7-6 GHz), 35 watts (6-18 GHz)

57 watts (0.7–6 GHz), 30 watts (6–18 GHz) 50 watts (0.7–6 GHz), 22 watts (6–18 GHz)

Minus 20 dBc max. at 60 watts (0.7-6 GHz

Minus 20 dBc max. at 40 watts (6-18 GHz)

±1.5 dB typ., ±2.0 dB max. (0.7–6 GHz) ±2.0 db typ., ±3.0 dB max. (6–18 GHz)

1.0 milliwatt max., 0 dBm

0 7-6 GHz instantaneously

6–18 GHz instantaneously

50 ohms, VSWR 2.5:1 max.

54 dBm typ. (0.7-6 GHz)

52 dBm typ. (6-18 GHz)

10 dB tvr

50 ohms, nomina

Minus 73 dBc typ

AR's Class AB Solid State Power Amplifiers

AR is now offering a choice between our world-renowned Class A amplifiers in the 1-6 GHz frequency range and our Class AB designs when there are stringent demands for a combination of power, size, and cost.

These amplifiers feature a very cost effective solution for various applications where the linearity and extreme ruggedness of Class A designs are not required. The Class AB configuration affords almost twice the output power as a Class A approach in the same footprint in addition to providing higher efficiency at a substantially lower unit price.

Applications that can benefit from these products:

- Military jammers
- Wireless testing
- TWT replacements
- Calibration
- Laboratory general testing
- Limited EMC testing

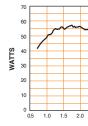
Features and Benefits

- Wideband power—One amplifier does the work of two of our competitors
- Higher power capability than Class A designs at minimal price increase
- Higher efficiency—Less current draw for critical requirements
- Versatility—Can be used for wireless and EW applications





Rated Power Output Small signal gain flatness ±1.0 dB typical / ±2.0 dB maximum Frequency Response Gain (at max. setting) Gain Adjustment (continuous range) (4096 steps remote) Input Impedance Output Impedance Mismatch Tolerance @ rated pout Modulation Capability on the input signal Third Order Intercept Point Noise Figure Harmonic Distortion Spurious Phase linearity Primary Power (selected automatically) 90–132, 180–250 VAC; 50–400 Hz, single phase; 500 watts maximum Connectors RF input RF output Remote interfaces IEEE-488 RS-232 RS-232 (fiber optic) USB 2.0 Ethernet Safety Interlock Cooling Weight With cabinet Without cabinet Size (WxHxD) Export Classification



1 to 6 GHz

50S1G6AB Solid State Amplifier 100S1G6AB Solid State Amplifier

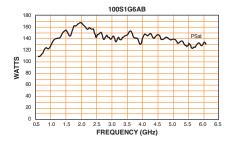


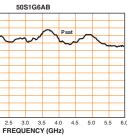
50 watts CW, 1.0-6.0 GHz 50 watts min. (1-6 GHz) Rated Power Output 1.0–6 GHz instantaneously 47 dB min. 15 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal 3:1 at all load phase Faithfully reproduce AM, FM, or pulse modulation appearing 56 dBm typ. 10 dB tvp. -20 dBc typ. at 40W, -15 dBc max. at 40W Minus 73 dBc typ. 1.0 deg/100 MHz, typical Type N female on front panel Type N female on front panel 24-pin 9-pin Subminiature D Type ST Type B RJ-45 15-pin Subminiature D Forced air (self-contained fans) 15.9 kg (35 lb.) 10.2 kg (22.5 lb.) With cabinet 50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in. Without cabinet 48.3 x 12.7 x 37.6 cm / 19.0 x 5.25 x 14.8 in. EAR99



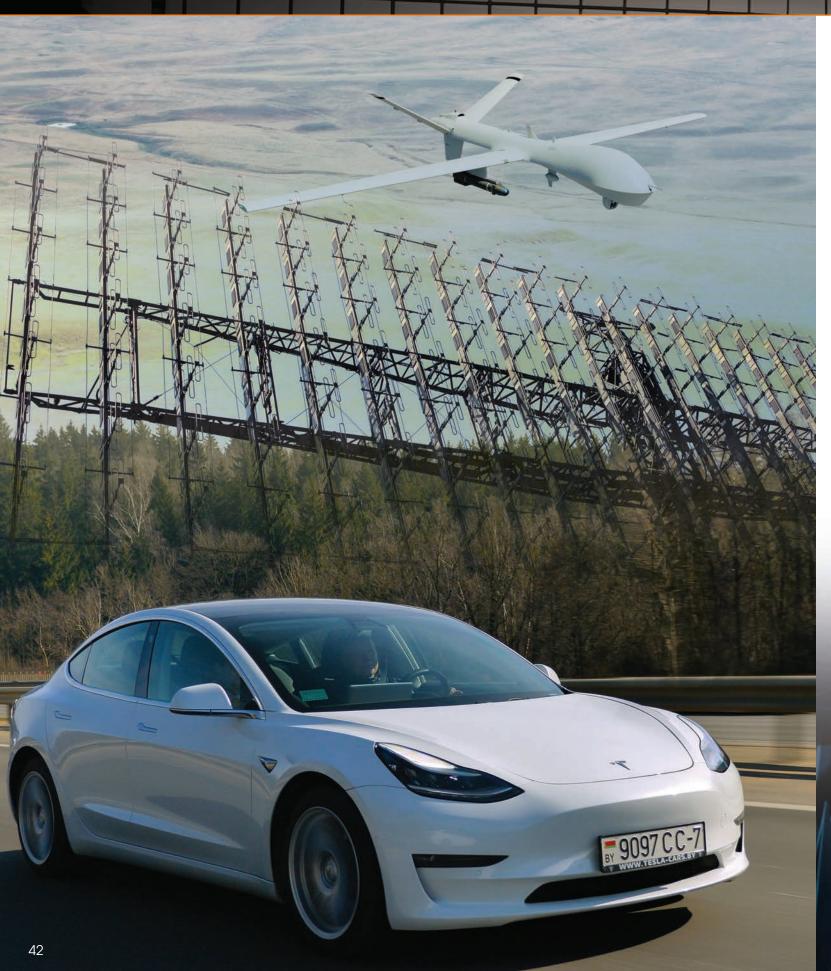
100 watts CW, 1.0-6.0 GHz

100 watts min. (1-6 GHz) Input for Rated Output 1 milliwatt max. Small signal gain flatness +1.5 dB typical / +2.5 dB maximum 1.0-6 GHz instantaneously Frequency Response Gain (at max. settina) 50 dB min. Gain Adjustment (continuous range) 10 dB min. (4096 steps remote) Input Impedance 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal Output Impedance Mismatch Tolerance @ rated pout Infinite VSWR. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Modulation Capability Faithfully reproduce AM, FM, or pulse modulation appearing on the input signal Third Order Intercept Point 56 dBm typ Noise Figure 10 dB typ -15 dBc typical at rated power Harmonic Distortion Minus 73 dBc tvp. Spurious Phase linearity 1.0 deg/100 MHz, typical Primary Power (selected automatically) 90–132, 180–250 VAC; 50/60 Hz, single phase, 525 watts maximum Connectors Type N female on front panel RF input Type N female on front panel RF output Remote interfaces IFFF-488 24-pin RS-232 9-pin Subminiature D RS-232 (fiber optic) Type ST **USB 2.0** Type B Ethernet R.J-45 15-pin Subminiature D Safety Interlock Forced air (self-contained fans) Cooling Weight With cabinet 28.4 kg (62.5 lb.) 20.2 kg (44.5 lb.) Without cabinet Size (WxHxD) 50.3 x 20.3 x 54.6 cm / 19.8 x 8.0 x 21.5 in With cabinet Without cabinet 48.3 x 17.8 x 54.6 cm / 19.0 x 7.0 x 21.5 in Export classification 3A001





Solid State Pulsed Amplifiers



For automotive and military EMC radiated immunity susceptibility testing, as well as radar and communication applications, there is now a very attractive alternative to Traveling Wave Tube Amplifiers (TWTAs). AR's offerings include various frequency ranges and output power levels to meet several standards. Designs can be tailored to suit your specific application. These amplifiers feature a touchscreen control panel, GPIB interface, TTL gating, fault monitoring, and forced air cooling.

Features and Benefits for These Rugged Amplifiers:

- Octave Frequencies: 1-2 GHz and 2-4 GHz
- Narrowband Frequencies: 1.2-1.4 GHz and 2.7-3.1 GHz
- Power Levels: 1 kW to 15 kW
- Harmonic Distortion of -18 dBc @ 1 dB compression point
- Pulse Widths to 100 µsec. and Duty Cycles to 10%
- High Mean Time To Failure (MTTF)
- Numerous Applications Possible—Automotive, MIL STD 464, DO-160 and Military Radar

Call AR Applications Engineers at 800.933.8181 for specific needs not covered by these amplifiers.



Why AR Solid State Pulsed Amplifiers Should Be on Your Radar

• Mismatch Tolerance—Will operate without damage or oscillation when connected to any load impedance without the aid of foldback circuitry.



1 to 2 GHz Pulse

1300SP1G2 Pulsed Amplifier



4000SP1G2 Pulsed Amplifier

.

8000SP1G2 Pulsed Amplifier





8.000 watts, 1-2 GHz Pulse

8,000 Wa	ITS, 1-2 GHZ PUISE	I,500 Waπs
Rated Power Output Input for Rated Output Flatness Frequency Response Gain (at max. setting) Gain Adjustment Continuous Range 20 of Input Impedance Output Impedance Mismatch Tolerance 6:1 maximum. Protectio power. No foldback or or	ITS, 1-2 GHZ PUISE 8,000 watts min. 1 milliwatt max. ±1.5 dB typ. / ±2 dB max. 1-2 GHz instantaneously 69 dB min. IB min., (4096 steps remote) 50 ohms 50 ohms, nominal IB min., (4096 steps remote) 50 ohms, nominal on above 3,800W minimum reflected utomatic leveling control on reflected ctivated, RF output is forced "off". 0.1-50 microseconds 50 kHz max. 6% max. 30 ns max. (10%-90%)	I,SUU WATTS, Rated Power Output Input for Rated Output Flatness Frequency Response Gain (at max. setting) Gain Adjustment Continuous Range 20 dE Input Impedance Output Impedance Mismatch Tolerance Output pulse width foldb exceeding 500 watts. Wi when connected to any I Pulse Capability Pulse Rate (PRF) Duty Cycle RF Rise and Fall
Delay Pulse Width Distortion	1 μs max. from pulse input to RF 90% ence between TTL Input Gate and 60 dB min. TTL level, 50 ohm nominal termination 12 dB typ. 5,000 watts ,000 watts <1.2 GHz ,000 watts ≥1.2 GHz Minus 60 dBc typ. Type N female on front panel 7/16 DIN female on front panel	Delay Pulse Width Distortion ±25 ns max. (differer RF pulse) Pulse Off Isolation Pulse Input Noise Figure Harmonic Distortion Spurious Primary Power 100–264 VAC 50/60 Hz, single phase 500 watts max. Connectors RF input RF output RF output forward and re Pulse input Remote Interfaces
Pulse input Remote Interfaces IEEE-488 Ethernet Safety Interlock Cooling Weight Size (WxHxD) 50.3 x 52.0 x 96.5 cm Export Classification	Type BNC female on rear panel 24-pin RJ-45 15-pin Subminiature D Forced air (self-contained fans) 120 kg (265 lb.)	IEEE-488 Ethernet Safety Interlock Cooling Weight Size (WxHxD) 50.3 x 15 x 78 cm / 19. Export Classification



1,300 watts, 1-2 GHz Pulse Dated Dowar Output

1 000 11 1		
1,300 watts min.	Rated Power Output	
1 milliwatt max.	Input for Rated Output	
		±1.5 dB
		1–2 (
61.2 dB min.		
		50 ohm
50 ohms, nominal		
ack protection at peak reflected power	Output pulse width foldback pr	otection at per
III operate without damage or oscillation	exceeding 1,000 watts. Will op	erate without
i phase of source and load impedance.		and pridse of
0 1 50 mioressands		
1 us max from pulse input to RF 90%		30 n
	Delay 1 us	s max. from pu
nce between TTL Input Gate	Pulse Width Distortion	
	±25 ns max. (difference be	tween TTL Inpu
	RF pulse)	
I 2 dB typ.		evel, 50 ohm i
jHz@8UUW;		0 - ID 1
		O arc max. L.
Minus 60 dBc typ.		
Type N female on front papel		Type N fe
		pe 7-16 DIN fe
effected sample ports	RE output forward and reflected	d sample ports
Type N female on rear panel		Type N fe
	Pulse input	Type BNC fe
	Remote Interfaces	11
24-pin	IEEE-488	
RJ-45	Ethernet	
15-pin Subminiature D	Safety Interlock	15
Forced air (self-contained fans)	Cooling	Forced air (
` 40 kg (88 lb.)	Weight	(
5(11)	Size (WxHxD)	
9.8 x 10.8 x 27 in.	50.3 x 20.3 x 76.2 cm / 19.8 x	x 8.0 x 30 in.
	±1.5 dB typ. / ±2.5 dB max. 1–2 GHz instantaneously 61.2 dB min. B min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max. 50 ohms, vSWR 2.0:1 max. 50 ohms, nominal back protection at peak reflected power ill operate without damage or oscillation I phase of source and load impedance. 0.1–50 microseconds 50 kHz max. 6% max. 30 ns max. (10%–90%) 1 µs max. from pulse input to RF 90% nce between TTL Input Gate 60 dB min. TTL level, 50 ohm nominal termination 12 dB typ. CHZ@800W; 2.0 GHz Type N female on front panel Type 7-16 DIN female on front panel Type N female on rear panel Type N female on rear panel Type BNC female on rear panel Type BNC female on rear panel Type SI female on rear panel SI forced air (self-contained fans)	 ±1.5 dB typ. / ±2.5 dB max. 1–2 GHz instantaneously 61.2 dB min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal pack protection at peak reflected power ill operate without damage or oscillation phase of source and load impedance. 0.1–50 microseconds 50 kHz max. 30 ns max. (10%–90%) 1 µs max. from pulse input to RF 90% nce between TTL Input Gate TTL level, 50 ohm nominal termination 12 dB typ. Minus 60 dBc typ. 5HZ@800W; 2.0 GHz Type N female on front panel Type N female on rear panel Type SN female on rear panel Type N female on rear pane



2,000 watts, 1-2 GHz Pulse 4,000 watts, 1-2 GHz Pulse Rated Power Output 2,000 watts min. Rated Power Output Input for Rated Output 1 milliwa ±1.5 dB typ. / ±2.5 d Flatness Frequency Response 1–2 GHz instantar Gain (at max. setting) 63 Gain Adjustment Continuous Range 20 dB min., (4096 steps remote) 50 ohms, VSWR 2.0: Input Impedance 50 ohms, n Output Impedance Mismatch Tolerance Output pulse width foldback protection at peak reflected p exceeding 1,000 watts. Will operate without damage or oscillation with any magnitude and phase of source and I impedance. Pulse Capability .1–50 micros 50 kH Pulse Width Pulse Rate (PRF) Duty Cycle RF Rise and Fall 30 ns max. (10% 1 µs max. from pulse input to F Delay Pulse Width Distortion ±25 ns max. (difference between TTL Input Gate and RF pulse) Pulse Off Isolation 60 TTL level, 50 ohm nominal termi Pulse Input 12 Noise Figure Harmonic Distortion -15 dBc max. up to 1.2 GHz; -20 dBc max. 1.2 GHz-2.0 GH Spurious Minus 60 c Primary Power 100-264 VAC 50/60 Hz, single phase 800 watts max. Connectors Type N female on front RF input Type 7-16 DIN female on front RF output RF output forward and reflected sample ports Type N female on real Pulse input Type BNC female on rear Remote Interfaces IEEE-488 Ethernet Safety Interlock 15-pin Subminio Cooling Forced air (self-contained 42 kg (* Weight

tts min. att max. dB max. neously dB min.	Rated Power Output Input for Rated Output Flatness Frequency Response Cain (at may sotting)	4,000 watts min. 1 milliwatt max. ±1.5 dB typ. / ±2.5 dB max. 1–2 GHz instantaneously 66 dB min.
ud IIIII.	Gain (at max. setting) Gain Adjustment	
:1 max.		B min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max.
nominal	Input Impedance Output Impedance	50 ohms, nominal
oower		ack protection at peak reflected watts. Will operate without damage
load		agnitude and phase of source and
	Pulse Capability	
seconds Hz max.	Pulse Width Pulse Rate (PRF)	0.1–50 microseconds 50 kHz max.
% max. 6–90%)	Duty Cycle RF Rise and Fall	6% max. 30 ns max. (10% to 90%)
RF 90%	Delay	1 µs max. from pulse input to RF 90%
	Pulse Width Distortion ±20 ns max. (differen	nce between TTL Input Gate and
	RF pulse)	
dB min. nination	Pulse Off Isolation Pulse Input	60 dB min. TTL level, 50 ohm nominal termination
2 dB typ.	Noise Figure Harmonic Distortion	12 dB typ.
Hz		2,500W; -20 dBc up to 2.0 GHz
dBc typ.	Spurious	Minus 60 dBc typ.
	Primary Power 100–264 VAC	
	50/60 Hz, single phase 1,500 watts max.	
	Connectors	Two N Grands and front a real
nt panel nt panel	RF input RF output	Type N female on front panel Type 7-16 DIN female on front panel
	RF output forward and re	eflected sample ports
ar panel ar panel	Pulse input	Type N female on rear panel Type BNC female on rear panel
0.4 min	Remote Interfaces	04 - 1-
24-pin RJ-45	IEEE-488 Ethernet	24-pin RJ-45
iature D	Safety Interlock	15-pin Subminiature D
ed fans)	Cooling	Forced air (self-contained fans)
(93 lb.)	Weight	170 kg (375 lb.)
	Size (WxHxD)	

50.3 x 55.0 x 72.0 cm / 19.8 x 21.7 x 28.3 in. 3A999.d 3A999.d Export Classification

1.2 to 1.4 GHz Pulse

1500SP1z2G1z4 Pulsed Amplifier 4000SP1z2G1z4 Pulsed Amplifier

1,500 watts, 1.2-1.4 GHz Pulse

1,500 watts min. 1 milliwatt max. ±1.0 dB typ. / ±2.0 dB max. 1.2–1.4 GHz instantaneously 61.8 dB min.

20 dB min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal

foldback protection at peak reflected power . Will operate without damage or oscillation any load impedance.

0.1–50 microsecondss 50 kHz max. 6% max. 30 ns max. (10%-90%) \leq 1 µs max. from pulse input to RF 90% fference between TTL Input Gate and 60 dB min. TTL level, 50 ohm nominal termination 8 dB max. Minus 30 dBc max. Minus 60 dBc typ. Type N female on front panel Type 7-16 DIN female on front panel nd reflected sample ports Type N female on rear panel Type BNC female on rear panel 24-pin RJ-45

15-pin Subminiature D Forced air (self-contained fans) 26 kg (58 lb.)

3A999.d

/ 19.8 x 5.9 x 30.7 in.



4,000 watts, 1.2-1.4 GHz Pulse

Rated Power Output 4,000 watts min. Input for Rated Output 1 milliwatt max. Flatness ±1.0 dB typ. / ±2.0 dB max. 1.2-1.4 GHz instantaneously Frequency Response Gain (at max. setting) 66 dB min Gain Àdjustment Continuous Range 20 dB min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal Mismatch Tolerance Output pulse width foldback protection at peak reflected power exceeding 2,000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Pulse Capability 0.1–50 microseconds 50 kHz max. Pulse Width Pulse Rate (PRF) 6% max. Duty Cycle RF Rise and Fall 30 ns max. (10%-90% 1 µs max. from pulse input to RF 90% Delay Pulse Width Distortion ±25 ns max. (difference between TTL Input Gate and RF pulse) Pulse Off Isolation 60 60 dB min TTL level, 50 ohm nominal termination Pulse Input 15 dB typ. Noise Figure Harmonic Distortion Minus 30 dBc max. Spurious Minus 60 dBc typ. Primary Power 100–264 VAC 50/60 Hz, single phase 600 watts max. Connectors Type N female on front panel Type 7-16 DIN female on front panel RF input RF output RF output forward and reflected sample ports Type N female on rear panel Pulse input Type BNC female on rear panel **Remote Interfaces** 24-pin RJ-45 IEEE-488 Ethernet 15-pin Subminiature D Safety Interlock Forced air (self-contained fans) Cooling Weight 35 kg (76 lb.) Size (WxHxD) 50.3 x 20.8 x 68.2 cm / 19.8 x 8.2 x 24.7 in. Export Classification 3A999.d 1.2 to 1.4 GHz Pulse

2 to 4 GHz Pulse

8000SP1z2G1z4 Pulsed Amplifier 15000SP1z2G1z4 Pulsed Amplifier 1000SP2G4 Pulsed Amplifier

2000SP2G4 Pulsed Amplifier

.



8,000 watts, 1.2-1.4 GHz Pulse

Rated Power Output Input for Rated Output	8,000 watts min. 1 milliwatt max.	Rated I Input fo
Flatness	±1.0 dB typ. / ±2.0 dB max.	Flatnes
Frequency Response	1.2–1.4 GHz instantaneously	Freque
Gain (at max. setting)	69 dB min.	Gain (a Gain A
Gain Adjustment Continuous Range 20 dF	3 min., (4096 steps remote)	Guin A Cor
Input Impedance	50 ohms, VSWR 2.0:1 max.	Input I
Output Impedance	50 ohms, nominal	Output
Mismatch Tolerance		Misma
	ack protection at peak reflected	Out
	watts. Will operate without damage	pov
load impedance.	agnitude and phase of source and	OSC Dulos (
Pulse Capability		Pulse (Puls
Pulse Width	0.1–50 microsecondss	Puls
Pulse Rate (PRF)	50 kHz max.	Dut
Duty Cycle	6% max.	RF
RF Rise and Fall	30 ns max. (10% to 90%)	Del
Delay Pulse Width Distortion	\leq 1 µs max. from pulse input to RF 90%	Pul
	nce between TTL Input Gate	
and RF pulse)		Pul
Pulse Off Isolation	60 dB min.	Noise
Pulse Input	TTL level, 50 ohm nominal termination	Harmo
loise Figure Iarmonic Distortion	8 dB typ. Minus 30 dBc max.	Spurio
Spurious	Minus 60 dBc typ.	Primar 100
Primary Power	Willius oo abe typ.	50/
100–264 VAC		7.5
50/60 Hz, single phase		Conne
4,000 watts max.		RF
Connectors	Turne Ni ferre vile sur freuet a sur el	RF
RF input RF output	Type N female on front panel Type 7-16 DIN female on front panel	RF
RF output forward and re		Pul
	Type N female on rear panel	Remot
Pulse input	Type BNC female on rear panel	IEE
Remote Interfaces		Eth
IEEE-488	24-pin	Safety
Ethernet Safety Interlock	RJ-45 15-pin Subminiature D	Coolin
Cooling	Forced air (self-contained fans)	Weigh
Veight	90 kg (198.5 lb.)	Size (V 50.
ize (WxHxD)	20 kg (170.0 lb.)	Export
50.3 x 51.6 x 79 cm / 1	9.8 x 20.3 x 31 in.	LAPOII
xport Classification	3A999	
•		



15,000 watts,	1.2-1.4 GHz Pulse	1,000 wo	atts, 2–4 GHz Pulse
Rated Power Output Input for Rated Output Flatness Frequency Response	1,500 watts min. 1 milliwatt max. ±1.0 dB typ. / ±2.0 dB max. 1.2–1.4 GHz instantaneously	Rated Power Output Input for Rated Output Flatness Frequency Response	1,000 watts min. 1 milliwatt max. ±1.5 dB typ. / ±2.5 dB at rated power 2.0-4.0 GHz instantaneously
Gain (at max. setting)	72 dB min.	Gain	60 dB min.
Gain Adjustment Continuous Range 20 dB I	min. (4096 steps remote)	Gain Adjustment Continuous Range 20	dB min., (4096 steps remote)
Input Impedance	50 ohms, VSWR 2.0:1 max.	Input Impedance	50 ohms, VSWR 2.0:1 max.
Output Impedance Mismatch Tolerance	50 ohms, nominal	Output Impedance Mismatch Tolerance	50 ohms, nominal
Output pulse width foldbar power exceeding 7,500 w oscillation when connecte	ck protection at peak reflected atts. Will operate without damage or d to any load impedance.	Output pulse width fo exceeding 500 watts. when connected to an	ldback protection at peak reflected power Will operate without damage or oscillation ny load impedance.
Pulse Capability Pulse Width Pulse Rate (PRF) Duty Cycle	0.1–50 microseconds 50 kHz max. 6% max.	Pulse Capability Pulse Width Pulse Rate (PRF) Duty Cycle	0.1–50 microseconds 50 kHz max. 6% max.
RF Ŕisé and Fall	30 ns max (10%–90%) ≤1 µs max. from pulse input to RF 90%	RF Rise and Fall Delay Pulse Width Distortior	30 ns max (10%–90%) ≤1 µs from pulse input to RF 90%
±25 ns max. (differenc and RF pulse)	e between TTL Input Gate	±25 ns max. (diffe and RF pulse)	rence between TTL input gate
Pulse Off Isolation	60 dB min.	Pulse Off Isolation	60 dB min.
Noise Figure	8 dB typ.	Pulse Input	TTL level, 50 ohm nominal termination
Harmonic Distortion Spurious	30 dBc max. Minus 60 dBc typ.	Noise Figure Harmonic Distortion	15 dB typ. Minus 30 dBc max.
Primary Power	Minus oo abc iyp.	Spurious	Minus 60 dBc typ.
100–264 VAC 50/60 Hz, single phase 7,500 watts max.		Primary Power 100–264 VAC 50/60 Hz, single phas 500 watts max.	
Connectors RF input	Type N female on front panel	Connectors	
RF output RF output forward and refl	Type 7-16 DIN female on front panel	RF input RF output	Type N female on front panel Type 7-16 DIN female on front panel d reflected sample ports
Pulse input	Type BNC female on rear panel		Type' N female on rear panel
Remote Interfaces	24-pin	Pulse input Remote Interfaces	Type BNC female on rear panel
Ethernet	RJ-45	IEEE-488	24-pin
Safety Interlock	15-pin Subminiature D	Ethernet	RJ-45
Cooling	Forced air (self-contained fans)	Safety Interlock Cooling	15-pin Subminiature D Forced air (self-contained fans)
Weight Size (WxHxD)	117 kg (258 lb.)	Weight	37 kg (82 lb.)
50.3 x 51.1 x 80 cm / 19.	8 x 20.4 x 31.5 in.	Size (WxHxD)	0(())
Export Classification	3A999	50.3 x 22.9 x 68 cm /	
		Export Classification	3A999.d

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1.000 watts, 2-4 GHz Pulse

2,000 wc	atts, 2-4 GHz Pulse
Rated Power Output	2,000 watts mit
Input for Rated Output	1 milliwatt ma
Flatness	± 1.5 dB typ. / ± 2.5 dB at rated pow
Frequency Response	2.0–4.0 GHz instantaneous
Gain (at max. setting)	63 dB mi
Gain Adjustment	dB min., (4096 steps remote)
Input Impedance	50 ohms, VSWR 2.0:1 ma
Output Impedance	50 ohms, vowr 2.0.1 ma
Mismatch Tolerance	50 01113, 1101111
	back protection at peak reflected
	0 watts. Will operate without damage or
	ected to any load impedance.
Pulse Capability	
Pulse Width	.1–50 microsecond
Pulse Rate (PRF) Duty Cycle	50 kHz ma 6% ma
RF Rise and Fall	30 ns max. (10%–90%
Delay	1 µs max. from pulse input to RF 90
Pulse Width Distortion	
	ence between TTL Input Gate
and RF pulse) Pulse Off Isolation	60 dB mi
Pulse Input	TTL level, 50 ohm nominal terminatio
Noise Figure	15 dB ty
Harmonic Distortion	Minus 22 dBc max. at 1,800 wat
Spurious	Minus 60 dBc tv
Primary Power	
100–264 VAC	
50/60 Hz, single phase	9
1,000 watts max.	
Connectors	Tupo N fomalo on front nan
RF input RF output	Type N female on front pan Type 7-16 DIN female on front pan
RF output forward and	reflected sample ports
	Type N female on rear pan
Pulse input	Type BNC female on rear pan
Remote Interfaces	
IEEE-488	24-p
Ethernet Safoty Interlook	RJ-4
Safety Interlock	15-pin Subminiature
Cooling Weight	Forced air (self-contained fan 45 kg (99 lb
Size (WxHxD)	40 KY (99 II
	/ 19.8 x 7.8 x 34.8 in.
Export Classification	3A999
	0,0777



10000SP2G4 Pulsed Amplifier





10,000 watts, 2-4 GHz Pulse

10,000 watts 1 milliwatt max. ± 2.5 dB typ. / ± 1.5 dB max. 2–4 GHz instantaneously 70 dB min. Continuous Range 20 dB min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max. 50 ohms, nominal Output pulse width foldback protection at peak reflected power exceeding 5,000 watts. Will operate without damage or oscillation with any magnitude and phase of source and 1 µs–50 microseconds 50 kHz max. 6% max. 50 ns max. (10%-90%) 600 ns max. from pulse input to RF 90% ±100 ns max. (50% points of output pulse width compared to 50% points of input pulse width) Pulse Off Isolation 60 dB min. TTL level, 50 ohm nominal termination 15 dB typ. Minus 60 dBc typ. Type N female on rear panel Type 7-16 DIN female on rear panel Type N female on rear panel Type BNC female on rear panel

24-pin RJ-45

15-pin Subminiature D Forced air (self-contained fans) 125 kg (276 lb.)



1,000 watts, 2.7-3.1 GHz Pulse

Rated Power Output 1,000 watts min. Input for Rated Output 1 milliwatt max. ±1.0 dB typ.; ±2.0 dB max. 2.7–3.1 GHz instantaneously Flatness Frequency Response Gain (at max. setting) 60 dB min Gain Adjustment Continuous Range 20 dB min., (4096 steps remote) 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, nominal Mismatch Tolerance Output pulse width foldback protection at peak reflected power exceeding 500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Pulse Capability 0.1-50 microseconds Pulse Width Pulse Rate (PRF) 50 kHz max. Duty Cycle 6% max RF Rise and Fall 30 ns max. (10% to 90%) 1 µs max. from pulse input to RF 90% Delay Pulse Width Distortion ±25 ns maximum (difference between TTL Input Gate and RF pulse) Pulse Off Isolation 60 dB min. TTL level, 50 ohm nominal termination Pulse Input Harmonic Distortion Minus 30 dBc max.s Spurious Minus 60 dBc typ. Primary Power 100-264 VAC 50/60 Hz, single phase 500 watts max. Connectors Type N female on front panel Type 7-16 DIN female on front panel RF input RF output RF output forward and reflected sample ports Type N female on rear panel Pulse input Type BNC female on rear panel Remote Interfaces IEEE-488 24-pin 9-pin subminiature D RS-232 Ethernet RJ-45 Safety Interlock 15-pin Subminiature D Forced air (self-contained fans) Cooling 26 kg (58 lb.) Weight Size (WxHxD) 50.3 x 15 x 68.0 cm / 19.8 x 5.9 x 26.8 in. Export Classification 3A999.d

3A999.d

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2.7 to 3.1 GHz Pulse

3000SP2z7G3z1 Pulsed Amplifier 6000SP2z7G3z1 Pulsed Amplifier 12000SP2z7G3z1 Pulsed Amplifier



3,000 watts, 2.7-3.1 GHz Pulse Rated Power Output 3 000 watts min

Rated Power Output	3,000 watts min.
Input for Rated Output Flatness	1 milliwatt max.
	±1.5 dB typ. / ±2.5 dB max. 2.7–3.1 GHz instantaneously
Frequency Response Gain (at max. setting)	65 dB min.
Gain Adjustment	05 05 11111.
Continuous Range 20 dB min., ((1096 stens remote)
Input Impedance	50 ohms, VSWR 2.0:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	
Output pulse width foldback pro	tection at peak reflected
power exceeding 1,500 watts. W	Vill operate without damage or
oscillation when connected to a	ny load impedance.
Pulse Capability	
Pulse Width	0.1–50 microseconds
Pulse Rate (PRF)	50 kHz max.
Duty Cycle	6% max.
RF Rise and Fall	30 ns max. (10%–90%)
	max. from pulse input to RF 90%
Pulse Width Distortion	upon TTL Input Cato
±20 ns max. (difference betv and RF pulse)	veen nit input Gale
Pulse Off Isolation	60 dB min.
Noise Figure	8 dB typ.
Spurious	Minus 60 dBc typ.
Primary Power	initiae ee abe iyp.
100–264 VAC	
50/60 Hz, single phase	
1,500 watts max.	
Connectors	
RF input	Type N female on front panel
	e 7-16 DIN female on front panel
RF output forward and reflected	
Dulas input	Type N female on rear panel
Pulse input Remote Interfaces	Type BNC female on rear panel
IEEE-488	24-pin
Ethernet	RJ-45
Safety Interlock	15-pin Subminiature D
Cooling	Forced air (self-contained fans)
Weight	40 kg (88 lb.)
Size (WxHxD)	10 kg (00 lb.)
50.3 x 20.3 x 75 cm / 19.8 x 8.	0 x 26.9 in.
Export Classification	3A999.d



6,000 watts, 2	2.7-3.1 GHz Pulse	12,000 watt
Rated Power Output Input for Rated Output Flatness Frequency Response Gain (at max. setting) Gain Adjustment Continuous Range 20 dB m	6,000 watts min. 1 milliwatt max. ±1.0 dB typ. / ±2.0 dB max. 2.7–3.1 GHz instantaneously 68 dB min.	Rated Power Output Input for Rated Output Flatness Frequency Response Gain (at max. setting) Gain Adjustment Continuous Range 20 c
Input Impedance Output Impedance Mismatch Tolerance Output pulse width foldbacl power exceeding 3,000 wa	50 ohms, VSWR 2.0:1 max. 50 ohms, nominal c protection at peak reflected tts. Will operate without damage nitude and phase of source and	Input Impedance Output Impedance Mismatch Tolerance Output pulse width fold exceeding 500 watts. W when connected to any
Pulse Capability Pulse Width Pulse Rate (PRF) Duty Cycle RF Rise and Fall	0.1–50 microseconds 50 kHz max. 6% max. 30 ns max. (10%–90%) 1 µs max. from pulse input to RF 90% between TTL Input Gate	Pulse Capability Pulse Width Pulse Rate (PRF) Duty Cycle RF Rise and Fall Delay Pulse Width Distortion ±20 ns max. (differe and RF pulse) Pulse Off Isolation
Pulse Off Isolation Noise Figure Harmonic Distortion Spurious Primary Power 100–264 VAC 50/60 Hz, single phase 3,000 watts max. Connectors	60 dB min. 8 dB typ. 30 dBc max. Minus 60 dBc typ.	Noise Figure Harmonic Distortion Spurious Phase Linearity Primary Power 100–264 VAC 50/60 Hz, single phase 6,000 watts max. Connectors
RF input RF output RF output forward and refle Pulse input Remote Interfaces IEEE-488 Safety Interlock Cooling Weight	Type N female on front panel Type 7-16 DIN female on front panel cted sample ports Type N female on rear panel Type BNC female on rear panel 24-pin 15-pin Subminiature D Forced air (self-contained fans) 88 kg (195 lb.)	RF input RF output RF output forward and r Pulse input Remote Interfaces IEEE-488 Safety Interlock Cooling Weight
Size (WxHxD) 50.3 x 51.6 x 79 cm / 19.8 Export Classification	x 20.3 x 31 in. 3A999.d	Size (WxHxD) 50.3 x 53.3 x 81.3 cm Export Classification

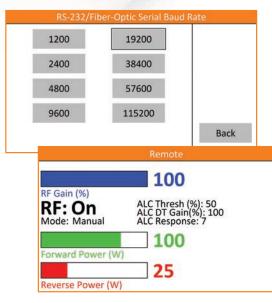


12.000 watts, 2.7-3.1 GHz Pulse

12,000 wans,	
Rated Power Output	12.000 watts min
Input for Rated Output	1 milliwatt max
Flatness	±1.0 dB typ. / ±2.0 dB max
Frequency Response	2.7–3.1 GHz instantaneously
Gain (at max. setting)	71 dB min
Gain Adjustment	
Contínuous Range 20 dB m	
Input Impedance	50 ohms, VSWR 2.0:1 max
Output Impedance	50 ohms, nomina
Mismatch Tolerance	
Output pulse width foldbac	k protection at peak reflected power
exceeding 500 watts. Will c	operate without damage or oscillation
when connected to any loa	
Pulse Capability	
Pulse Width	0.1–50 microseconds
Pulse Rate (PRF)	50 kHz max
Duty Cycle	6% max
RF Rise and Fall	30 ns max. (10%–90%)
	1 µs max. from pulse input to RF 90%
Delay Pulse Width Distortion	i µs mux. nom puise input to kr 90%
	hotwoon TTL Input Cato
±20 IIS IIIUX. (UIIIEIEIICE	e between TTL Input Gate
and RF pulse)	(0 dB
Pulse Off Isolation	60 dB min
Noise Figure	8 dB typ
Harmonic Distortion	30 dBc máx
Spurious	Minus 60 dBc typ
Phase Linearity	±4 deg/100 MHz, typ
Primary Power	
100–264 VAC	
50/60 Hz, single phase	
6,000 watts max.	
Connectors	
RF input	Type N female on front pane
RF output	Type 7-16 DIN female on front pane
RF output forward and refle	
	Type N female on rear pane
Pulse input	Type BNC female on rear pane
Remote Interfaces	.,po bito formalo on rour purio
IEEE-488	24-pir
Safety Interlock	15-pin Subminiature [
Cooling	Forced air (self-contained fans
Woight	
	114 kg (252 lb.)
Size (WxHxD)	
50.3 x 53.3 x 81.3 cm / 19	
Export Classification	3A999.c

AR's Amplifier Control System





AR's latest Touch Panel amplifier control system represents a number of significant advancements. We've expanded its abilities and made it easier to control and monitor important functions. Included features:

- Fiber-optic link between control system modules
- Self-addressing control system
- 32 general-purpose I/O, two analog outputs, and four analog inputs in each control system
- Expandable system by up to 4,096 modules
- Color touch screen display
- Standard remote ports: GPIB, RS-232, USB, F/O Serial, and ethernet.
- Remote port settings controlled through touchscreen menus
- Special system module for monitoring sub-system forward and reverse power levels to determine if they are balanced
- ALC for output leveling
- Ability to monitor full-system and sub-system power levels
- Easy integration with systems using an external chiller
- Module firmware upgradeable through USB port using a PC
- VSWR indication on "A" Series amplifiers
- Safety keep-alive system for remote communication on high-powered amplifiers

These screen shots and the explanations of the screens' functions provide a look at just how intuitive and powerful the AR Touch Panel control system is.

Microwave TWT Amplifiers

2.5 to 7.5 GHz

300T2G8 TWT Amplifier

CW and Pulsed Microwave TWTAs

Highest Available Power (Up to 10,000 watts)

- Complies with the most stringent standards
- Operation up to 50 GHz
- Faithfully reproduces AM, FM, or pulse modulation that appears on the input signal

Intelligent Display

• Monitor forward and reverse power and more.

VSWR Protection

• Each amplifier is designed with output foldback protection.







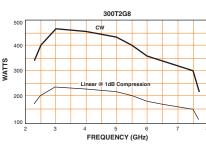
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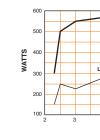




300 watts CW, 2.5-7.5 GHz

	,	
Frequency Response Input for Rated Output Gain (at max. setting) Gain Adjustment (continuous r Input Impedance Output Impedance Mismatch Tolerance Output power foldback prot 60 watts. Will operate with any magnitude and phase (May oscillate with ushield Should not be tested with c Video Pulse Capability Pulse Rate (PRF) RF Rise and Fall Delay 300 Pulse width distortion ±30 ns max. (50% poin 50% points of input puls Noise Power Density	350 watts / min. 300 watts 75 watts min. Jalized for ±5 dB max. at rated power 2.5-7.5 GHz instantaneously 1 milliwatt max. 55 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.5:1 typ. ection at reflected power exceeding but damage or oscillation with of source and load impedance. ad open due to coupling to input. onnector off. 0.05 microseconds min. 100 kHz max. 30 ns max. (10% to 90%) 0 ns max. from pulse input to RF 90% ts of output pulse width compared to se width)	Power (fundamental), CW/ Nominal Linear @ 1 dB Compress Flatness ±8 dB max, Frequency Response Input for Rated Output Gain (at max. setting) Gain Adjustment (continuou Input Impedance Output Impedance Output Impedance Output Jower foldback p 100 watts. Will operate any magnitude and pha May oscillate with unshi Should not be tested wit Video Pulse Capability Pulse Width Pulse Rate (PRF) RF Rise and Fall Delay Pulse width distortion ±30 ns max. (50% p 50% points of input Noise Power Density
(pulse on) Minus 75 (pulse off) Harmonic Distortion M Primary Power 190–260 VAC 50/60 Hz, single phase 3 kVA max.	dBm/Hz max., Minus 80 dBm/Hz typ. Minus 140 dBm/Hz typ. Iinus 3 dBc max., Minus 4.5 dBc typ.	(pulse on) Minus (pulse off) Harmonic Distortion Primary Power 208 VAC ± 10% 50/60 Hz, three phase 3.5 kVA max.
Connectors RF input RF output RF output sample port Interlock Video GPIB Cooling Forced air (self-contained for Weight Size (WXHxD) 50.3 x 29.7 x 68.6 cm / 19	Type N female on rear panel Type N female on rear panel DB-15 female on rear panel BNC-female on rear panel IEEE-488 female on rear panel ans), air entry and exit in rear. 54 kg (120 lb.) .8 x 11.7 x 27 in.	Connectors RF input RF output RF output sample port Interlock Video GPIB Cooling Forced air (self-containe Weight Size (WxHxD) 50.8 x 25.4 x 68.6 cm /







500T2G8 TWT Amplifier



500 watts CW, 2.5-7.5 GHz

ver (fundamental), CW/Pulse @ Output Connector 541 watts / min. 500 watts Linear @ 1 dB Compression 125 watts min. ness ±8 dB max, equalized for ±5 dB max. at rated power 2.5-7.5 GHz instantaneousl 1 milliwatt max. 57 dB min. Adjustment (continuous range) 35 dB min.

50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.5:1 typ.

Output power foldback protection at reflected power exceeding 100 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

> 0.05 microseconds min. 100 kHz max. 30 ns max. (10% to 90%) 300 ns max. from pulse input to RF 90%

Pulse width distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)

Minus 85 dBm/Hz max., Minus 95 dBm/Hz typ Minus 140 dBm/Hz typ Minus 3 dBc max., Minus 3.5 dBc typ

> Type N female on rear panel 7-16 DIN female on rear panel Type N female on rear pane DB-15 female on rear pane BNC-female on rear pane IEEE-488 female on rear pane

ling Forced air (self-contained fans), air entry and exit in rear. 55 kg (120 lb.)

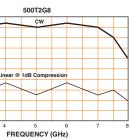
e (WxHxD) 50.8 x 25.4 x 68.6 cm / 20 x 10 x 27 in.

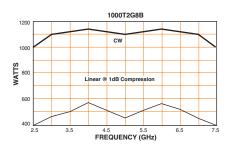
1000T2G8B TWT Amplifier



1,000 watts CW, 2.5-7.5 GHz

ts n.	Power (fundamental), CW, @ Outpu Nominal 1,100 watts	ut Connector / min. 900 watts, 2.5–2.7 GHz, 1,000 watts, 2.7–7.5 GHz		
er	Linear @ 1 dB Compression	250 watts min.		
ly	Flatness	many standard and see		
Х.	±8 dB max., equalized for ±3 dB	max. at rated power		
n. n.	Frequency Response 2.5–7.5 GHz instantaneously			
Х.	Input for Rated Output	1 milliwatt max.		
p.	Gain (at max. setting)	60 dB min.		
	Gain Adjustment (continuous range			
	Input Impedance	50 ohms, VSWR 2.0:1 max.		
	Output Impedance	50 ohms, VSWR 2.5:1 typ.		
	Mismatch Tolerance	a st vollo stad, source, over oding		
	Output power foldback protection 200 watts. Will operate without of	a reliected power exceeding		
	any magnitude and phase of sou	irce and load impedance.		
n.	May oscillate with unshielded open due to coupling to input.			
X.	Should not be tested with connector off.			
6) %	Noise Power Density			
/0	Minus 80 dBm/Hz max., Minus 9 Harmonic Distortion	u aditi/hz typ.		
0	Minus 15 dBc max., Minus 17 dl	Bc typ.		
	Primary Power			
p.	190–255 VAC			
р. р.	50/60 Hz, three phase, delta (4 8.0 kVA max.	wire)		
p. D.	Connectors			
	RF input	Type N female on rear panel		
	RF output			
	Type WRD-250 d30 waveguid			
	RF output sample port	Type N female on rear panel		
el	GPIB	DB-15 female on rear panel IEEE-488 female on rear panel		
el	Cooling			
el	Forced air (self-contained fans),	air entry and exit in rear.		
el el	Weight	295 kg (650 lb.)		
el	Size (WxHxD)	0.00.4		
-	56 x 160.0 x 82.3 cm / 22.1 x 6	3 X 32.4 IN.		





2.5 to 7.5 GHz

4 to 8 GHz

6 to 18 GHz

250T6G18 TWT Amplifier

Tank Rec

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7.5 to 18 GHz

1500T2G8A TWT Amplifier



1,700 watts CW, 2.5-7.5 GHz

.,		
Power (fundamental), CW, @ Output Nominal 2,000 watts /	Connector min. 1,600 watts, 2.5–3 GHz, 1,700 watts, 3–7.5 GHz	Power (fundamental), CW, @ Output C Nominal Linear @ 1 dB Compression
Linear @ 1 dB Compression	400 watts min.	Flatness
Flatness		Frequency Response
±8 dB max., equalized for ±6 dB r	nax. at rated power	Input for Rated Output
Frequency Response		Gain (at max. setting)
2.5–7.5 GHz instantaneously		Gain Adjustment (continuous range)
Input for Rated Output	1 milliwatt max.	Input Impedance
Gain (at max. setting)	62 dB min.	Output Impedance
Gain Adjustment (continuous range)		Mismatch Tolerance
Input Impedance	50 ohms, VSWR 2.0:1 max.	Output power foldback protection at
Output Impedance	50 ohms, VSWR 2.5:1 typ.	40 watts. Will operate without dama
Mismatch Tolerance	at reflected newer eveneding	any magnitude and phase of source
Output power foldback protection 300 watts. Will operate without do		May oscillate with unshielded open Should not be tested with connector
any magnitude and phase of sour	ce and load impedance.	Noise Power Density
May oscillate with unshielded ope	n due to coupling to input.	Minus 64 dBm/Hz max., Minus 70 d
Should not be tested with connect	or off.	Harmonic Distortion
Noise Power Density		Minus 4 dBc max., Minus 7 dBc typ.
Minus 85 dBm/Hz max., Minus 95	dBm/Hz typ.	Primary Power
Harmonic Distortion	. h.m.	190–260 VAC
Minus 15 dBc max., Minus 17 dBc	; тур.	50/60 Hz, single phase
Primary Power 190–255 VAC		2.0 kVA max.
50/60 Hz, three phase, delta (4 w	ire)	Connectors RF input
11 kVA max.		RF output
Connectors		RF output sample port
RF input	Type N female on rear panel	Interlock
RF output		GPIB IEI
Type WRD-250 d30 waveguide		Cooling
RF output sample ports (forward a		Forced air (self-contained fans), air
Interlock	Type N female on rear panel DB-15 female on rear panel	
	EEE-488 female on rear panel	Size (WxHxD) 50.3 x 29.7 x 68.6 cm / 19.8 x 11.7
Cooling		00.0 X 2 7.7 X 00.0 CIII / 17.0 X 11.7
Forced air (self-contained fans), a	ir entry and exit in rear.	
Weight	296 kg (650 lb.)	
Size (WxHxD)	· · ·	
56.0 x 160.0 x 82.3 cm / 22.1 x 6	53 x 32.4 in.	

200T4G8 TWT Amplifier



200 watts CW, 4.0-8.0 GHz

200 watts CW, 4.0-8.0 GHz	250 watts CW, 6–18 GHz
Power (fundamental), CW, @ Output Connector Nominal 262 watts / min. 200 watts Linear @ 1 dB Compression 100 watts min. Flatness ±6 dB max. at rated power Frequency Response 4.0–8.0 GHz instantaneously Input for Rated Output 1 milliwatt max. Gain (at max. setting) 53 dB min. Gain Adjustment (continuous range) 35 dB min. Juput Impedance 50 ohms, VSWR 2.0:1 max. Output Impedance 50 ohms, VSWR 2.5:1 typ. Wismatch Tolerance 50 ohms, VSWR 2.5:1 typ. Wismatch Tolerance 50 ohms, VSWR 2.5:1 typ. Wismatch Tolerance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance 750 ohms, VSWR 2.5:1 typ.	Power (fundamental), CW/Pulse @ Output Connector Nominal 300 watts / min. 250 watts Flatness ±6 dB max. at rated power Frequency Response 6–18 GHz instantaneously Input for Rated Output 1 milliwatt max. Gain Adjustment (continuous range) 35 dB min. Input Impedance 50 ohms, VSWR 2.5:1 max. Output Power foldback protection at reflected power exceeding 50 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Video Pulse Capability 1 microseconds min. Pulse Width 1 microseconds min. Pulse Width 30 ns max. (10% to 90%) Delay 300 ns max. from pulse input to RF 90%
Minus 4 dBc max., Minus 7 dBc typ. Primary Power 190–260 VAC 50/60 Hz, single phase 2.0 kVA max. Connectors	Pulse width distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width) Noise Power Density (pulse on) Minus 65 dBm/Hz max., Minus 70 dBm/Hz typ. (pulse off) Minus 140 dBm/Hz typ.
RF input Type N female on rear panel RF output Type N female on rear panel RF output sample port Type N female on rear panel Interlock DB-15 female on rear panel GPIB IEEE-488 female on rear panel Cooling Forced air (self-contained fans), air entry and exit in rear. Weight 54 kg (120 lb.) Size (WxHxD) 50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.	Harmonic Distortion Minus 5 dBc max., Minus 8 dBc typ. Primary Power 190–260 VAC, 50/60 Hz, single phase, 2.0 kVA max. Connectors RF input Type N female on rear panel RF output sample port RF output sample port Type N female on rear panel Interlock DB-15 female on rear panel GPIB BNC-female on rear panel EEE-488 female on rear panel Cooling Forced air (self-contained fans), air entry and exit in rear.
	Weight 53 kg (115 lb.) Size (WxHxD) 50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in

n rear panel n rear panel n rear pane n rear panel

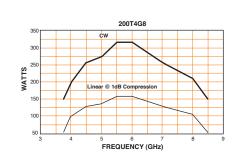
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.

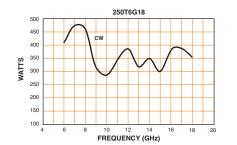


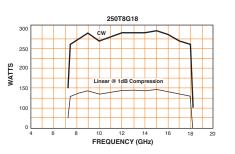
250 watts CW, 7.5-18 GHz

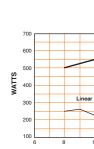
	,	
Pulse width distortion ±30 ns max. (50% points of 50% points of input pulse w Noise Power Density (pulse on) Minus 70 dBm/Hz m (pulse off) Minus 140 dBm/Hz h Harmonic Distortion Below 10 GHz, Minus 5 dBc max., Above 12 GHz, Minus 8 dBc max., Above 12 GHz, Minus 20 dBc m Primary Power 190–260 VAC, 50/60 Hz, single Connectors RF input RF output Type WRD-750D24 waveguig RF output sample port Interlock Video	300 watts / min. 250 watts 70 watts min. 20 for ±5 dB max. at rated power 7.5–18 GHz instantaneously 1 milliwatt max. 50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.5:1 typ. an at reflected power exceeding amage or oscillation with urce and load impedance. pen due to coupling to input. actor off. 0.05 microseconds min. 100 kHz max. 30 ns max. (10% to 90%) max. from pulse input to RF 90% output pulse width compared to ddth) ax., Minus 72 dBm/Hz typ. rp. x, Minus 7 dBc typ. Minus 12 dBc typ. ax., Minus 30 dBc typ. phase, 2.5 kVA max. Type N female on rear panel BNC-female on rear panel BNC-female on rear panel IEEE-488 female on rear panel air entry and exit in rear. 53 kg (115 lb.)	Power (fundamental), CW, Nominal Linear @ 1 dB Compres Flatness ±11 dB max., Frequency Response Input for Rated Output Gain (at max. setting) Gain Adjustment (continuo Input Impedance Output Impedance Output power foldback (100 watts. Will operate any magnitude and pho May oscillate with unshi Should not be tested wi Noise Power Density Minus 70 dBm/Hz max., Harmonic Distortion Minus 20 dBc/Hz max., Primary Power 208 VAC ± 10%, 50/60 Connectors RF input RF output Type WRD-750D24 v RF output sample port GPIB Interlock Cooling Forced air (self-containe Weight Size (WxHXD) 50.3 x 40.6 x 68.6 cm /

1500T2G8/ 2200 200 S160 FREQUENCY (GHz)









250T8G18 TWT Amplifier



500T8G18 TWT Amplifier

500 watts CW, 7.5-18 GHz

(fundamental), CW, @ Output Connector 543 watts / min. 500 watts near @ 1 dB Compression 125 watts min. ess ±11 dB max., equalized for ±3 dB max. at rated power 7.5–18 GHz instantaneously 1 milliwatt max. 57 dB min. Adjustment (continuous range) 35 dB min. 50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.5:1 typ.

ulput power foldback protection at reflected power exceeding 20 watts. Will operate without damage or oscillation with ty magnitude and phase of source and load impedance. y oscillate with unshielded open due to coupling to input. ould not be tested with connector off.

e Power Density inus 70 dBm/Hz max., Minus 72 dBm/Hz typ.

inus 20 dBc/Hz max., Minus 22 dBc/Hz typ

a<mark>ry Power</mark> D8 VAC ± 10%, 50/60 Hz, three phase, 4 kVA max.

Type N female on rear panel

Type WRD-750D24 waveguide flange on rear panel

Type N female on rear panel IEEE-488 female on rear panel DB-15 female on rear banel

preed air (self-contained fans), air entry and exit in rear. 91 kg (200 lb.)

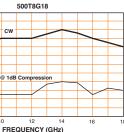
... (WxHxD) 0.3 x 40.6 x 68.6 cm / 19.8 x 16.0 x 27 in.

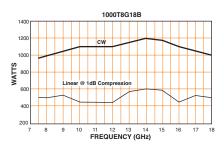
1000T8G18B TWT Amplifier



1,000 watts CW, 7.5-18 GHz

Power (fundamental), CW, @ Output Connector Nominal 1,100 watts 1,000 watts 7.5–17 GHz, 925 watts 17–18 GHz Minimum Linear @ 1 dB Compression 250 watts min. Flatness ±11 dB max., equalized for ±3 dB max. at rated power Frequency Response 7.5–18 GHz instantaneously Input for Rated Output 1 milliwatt max. Gain (at max. setting) 60 dB min. Gain Adjustment (continuous range) 35 dB min. Input Impedance 50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.5:1 typ. Output Impedance Mismatch Tolerance Output power foldback protection at reflected power exceeding 200 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Noise Power Density Minus 70 dBm/Hz max., Minus 72 dBm/Hz typ. Harmonic Distortion Minus 20 dBc max., Minus 27 dBc typ. Primary Power 190–255 VAC 50/60 Hz, three phase, delta (4 wire) 8 kVA max. Connectors Type N female on rear panel RF input RF output Type WRD-750D24 waveguide flange on rear panel RF output sample port Type N female on rear panel DB-15 female on rear panel Interlock GPIB IEEE-488 female on rear panel Cooling Forced air (self-contained fans), air entry and exit in rear. Weight 295 kg (650 lb.) Size (WxHxD) 56.0 x 160.0 x 82.3 cm / 22.1 x 63 x 32.4 in.





7.5 to 18 GHz

18 to 26.5 GHz

26.5 to 40 GHz

1500T8G18 TWT Amplifier



130T18G26z5B TWT Amplifier



1,500 watts CW, 7.5-18 GHz

1,000 Walls CW, 7.0		40 Wall3
Power (fundamental), CW, @ Output Conr Nominal 2,000 Linear @ 1 dB Compression	watts / min. 1,500 watts 375 watts min.	Power (fundamental), CW Nominal Linear @ 1 dB Compre:
Flatness		Flatness
±11 dB max., equalized for ±6 dB max.		Frequency Response
	–18 GHz instantaneously	Input for Rated Output
Input for Rated Output	1 milliwatt max.	Gain (at max. setting)
Gain (at max. setting)	62 dB min.	Gain Adjustment (continue
Gain Adjustment (continuous range)	35 dB min.	Input Impedance
Input Impedance 50	ohms, VSWR 2.0:1 max.	Output Impedance
Output Impedance 5	0 ohms, VSWR 2.5:1 typ.	Mismatch Tolerance
Mismatch Tolerance		Output power foldback
Output power foldback protection at refl 300 wotts. Will operate without damage any magnitude and phase of source an May oscillate with unshielded open due Should not be tested with connector off	e or oscillation with d load impedance. to coupling to input.	10 watts. Will operate any magnitude and ph May oscillate with unst Should not be tested w Video Pulse Capability
Noise Power Density Minus 70 dBm/Hz max., Minus 72 dBm/	(Uz tun	Pulse Width
Harmonic Distortion	nz iyp.	Pulse Rate (PRF) Duty Cycle
Minus 20 dBc max., Minus 27 dBc typ.		Some restrictions a
Primary Power 190–255 VAC		requirements. RF Rise and Fall
50/60 Hz, three phase, delta (4 wire) 16 kVA max.		Delay Pulse Width Distortion
Connectors		30 ns max (50% po
RF input Typ RF output	e N female on rear panel	compared to 50% p Noise Power Density (p
Type WRD-750D24 waveguide flang	e on rear panel	Pulse Off Isolation
RF output sample ports (forward and rev	/erse)	Pulse Input
Тур	e N fémale on rear panel	TTL Level, 50 Ohm enables RF when vi
	15 female on rear panel	
	188 female on rear panel	Noise Power Density Minus 60 dBm/Hz max
Cooling		Harmonic Distortion
Forced air (self-contained fans), air entr		
Weight	546 kg (1,200 lb.)	Primary Power 99–260 VAC
Size (WxHxD) (2 cabinets) 56.0 x 160.0 x 84.0 cm / 22.1 x 63 x 3	3 in. per cabinet	50/60 Hz, single phase 850 VA max.
		Connectors
		RF input
		RF output Typ RF output sample port
		Interlock



40 watts CW, 18-26.5 GHz

	0-20.5 0112
Power (fundamental), CW, @ Output Nominal Linear @ 1 dB Compression	Connector 45 watts / min. 40 watts 10 watts min.
Flatness	±8 dB max.
Frequency Response	18–26.5 GHz instantaneously
Input for Rated Output	1 milliwatt max.
Gain (at max. setting)	46 dB min.
	35 dB min.
Gain Adjustment (continuous range)	
Input Impedance	50 ohms, VSWR 2.0:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	st reflected neuron eveneding
Output power foldback protection	
10 watts. Will operate without dan any magnitude and phase of sour	
May oscillate with unshielded ope	n due to coupling to input
Should not be tested with connect	
Video Pulse Capability	
Pulse Width	0.1 microseconds min.
Pulse Rate (PRF)	10 kHz max.
Duty Cycle	TO KIL HIGA.
Some restrictions apply. Conta	ct AR with application
requirements.	
RF Rise and Fall	30 ns max. (10% to 90%)
	nax from pulse input to RF90%
Pulse Width Distortion	
30 ns max (50% points of out	put pulse width
compared to 50% points of in	out pulse width)
Noise Power Density (pulse off)	Minus 140 dBm/Hz typ. 80 dB min., 90 dB typ.
Pulse Off Isolation	ou ab min., 90 ab iyp.
TTL Level, 50 Ohm nominal ter	mination high level
enables RF when video pulsing	
Noise Power Density	g mode is selected.
Minus 60 dBm/Hz max., Minus 65	dBm /Hz tvn
Harmonic Distortion	-15 dBc max.
Primary Power	
99–260 VAC	
50/60 Hz, single phase	
850 VA max.	

And and Address of		0

130 watts CW 18-26 5 GHz

130 watts CW, 1	8-26.5 GHZ
Power (fundamental), CW, @ Output Nominal	Connector 150 watts / min. 130 watts
Linear @ 1 dB Compression	30 watts min.
Flatness	±9 dB max.
Frequency Response	18–26.5 GHz instantaneously
Input for Rated Output	1 milliwatt max.
Gain (at max. setting)	52 dB min.
Gain Àdjustment (continuous range)	35 dB min.
Input Impedance	50 ohms, VSWR 2.0:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	
Output power foldback protection	at reflected power exceeding
20 watts. Will operate without dan	nage or oscillation with
any magnitude and phase of sour May oscillate with unshielded ope	
Should not be tested with connect	
Noise Power Density	
Minus 70 dBm/Hz max., Minus 75	dBm./Hz typ.
Harmonic Distortion	
Minus 15 dBc max., Minus 20 dBc	; typ.
Primary Power	
190–260 VAC	
50/60 Hz, single phase 0.8 kVA max.	
Connectors	
RF input	Type K female on rear panel
RF output Type WR-42 w	vaveguide flange on rear panel
RF output sample port	Type K female on rear panel
Interlock	DB-15 female on rear panel
GPIB Video	IEEE-488 on rear panel
Cooling	BNC female on rear panel
Forced air (self-contained fans), a	ir entry and exit in rear
Weight	36 kg (80 lb.)
Size (WxHxD)	
50.3 x 16.5 x 68.6 cm / 19.8 x 6.4	5 x 27 in.

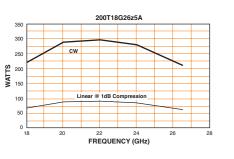


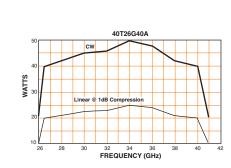
200T18G26z5A TWT Amplifier

200 watts CW, 18-26.5 GHz

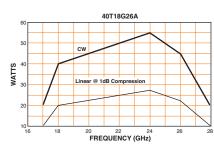
Power (fundamental), CW, @ Output Connector Nominal 225 watts / min. 200 watts Linear @ 1 dB Compression 50 watts min. Flatness ±10 dB max. Frequency Response 18–26.5 GHz instantaneously Input for Rated Output 1 milliwatt max.	Power (fundamental), CW, Nominal Linear @ 1 dB Compress Flatness Frequency Response Input for Rated Output Gain (at max. setting) Gain Adjustment (continuou Input Impedance
Input Impedance 50 ohms, VSWR 2.0:1 max. Output Impedance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Video Pulse Capability Pulse Width 0.1 microseconds min. Pulse Rate (PRF) 10 kHz max. Duty Cycle Soome restrictions apply. Contact AR with application requirements. RF Rise and Fall 100 ns max. (10% to 90%) Delay 500 ns max from pulse width) Noise Power Density (pulse off) Minus 140 dBm/Hz typ. Pulse Width Distortion 80 dB min., 90 dB typ. Pulse Input TTL Level, 50 Ohm nominal termination, high level enables RF when video pulsing mode is selected. Noise Power Density Minus 70 dBm/Hz max., Minus 30 dBc typ. Primary Power Type K female on rear panel RF output RF input	Mismatch Tolerance Output Impedance Mismatch Tolerance Output power foldback p 10 watts. Will operate w any magnitude and pha May oscillate with unshi Should not be tested wit Noise Power Density Minus 60 dBm/Hz max., Harmonic Distortion Primary Power 99–260 VAC 50/60 Hz, single phase 850 VA max. Connectors RF input RF output Type RF output sample port Interlock GPIB Cooling Forced air (self-containe Weight Size (WxHxD) 50.3 x 16.5 x 68.6 cm /







1500T8G18 VAT 0 12 14 FREQUENCY (GHz)



Cooling Forced air (self-contained fans), air entry and exit in rear.

Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.

GPIB

Weight

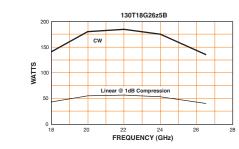
Type K female on rear panel

Type K female on rear panel DB-15 female on rear panel

30 kg (65 lb.)

IEEE-488 female on rear panel

Type WR-42 waveguide flange on rear panel



54

40T26G40A TWT Amplifier

130T26z5G40B TWT Amplifier



40 watts CW, 26.5-40 GHz

imental), CW, @ Output Connector 45 watts / min. 40 watts 10 watts min. 1 dB Compression ±8 dB max. 26.5–40 GHz instantaneously 1 milliwatt max. 35 dB min. ent (continuous range) 50 ohms, VSWR 2.0:1 max. 50 ohms, VSWR 2.5:1 typ.

wer foldback protection at reflected power exceeding Will operate without damage or oscillation with itude and phase of source and load impedance. late with unshielded open due to coupling to input. of be tested with connector off.

dBm/Hz max., Minus 70 dBm/Hz typ.

e'	WR-28	wave Ty	guio /pe /B-1	de fl K fe 5 fe	lanı emo emo	ge ile ile	on on on	rear rear rear	pane pane pane pane	el el

(self-contained fans), air entry and exit in rear. 30 kg (65 lb.)

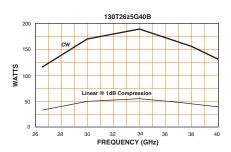
.5 x 68.6 cm / 19.8 x 6.5 x 27 in.



130 watts CW, 26.5-40 GHz

Power (fundamental), CW, @ Output Connector Naminal 150 watts / min. 130 watts 30 watts min. ±10 dB max. Flatness 26.5–40 GHz instantaneously Frequency Response Input for Rated Output 1 milliwatt max. 46 dB min. Gain (at max. settina) 52 dB min. 35 dB min. Gain Adjustment (continuous range 50 ohms, VSWR 2.0:1 max. Input Impedance Output Impedance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance Output power foldback protection at reflected power exceeding 20 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input Should not be tested with connector off. Noise Power Density Minus 70 dBm/Hz max., Minus 75 dBm./Hz typ. -15 dbc max. Harmonic Distortion Minus 15 dBc max., Minus 20 dBc typ. Primary Power 190–260 VAC 50/60 Hz, single phase 0.8 kVA max. Connectors RF input Type K female on rear panel Type WR-28 waveguide flange on rear panel port Type K female on rear panel DB-15 female on rear panel RF output RF output sample port Interlock GPIB IEEE-488 on rear panel Cooling Forced air (self-contained fans), air entry and exit in rear. Weight 36 kg (80 lb.) Size (WxHxD)

50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.



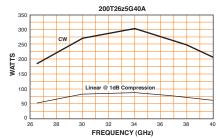
26.5 to 40 GHz 40 to 50 GHz

200T26z5G40A TWT Amplifier



200 watts CW, 26.5-40 GHz

200 mane on,		
Power (fundamental), CW, @ Outpu	t Connector	Pow
Nominal	225 watts / min. 200 watts	Ν
Linear @ 1 dB Compression	50 watts min.	-
Flatness	±10 dB max.	Flatr
Frequency Response	26.5–40 GHz instantaneously	Freq
Input for Rated Output	1 milliwatt max. 53 dB min.	Inpu
Gain (at max. setting) Gain Adjustment (continuous range)		Gair
Gain Adjustment (continuous range) Input Impedance	50 ohms, VSWR 2.0:1 max.	Gair
Output Impedance	50 ohms, VSWR 2.5:1 typ.	Inpu
Mismatch Tolerance	50 011115, V3VVK 2.5.1 Typ.	Out
Output power foldback protection	at reflected nower exceeding	Mis
40 watts. Will operate without da		(
any magnitude and phase of sou		4
May oscillate with unshielded ope		(
Should not be tested with connect		[
Video Pulse Capability		Har
Pulse Width	0.1 microseconds min.	Spu
Pulse Rate (PRF)	10 kHz max.	Spu
Duty Cycle `		Prin
Some restrictions apply. Contr	act AR with application	FIII
requirements.	100 (100() 000()	
RF Rise and Fall	100 ns max. (10% to 90%)	
Delay 500 ns i Pulse Width Distortion	max from pulse input to RF90%	Cor
200 ns max (50% points of o	utput pulse width	
compared to 50% points of in	put pulse width)	Í
Noise Power Density (pulse off)	Minus 140 dBm/Hz typ.	
Pulse Off Isolation	80 dB min., 90 dB týp.	
Pulse Input		
TTL Level, 50 Ohm nominal te		
enables RF when video pulsin	g mode is selected.	Coc
Noise Power Density Minus 70 dBm/Hz max., Minus 75	5 dBm /Hz tun	000
Harmonic Distortion	o ubini./riz iyp.	Wei
Minus 20 dBc max., Minus 30 dB	c tvp	
Primary Power	o typ.	Size
190–260 VAC		Exp
50/60 Hz, single phase		
3 kVA max.		
Connectors		
RF input	Type K female on rear panel	
RF output Type WR-42 v	waveguide flange on rear panel	
RF output sample port	Type K female on rear panel	
Interlock	DB-15 female on rear panel	
GPIB	IEEE-488 on rear panel	
Cooling Forced air (self-contained fans), a	air entry and exit in rear	
Weight	91 kg (200 lb.)	
Size (WxHxD) 50.3 x 43.0) x 81.0 cm / 19.8 x 17 x 32 in.	
0120 (11/11/D) 00.0 X 40.0	7 01.0 0117 17.0 A 17 A 02 11.	





70T40G50 TWT Amplifier



70 watts CW 10-50 GHz

70 watts CW, 4	0-50 GHz
Power (fundamental), CW, @ Output I	
Minimum	70 watts, 40 GHz-45 GHz
	50 watts, 45 GHz–50 GHz
Flatness	±3 dB max. at rated power
Frequency Response	40–50 GHz instantaneously
Input for Rated Output	1 milliwatt max.
Gain (at maximum setting)	47 dB min.
Gain Adjustment (continuous range)	35 dB min.
Input Impedance	50 ohms, VSWR 2.0:1 max
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	
Output power foldback protection a	
20 watts. Will operate without dam	age or oscillation with
any magnitude and phase of sourc May oscillate with unshielded open	e ana load impedance.
Should not be tested with connector	
Harmonic Distortion	Minus 15 dBc typ
Spurious Response (non-harmonic)	
Minus 15 dBc typ. (excluding harm	onics)
Primary Power	,
190–260 VAC	
50/60 Hz, single phase	
1.5 kVA max.	
Connectors	
	2.4 mm female on rear pane
RF output	n roar nanol all tannod
Type WR-22 waveguide flange on RF output sample ports (forward an	d reflected)
Type 2.4 mm female on rear pa	nel
Remote Interface	IEEE-488
Interlock	DB-15 female on rear pane
Cooling	
Forced air (self-contained fans), air	entry and exit in rear.
Weight	42 kg (93 lb)

42 kg (93 lb.) 48.26 x 16.5 x 76.2 cm / 19 x 6.5 x 30 in. (WxHxD) ort Classification EAR99

	Power (fundamental), C	W, @ Output C		
Hz	Minimum		100 watts	
Hz	Flatness		±8 dB max.	
er	Frequency Response		40–50 GHz instantaneously	
sly	Input for Rated Output		1 milliwatt max.	
IX.	Gain Adjustment (contin	uous range)	35 dB min.	
in.	Input Impedance		50 ohms, VSWR 2.0:1 max.	
in.	Output Impedance		50 ohms, VSWR 2.5:1 typ.	
IX.	Harmonic Distortion			
γp.	Minus 22 dBc typ.			
	Primary Power			
9	190–260 VAC			
	50/60 Hz, single pha 1.5 kVA max.	se		
	Connectors			
		Tupo	A mm fomalo on roar nanol	
p.	RF input RF output T	VDo WD-22 wa	2.4 mm female on rear panel veguide flange on rear panel	
۲.	RF output sample por		2.4 mm female on rear panel	
	Interlock	10 19002	DB-15 female on rear panel	
	GPIB	IE	EE-488 female on rear panel	
	Cooling			
		ined fans), air	entry and exit in rear.	
		· ·		
	Size (WxHxD)	50.3 x 43.0 x	76.0 cm / 19.8 x 17 x 30 in.	
	Weight	,	entry and exit in rear. 82 kg (180 lb.) 76.0 cm / 19.8 x 17 x 30 in.	

100T40G50 TWT Amplifier

ALL PROPERTY.

0000 0

100 watts CW, 40-50 GHz

.

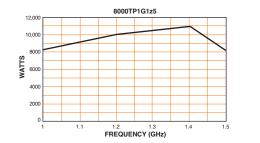
1 to 1.5 GHz Pulse 1.5 to 2 GHz Pulse 2 to 4 GHz Pulse

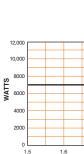
8000TP1G1z5 Pulse TWT Amplifier 6500TP1z5G2 Pulse TWT Amplifier 4000TP2G4 Pulse TWT Amplifier



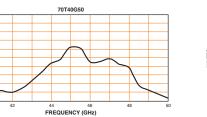
8,000 watts, 1-1.5 GHz Pulse

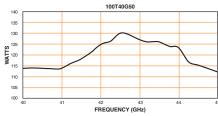
Power (fundamenta Nominal	I), Peak Pulse, @ Output 10,000 watts / min. 8,000 watts	Power (fundamer Nominal	ntal), Peak
Flatness	$\pm 6 \text{ dB min.}$	Flatness	
Frequency Respons		Frequency Respo	neo
Input for Rated Out		Input for Rated O	
Gain (at max. settin		Gain (at max. set	
	37		
Gain Adjustment (co	50 ohms, VSWR 2.5:1 max.	Gain Adjustment	(commuou
Input Impedance		Input Impedance	
Output Impedance	50 ohms, VSWR 2.5:1 typ.	Output Impedanc	
Mismatch Tolerance		Mismatch Tolerar	
	Ith foldback protection at peak reflected	Output VSWR	
	2,000 watts. Will operate without damage or	without damage	
OSCILICITION WITH C	iny magnitude and phase of source and load	of source and	
	ościllate with unshielded open due to coupling	open due to c	oupling to
	not be tested with connector off.	connector off.	
Pulse Capability	0.07, 10 mission and	Pulse Capability	
Pulse Width	0.07–40 microseconds	Pulse Width	
Pulse Rate (PRF)		Pulse Rate (PF	(F)
Duty Cycle	1% max.	Duty Cycle	
RF Rise and Fall	70 ns max. (10%-90%)	RF Rise and Fo)III E
Delay Dulaa Width Diat	300 ns max. from pulse input to RF 90%	Delay Pulse Width D	
Pulse Width Dist			
	(50% points of output pulse width	±30 ns mo	
Pulse Off Isolatio	50% points of input pulse width)	compared Pulse Off Isola	
Pulse Input	on 80 dB min., 90 dB typ. TTL level, 50 ohm nominal termination	Pulse Input	1011
			oit /
Noise Power Densit		Noise Power Den	
(pulse on)	Minus 55 dBm/Hz max., Minus 65 dBm/Hz typ.	(pulse on)	Minus
(pulse off)	Minus 140 dBm/Hz typ.	(pulse off)	ion
Harmonic Distortion	Minus 15 dBc max.	Harmonic Distorti	011
Primary Power		Primary Power	
190–260 VAC		190–260 VAC	
50/60 Hz, single	phase	50/60 Hz, sing	jie prase
1 kVA max.		1 kVA max.	
Connectors		Connectors	
RF input	Type N female on rear panel	RF input	
RF output	Type DIN 7-16 on rear panel	RF output	معاميهما عم
RF output forwar	d and reflected sample ports	RF output forw	ara ana re
D 1 1 1	Type N female on rear panel	Dulas input	
Pulse input	Type BNC female on rear panel	Pulse input	
Interlock	DB-15 female on rear panel	Interlock	
GPIB	IEEE-488 female on rear panel	GPIB	
Cooling		Cooling	14 t !
Forced air (self-c	contained fans), air entry and exit in rear.	Forced air (sel	t-containe
Weight	57 kg (125 lb.)	Weight	
Size (WxHxD)	50.3 x 26.0 x 94.0 cm / 19.8 x 10.3 x 37 in.	Size (WxHxD)	50.3
` /			





50.3 x 43.0 x 81.0 cm / 19.8 x 17 x 32 in.







6,500 watts, 1.5-2 GHz Pulse

undamental), Peak Pulse, @ Output nal 8,000 watts / min. 6,500 watts ±6 dB min. 1.5–2 GHz 1 milliwatt max. 68 dB min. ustment (continuous range) 35 dB min. 50 ohms, VSWR 2.5:1 max. 50 ohms, VSWR 2.5:1 typ.

VSWR protection using internal isolator. Will operate out VSWR protection using internal isolator. Will operate out damage or oscillation with any magnitude and phase ource and load impedance. May oscillate with unshielded in due to coupling to input. Should not be tested with

0.07-40 microseconds 100 kHz max. 1% max. 30 ns max. (10%-90%) 300 ns max. from pulse input to RF 90% 30 ns max. (50% points of output pulse width ompared to 50% points of input pulse width) Off Isolation 80 dB m

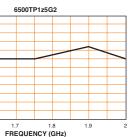
80 dB min., 90 dB typ. TTL level, 50 ohm nominal termination

Minus 55 dBm/Hz max., Minus 65 dBm/Hz typ. Minus 140 dBm/Hz typ. Minus 15 dBc max.

Type N female on rear panel Type DIN 7-16 on rear panel utput forward and reflected sample ports Type N female on rear panel e input Type BNC female on rear panel DB-15 female on rear panel

IEEE-488 female on rear panel

ed air (self-contained fans), air entry and exit in rear. 57 kg (125 lb.) 50.3 x 26.0 x 94.0 cm / 19.8 x 10.3 x 37 in.

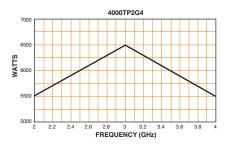




4,000 watts, 2-4 GHz Pulse

Power (fundamental), Peak Pulse,	@ Output
Nominal	5800 watts / min. 4.7 kW
Flatness	±10 dB max.
Frequency Response	2–4 GHz
Input for Rated Output	1 milliwatt max.
Gain (at max. setting)	66 dB min.
Gain Adjustment (continuous range	e) 35 dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	
Output pulse width foldback prot	ection at peak reflected
power exceeding 1,000 watts. W	Ill operate without damage
with any magnitude and phase of	of source and load impedance.
May oscillate with unshielded or Should not be tested with conne	
Pulse Capability Pulse Width	0.07–50 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	35 ns max. (10% to 90%)
	nax. from pulse input to RF 90%
Pulse Width Distortion	
±50 ns max. (50% points of	output pulse width
compared to 50% points of i	nput pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
	el, 50 ohm nominal termination
Noise Power Density	/Uz may Minus 50 dBm/Uz tun
(pulse on) Minus 57 dBm (pulse off)	/Hz max., Minus 59 dBm/Hz typ. Minus 140 dBm/Hz typ.
Harmonic Distortion	Minus 0 dBc max.
Primary Power	208 VAC ± 10%
208 VAC ±10%	200 110 1 10/0
Three phase, 50/60 Hz	
3 kVA max.	
Connectors	
RF input	Type N female on rear panel
RF output	Type N female on rear panel
RF output forward sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
Interlock GPIB	DB-15 female on rear panel IEEE-488 female on rear panel
Cooling	ILLE-400 IEITIUIE UITIEUI PUITEI
Forced air (self-contained fans),	air entry and exit in rear.

Forced air (self-contained fans), air entry and exit in rear. eight 75 kg (165 lb.) re (WxHxD) 51.0 x 30.5 x 84.0 cm / 19.8 x 12 x 33 in. Weight Size (WxHxD)



2.5 to 7.5 GHz Pulse

2.7 to 3.1 GHz

4 to 8 GHz Pulse

6900TP2G4 Pulse TWT Amplifier

12000TP2G4 Pulse TWT Amplifier 2000TP2G8B Pulse TWT Amplifier

8000TP2z7G3z1 TWT Amplifier



6,900 watts, 2-4 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 9,000 watts / min. 6,900 watts
Flatness ±8 dB min., ±4 dB at rated power
Frequency Response 2–4 GHz
Input for Rated Output 1 milliwatt max.
Gain (at max. setting) 68 dB min.
Gain Adjustment (continuous range) 35 dB min.
nput Impedance 50 ohms, VSWR 2.5:1 max.
Dutput Impedance 50 ohms, VSWR 2.5:1 typ.
Vismatch Tolerance
Output pulse width foldback protection at peak reflected
power exceeding 4,000 watts. Will operate without damage or
oscillation with any magnitude and phase of source and load
impedance. May oscillate with unshielded open due to coupling
to input. Should not be tested with connector off.
Pulse Capability
Pulse Width 0.2–50 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 70 ns max. (10%–90%)
Delay 300 ns max. from pulse input to RF 90%
Pulsé Width Distortion
±50 ns max. (50% points of output pulse width
compared to 50% points of input pulse width)
Pulse Off Isolation 80 dB min., 90 dB typ.
Pulse Input TTL level, 50 ohm nominal termination
Noise Power Density
(pulse on) Minus 55 dBm/Hz max., Minus 84 dBm/Hz typ.
(pulse off) Minus 140 dBm/Hz typ.
Harmonic Distortion Minus 15 dBc max.
Primary Power
208 VAC ±10%
50/60 Hz, three phase, delta (4 wire)
5 kVA max.
Connectors
RE input Type N female on rear panel
RF output Type DIN 7-16 female on rear panel
RF output forward and reflected sample ports
Type N female on rear panel
Pulse input Type BNC female on rear panel
Interlock DB-15 female on rear panel GPIB IEEE-488 female on rear panel
Cooling
Forced air (self-contained fans), air entry and exit in rear.
Weight 121 kg (265 lb.)
Size (WxHxD) 50.3 x 48.0 x 89.0 cm / 19.8 x 19 x 35 in.



12,000 watts, 2-4 GHz Pulse

Power (fundamental), Peak Pulse, @ Output	Power (fu
Nominal 14,000 watts / min. 12,000 watts	Nomin
Elatness ±10 dB max., ±6 dB at rated power	Flatness
Frequency Response 2–4 GHz	Frequency
Input for Rated Output 1 milliwatt max.	Input for I
Gain (at max. setting) 70.8 dB min.	Gain (at n
Gain Ådjustment (continuous range) 35 dB min.	Gain Adju
Input Impedance 50 ohms, VSWR 2.5:1 max.	Input Imp
Output Impedance 50 ohms, VSWR 2.5:1 typ.	Output Im
Mismatch Tolerance	Mismatch
Output pulse width foldback protection at peak reflected	Output
power exceeding 3,000 watts. Will operate without damage or	power
oscillation with any magnitude and phase of source and load	oscilla
impedance. May oscillate with unshielded open due to coupling	imped
to input. Should not be tested with connector off.	to inpu
Pulse Capability	Pulse Cap
Pulse Width 0.1–40 microseconds	Pulse
Pulse Rate (PRF) 20 kHz max.	Pulse I
Duty Cycle 4% max.	Duty C
RF Rise and Fall 150 ns max. (10% to 90%)	RF Rise
Delay 500 ns max. from pulse input to RF 90% Pulse Width Distortion	Delay Pulse V
±50 ns max. (50% points of output pulse width	±3
compared to 50% points of input pulse width)	COL
Pulse Off Isolation 80 dB min., 90 dB typ.	Pulse
Pulse Input TTL level, 50 ohm nominal termination	Pulse I
Noise Power Density	Noise Pov
(pulse on) Minus 55 dBm/Hz max., Minus 70 dBm/Hz typ.	(pulse
(pulse off) Minus 140 dBm/Hz typ.	(pulse
Harmonic Distortion Minus 10 dBc max.	Harmonic
Primary Power	Primary P
208 VAC ±10%	190-2
Three phase, delta (4-wire), 50/60 Hz	Single
9 kVA max.	1.2 kV
Connectors	Connecto
RF input Type N female on rear panel	RF inp
RF output Type 7-16 DIN female on rear panel	RF out
RF output forward sample ports	RF out
(forward and reflected) Type N female on rear panel	Pulse i
Pulse input Type BNC female on rear panel	Interlo
Interlock DB-15 female on rear panel	GPIB
GPIB IEEE-488 female on rear panel	Cooling Forced
Cooling	Weight
Forced air (self-contained fans), air entry and exit in rear.	Size (WxH
Weight 273 kg (600 lb.) Size (WxHxD) 55.9 x 114.0 x 96.5 cm / 22 x 45 x 38 in.	OIZE (WAI
Export Classification 3A999.d	
скрон оназановного ЗАУУУ.0	



2,000 watts, 2.5-7.5 GHz Pulse

2,000 mano, 2.	
Power (fundamental), Peak Pul Nominal	2,200 watts / min. 2,000 watts
	alized for ±4 dB max. at rated power
Frequency Response	2.5–7.5 GHz instantaneously
Input for Rated Output	1 milliwatt max.
Gain (at max. setting)	63 dB min.
Gain Adjustment (continuous ro	anae) 35 dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	JU UIIIIS, VJVVK 2.5.1 Typ.
	protection at peak reflected
Output pulse width foldback	b Will exercise without damage or
	ts. Will operate without damage or
Uscillation with any magnitud	de and phase of source and load
	ith unshielded open due to coupling
to input. Should not be teste	a with connector off.
Pulse Capability	0.07.00
Pulse Width	0.07–30 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max (10% to 90%)
	ns max. from pulse input to RF 90%
Pulse Width Distortion	
±30 ns max (50% points	of output pulse width
compared to 50% points	of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
	L level, 50 ohm nominal termination
Noise Power Density	
(pulse on) Minus 70 dBm/Hz	z max., Minus 72 dBm/Hz typ.
(pulse off) Minus 140 dBm/H	Hz typ.
	linus 0 dBc max., Minus 1.5 dBc typ.
Primary Power	
190–260 VAC	
Single phase, 50/60 Hz	
1.2 kVA max.	
Connectors	
RF input	Type N female on rear panel
RF output	Type N female on rear panel
RF output sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
Interlock	DB-15 female on rear panel
GPIB	IEEE-488 female on rear panel
Cooling	
Forced air (self-contained fa	ns), air entry and exit in rear.
Weight	53 kg (115 lb.)
	0E 4 y 00 0 am / 10 0 y 10 y 20 in

(HxD) 50.3 x 25.4 x 82.0 cm / 19.8 x 10 x 32 in.

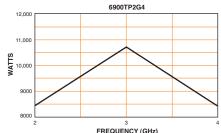


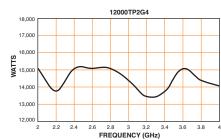
8,000 watts CW, 2.7-3.1 GHz

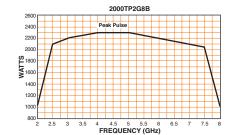
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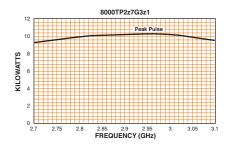
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0,000 mane on,	2.7 0.1 0112	4,000 1
Power, CW, @ Output Connector Power (fundamental), CW, @ Output	t Connector	Power (fundamental), Nominal
Nominal 10	0,000 watts / min. 8,000 watts	4 k
Flatness	±6 dB max.	Flatness
Frequency Response	2.7–3.1 GHz instantaneously	Frequency Response
Input for Rated Output	1 milliwatt max.	Input for Rated Output
Gain (at max. setting)	69 dB min.	Gain (at max. setting)
Gain Adjustment (continuous range)	35 dB min.	Gain Adjustment (con
Input Impedance	50 ohms, VSWR 2.5:1 max.	Input Impedance
	50 ohms, VSWR 2.5:1 typ.	Output Impedance
Mismatch Tolerance		Mismatch Tolerance
Will operate without damage or or	scillation with	Output pulse width
any magnitude and phase of sour		power exceeding 1
May oscillate with unshielded ope		with any magnitud
Should not be tested with connect		May oscillate with
Pulse Capability		Should not be teste Pulse Capability
Pulse Width	0.1–40 microseconds	Pulse Width
Pulse Rate (PRF)	100 kHz max.	Pulse Rate (PRF)
Duty Cycle	1% max.	Duty Cycle
RF Risé and Fall	50 ns max. (10% to 90%)	RF Rise and Fall
	ax. from pulse input to RF 90%	Delay
Pulse Width Distortion		Pulse Width Distor
±30 ns max. (50% points of o		±50 ns max. (5
compared to 50% points of in	put pulse width)	compared to 50
Pulse Off Isolation	80 dB min., 90 dB typ.	Pulse Off Isolation
Pulse Input TTL leve	I, 50 ohm nominal termination	Pulse Input
Noise Power Density		Noise Power Density
(pulse on) Minus 55 dBm/l	Hz max., Minus 80 dBm/Hz typ.	(pulse on)
(pulse off)	Minus 140 dBm/Hz typ.	(pulse off)
Harmonic Distortion		Harmonic Distortion
Minus 20 dBc max.		Primary Power
Primary Power		208 VAC ± 10%
190–255 VAC		50/60 Hz, three ph
50/60 Hz, three phase, delta (4 w	vire)	2.5 kVA max.
2 kVA max.		Connectors
Connectors		RF input
RF input	Type N female on rear panel	RF output T
RF output Type	DIN 7-16 female on rear panel	RF output forward :
RF output sample ports (forward a	ind reflected)	Pulse input
	Type N female on rear panel	Interlock
RF output	Type BNC female on rear panel	GPIB
Interiock	DB-15 female on rear panel	Cooling
	IEEE-488 female on rear panel	Forced air (self-cor
Cooling		Weight
Forced air (self-contained fans), a		Size (WxHxD)
Veight	61 kg (135 lb.)	See Modél Configu
Size (WxHxD)	. ,	











58

Size (WxHxD) 50.3 x 26.0 x 88.9 cm / 19.8 x 10.3 x 35 in.

RF) all istortion ation ion % ee phase vard sample port

3000

4000TP4G8 Pulse TWT Amplifier

bood in . .

4,000 watts, 4-8 GHz Pulse

ntal), Peak Pulse, @ Output 5,000 watts / min. 3.8 kW from 4–4.5 GHz, 4 kW from 4.5–7.5 GHz, 3.8 kW from 7.5–8 GHz ±10 dB min. 4–8 GHz **)utput** tting) t (continuous range) 1 milliwatt max. 66 dB min. 35 dB min. 50 ohms, VSWR 2.5:1 max. 50 ohms, VSWR 2.5:1 typ.

ince width foldback protection at peak reflected ding 1,000 watts. Will operate without damage gnitude and phase of source and load impedance. with unshielded open due to coupling to input. e tested with connector off.

> 0.07–50 microseconds 100 kHz max. 4% max. 35 ns max. (10% to 90%)

300 ns max. from pulse input to RF 90%

ax. (50% points of output pulse width d to 50% points of input pulse width)

80 dB min., 90 dB typ. TTL level, 50 ohm nominal termination

nsity Minus 65 dBm/Hz max., Minus 75 dBm/Hz typ. Minus 140 dBm/Hz typ. Minus O dBc max.

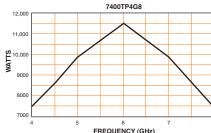
Type N female on rear panel Type WRD-350 waveguide flange on rear panel d sample port Type N female on rear panel Type BNC female on rear panel DB-15 female on rear panel IEEE-488 female on rear panel

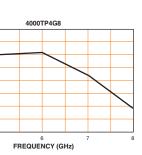
elf-contained fans), air entry and exit in rear. 71 kg (155 lb.)

Weight

Size (WxHxD)

nfiguratons on spec sheet via www.arworld.us







7400TP4G8 Pulse TWT Amplifier

7,400 watts, 4-8 GHz Pulse

Flatness ±10 a	Output ,000 watts / min. 7,400 watts JB min., ±5 dB at rated power 4–8 GHz
Frequency Response Input for Rated Output	1 milliwatt max.
Gain (at max. setting)	69 dB min.
Gain Adjustment (continuous range) Input Impedance	35 dB min. 50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	tion at nearly vallested
Output pulse width foldback protect power exceeding 2,000 watts. Will	
oscillation with any magnitude and	phase of source and load
impedance. May oscillate with uns to input. Should not be tested with	
Pulse Capability	
Pulse Width	0.2–50 microseconds
Pulse Rate (PRF) Duty Cycle	100 kHz max. 4% max.
RF Ŕise and Fall	70 ns max. (10%–90%)
Delay 500 ns ma Pulse Width Distortion	x. from pulse input to RF 90%
±50 ns max. (50% points of ou	tput pulse width
compared to 50% points of inp	
Pulse Off Isolation Pulse Input TTL level,	80 dB min., 90 dB typ. 50 ohm nominal termination
Noise Power Density	
(pulse on) Minus 65 dBm/H	z max., Minus 85 dBm/Hz typ.
(pulse off) Harmonic Distortion	Minus 140 dBm/Hz typ. Minus 12 dBc typ.
Primary Power	wintus 12 ubc typ.
208 VAC ± 10%	
50/60 Hz, three phase, delta (4 wii 5 kVA max.	re)
Connectors	
RF input	Type N female on rear panel
RF output Type WRD-350 we RF output forward and reflected sar	avéguide flange on rear panel
·	Type N female on rear panel
Pulse input Ty Interlock	/pe BNC female on rear panel DB-15 female on rear panel
	EEE-488 female on rear panel
Cooling	
Forced air (self-contained fans), air Woight	r entry and exit in rear.

123 kg (270 lb.)

50.3 x 53.0 x 91.0 cm / 19.8 x 24 x 36 in.

4 to 8 GHz Pulse 7.5 to 18 GHz Pulse

8 to 10 GHz Pulse 8 to 12 GHz Pulse

12000TP4G8 Pulse TWT Amplifier 1000TP8G18 Pulse TWT Amplifier 2000TP8G18 Pulse TWT Amplifier

10000TP8G10 Pulse TWT Amplifier 4000TP8G12 Pulse TWT Amplifier 8300TP8G12 Pulse TWT Amplifier



12,000 watts, 4-8 GHz Pulse

12,000 Wallo, 4	
Power (fundamental), Peak Pulse,	@ Output
Nominal 1	4,000 watts / min. 12,000 watts
Flatness ±1	0 dB max., ±6 dB at rated power
Frequency Response	4–8 GHz
nput for Rated Output	1 milliwatt max.
Gain (at max. setting)	70.8 dB min.
Gain Adjustment (continuous range	e) 35 dB min.
nput Impedance	50 ohms, VSWR 2.5:1 max.
utput Impedance	50 ohms, VSWR 2.5:1 typ.
lismatch Tolerance	
Output pulse width foldback pro	
power exceeding 3,000 watts. W	/ill operate without damage or
oscillation with any magnitude of	
impedance. May oscillate with u	
to input. Should not be tested with	ith connector off.
Pulse Capability	
Pulse Width	0.1–40 microseconds
Pulse Rate (PRF)	20 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	150 ns max. (10% to 90%)
	max. from pulse input to RF 90%
Pulse Width Distortion	
±50 ns max. (50% points of	
compared to 50% points of i	
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input TTL lev Noise Power Density	vel, 50 ohm nominal termination
	n/Hz max., Minus 70 dBm/Hz typ.
(pulse off) Winds 35 dbh	Minus 140 dBm/Hz typ.
Harmonic Distortion	Minus 10 dBc max.
Primary Power	Willias TO abe max.
208 VAC ±10%	
Three phase, delta (4-wire), 50/	50 Hz
9 kVA max.	50 H2
Connectors	
RF input	Type N female on rear panel
RF output	Type WRD-350 on rear panel
RF output forward sample ports	
(forward and reflected)	Type N female on rear panel
Pulse input	Type BNC female on rear panel
Interlock	DB-15 female on rear panel
GPIB	IEEE-488 female on rear panel
Cooling	
Forced air (self-contained fans),	
	273 kg (600 lb.)
	4.0 x 96.5 cm / 22 x 45 x 38 in.
xport Classification	3A999.d



1,000 watts, 7.5-18 GHz Pulse wer (fundamental), Peak Pulse, @ Output Connector 1,800 watts / min. 1,000 watts Nominal ±8 dB max., equalized for ±3 dB max. at rated power ntness 7.5–18 GHz instantaneously equency Response put for Rated Output 1 milliwatt max 60 dB min. in (at max. setting) in Adjustment (continuous range) 35 dB min. 50 ohms, VSWR 2.5:1 max. out Impedance Itput Impedance 50 ohms, VSWR 2.5:1 typ. smatch Tolerance Output pulse width foldback protection at peak reflected power exceeding 500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Ise Capability 0.07–100 microseconds Pulse Width Pulse Rate (PRF) 100 kHz max. Duty Cycle 4% max. 30 ns max. (10% to 90%) RF Rise and Fall 300 ns max. from pulse input to RF 90% Delay Pulse Width Distortion ±30 ns max. (50% points of output pulse width

compared to 50% points of input pulse width) Pulse Off Isolation 80 dB min. / 90 dB typ. TTL level, 50 ohm nominal termination Pulse Input oise Power Density

(pulse on) Minus 57 dBm/Hz max., Minus 58 dBm/Hz typ. (pulse off) Minus 140 dBm/Hz typ. Minus 2 dBc max., Minus 3 dBc typ. irmonic Distortion

mary Power 190–260 VAC

50/60 Hz, single phase 1.5 kVA max.

onnectors Type N female on rear panel RF input Type WRD-750D24 waveguide flange on rear panel RF output RF output forward sample port Type N female on rear panel Pulse input Type BNC female on rear panel

Interlock DB-15 female on rear panel IEEE-488 female on rear panel GPIB

oling Forced air (self-contained fans), air entry and exit in rear. 52 kg (115 lb.) eiaht

50.3 x 25.4 x 69.0 cm / 19.8 x 10.0 x 27 in.	
Export Classification	3A999.0



2,000 watts, 7.5-18 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector Nominal 2,500 watts / min. 2,000 watts Flatness ±8 dB max., equalized for ±3 dB max. at rated power Frequency Response 7.5–18 GHz instantaneously Input for Rated Output 1 milliwatt max 63 dB min. Gain (at max. setting) Gain Adjustment (continuous range) 35 dB min. 50 ohms, VSWR 2.5:1 max. Input Impedance Output Impedance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance Output pulse width foldback protection at average reflected power exceeding 1,000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Pulse Capability 0.07–30 microseconds 100 kHz max. Pulse Width Pulse Rate (PRF) Duty Cycle 4% max. RF Rise and Fall 30 ns max (10% to 90%) 300 ns max. from pulse input to RF 90% Delav Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width) Pulse Off Isolation 80 dB min. / 90 dB typ. TTL level, 50 ohm nominal termination Pulse Input Noise Power Density (pulse on) Minus 55 dBm/Hz max., Minus 58 dBm/Hz typ. (pulse off) Minus 140 dBm/Hz typ. Harmonic Distortion Minus 18 dBc max., Minus 20 dBc typ. Primary Power 190-260 VAC 50/60 Hz, single phase 3 kVA max. Connectors RF input Type N female on rear panel Type WRD-750D24 waveguide flange on rear panel RF output RF output forward sample port Type N female on rear panel Pulse input

Type BNC female on rear pane DB-15 female on rear panel Interlock IEEE-488 female on rear panel Forced air (self-contained fans), air entry and exit in rear. 72 kg (170 lb.)

Size (WxHxD 50.3. x 39.4 x 77.5 cm / 19.8 x 15.5 x 30.5 in.

.d Export Classification 3A999.d

GPIB

Cooling

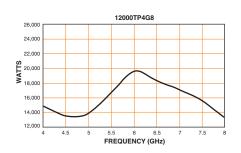
Weight

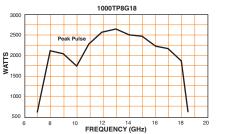


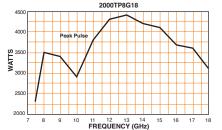
10,000 watts, 8-10 GHz Pulse

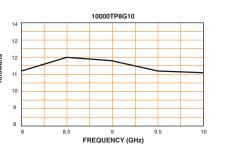
Power (fundamental), Peak Pulse, @ Output Nominal 11,000 watts / min. 10,000 watts	Power (fundamental), Peo Nominal
Flatness ±6 dB min.	Flatness
Frequency Response 8–10 GHz	Frequency Response
Input for Rated Output 1 milliwatt max.	Input for Rated Output
Gain (at max. setting) 70 dB min.	Gain (at max. setting)
Gain Adjustment (continuous range) 35 dB min.	Gain Adjustment (continue
Input Impedance 50 ohms, VSWR 2.5:1 max.	Input Impedance
Output Impedance 50 ohms, VSWR 2.5:1 ttp.	Output Impedance
Mismatch Tolerance 30 online, vowik 2.3.1 typ.	Mismatch Tolerance
Output pulse width foldback protection at peak reflected	Output pulse width fold
power exceeding 5,000 watts. Will operate without damage or	power exceeding 1,000
oscillation with any magnitude and phase of source and load	with any magnitude an
impedance. May oscillate with unshielded open due to coupling	May oscillate with unsh
to input. Should not be tested with connector off.	Should not be tested w
Pulse Capability	Pulse Capability
Pulse Width 0.07–40 microseconds	Pulse Width
Pulse Rate (PRF) 100 kHz max.	Pulse Rate (PRF)
Duty Cycle 4% max.	Duty Cycle
RF Rise and Fall 30 ns max. (10%–90%)	RF Ŕisé and Fall
Delay 300 ns max. from pulse input to RF 90%	Delay
Pulse Width Distortion	Pulsé Width Distortion
±30 ns max. (50% points of output pulse width	±50 ns max. (50%
compared to 50% points of input pulse width)	compared to 50% p
Pulse Off Isolation 80 dB min., 90 dB tvp.	Pulse Off Isolation
Pulse Input TTL level, 50 ohm nominal termination	Pulse Input
Noise Power Density	Noise Power Density
(pulse on) Minus 65 dBm/Hz max., Minus 69 dBm/Hz typ.	(pulse on) Minu
(pulse off) Minus 140 dBm/Hz typ.	(pulse off)
Harmonic Distortion Minus 15 dBc max.	Harmonic Distortion
Primary Power	Primary Power
190–260 VAC	208 VAC ± 10% or 190
50/60 Hz single phase	50/60 Hz, three phase
2.5 KVA max.	3 kVA max.
Connectors	Connectors
RF input Type N precision female on rear panel	RF input
RF output Type WR90 waveguide flange on rear panel	RF output Type
RF output forward and reflected sample ports	RF output forward sam Pulse input
Type N precision female on rear panel	Interlock
Pulse input Type BNC female on rear panel	GPIB
Interlock DB-15 female on rear panel	Cooling
GPIB IEEE-488 female on rear panel	Forced air (self-contain
Cooling	Weight
Forced air (self-contained fans), air entry and exit in rear.	Size (WxHxD) 51.
Weight 107 kg (235 lb.)	JIZE (WARAD) 31.
Size (WxHxD)	

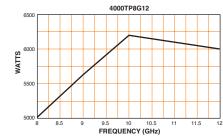
50.3 x 49.0 x 74.0 cm / 19.8 x 19 x 29 in.















4,000 watts, 8-12 GHz Pulse

nental), Peak Pulse, @ Output 5,500 watts / min. 4,200 watts ±10 dB max. 8–12 GHz 1 milliwatt max. 66 dB min. nt (continuous range) 35 dB min. 50 ohms, VSWR 2.5:1 max. 50 ohms, VSWR 2.5:1 typ.

se width foldback protection at peak reflected seding 1,000 watts. Will operate without damage nanifude and phase of source and load impedance. e with unshielded open due to coupling to input. be tested with connector off.

0.07-50 microseconds 100 kHz max. 4% max 35 ns max. (10% to 90%) 300 ns max. from pulse input to RF 90% max. (50% points of output pulse width ed to 50% points of input pulse width) 80 dB min., 90 dB typ. TTL level, 50 ohm nominal termination

> Minus 57 dBm/Hz max., Minus 59 dBm/Hz typ. Minus 140 dBm/Hz tvp. Minus 10 dBc max.

10% or 190-260 VAC nree phase or single phase

Type N female on rear panel Type WRD-90 waveguide flange on rear panel orward sample port Type N female on rear panel Type BNC female on rear panel DB-15 female on rear panel IEEE-488 female on rear panel

self-contained fans), air entry and exit in rear. 75 kg (165 lb.)

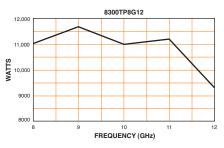
51.0 x 44.5 x 69.0 cm / 19.8 x 17.5 x 27 in.



8.300 watts. 8-12 GHz Pulse

Power (fundamental), Peak Pu	ulse, @ Output
Nominal Flatness	10,000 watts / min. 8,300 watts ±10 dB max., ±5 dB at rated power
Frequency Response Input for Rated Output	8–12 GHz 1 milliwatt max.
Gain (at max. setting)	69 dB min.
Gain Adjustment (continuous i Input Impedance	range) 35 dB min. 50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	k protection at peak reflected
power exceeding 4,000 wa	itts. Will operate without damage or
impedance. May oscillate v	ude and phase of source and load with unshielded open due to coupling
to input. Should not be test	ed with connector off.
Pulse Capability Pulse Width	0.2–50 microseconds
Pulse Rate (PRF) Duty Cycle	100 kHz max. 4% max.
RF Rise and Fall	70 ns max. (10%–90%)
Delay 500 Pulse Width Distortion) ns max. from pulse input to RF 90%
±50 ns max. (50% poin compared to 50% point	ts of output pulse width
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input T Noise Power Density	TL level, 50 ohm nominal termination
(pulse on) Minus 70	dBm/Hz max., Minus 73 dBm/Hz typ.
(pulse off) Harmonic Distortion	Minus 140 dBm/Hz typ. Minus 15 dBc max.
Primary Power	Winds to abothax.
208 VAC ± 10% 50/60 Hz, three phase, del:	ta (4 wire)
5 kVA max.	
Connectors RF input T	ype N precision female on rear panel
RF output Type W	/R-90 waveguide flange on rear panel
RF output forward and refle T	ype N precision female on rear panel
Pulse input Interlock	Type BNC female on rear panel DB-15 female on rear panel
GPIB	IEEE-488 female on rear panel
Cooling Forced air (self-contained for	ans), air entry and exit in rear.
Weight	121 kg (265 lb.)
Size (WxHxD) 50.3	x 43.0 x 84.0 cm / 19.8 x 17 x 33 in.

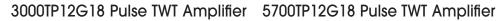




Microwave TWT Amplifiers

8 to 12 GHz Pulse 12 to 18 GHz Pulse

Pulse TWT Amplifier





20,000 watts, 8-12 GHz Pulse

	0,0
Power (fundamental), Peak Pulse, @ Output Nominal 22,000 watts / min. 20,000 watts Flatness ±10 dB max., ±6 dB at rated power Frequency Response 8–12 GHz Input for Rated Output 1 milliwatt max. Gain (at max. setting) 73 dB min. Gain (at max. setting) 50 ohms, VSWR 2.5:1 max. Output Impedance 50 ohms, VSWR 2.5:1 typ. Mismatch Tolerance 50 ohms, VsWR 2.5:1 typ.	Power (fundo Nominal Flatness Frequency Re Input for Rate Gain (at max Gain Adjustm Input Impeda Output Impeda Output Impeda
power exceeding 5,000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.	Output pu power exc with any n May oscill Should no
Pulse Capability 0.1-40 microseconds Pulse Width 0.1-40 microseconds Pulse Rate (PRF) 20 kHz max. Duty Cycle 4% max. RF Rise and Fall 150 ns max. (10% to 90%) Delay 500 ns max. from pulse input to RF 90% Pulse Width Distortion 500 ns max. from pulse input to RF 90%	Pulse Capabi Pulse Wid Pulse Rate Duty Cycle RF Rise ar Delay
±50 ns max. (50% points of output pulse width	Pulse Wid
compared to 50% points of input pulse width)	±30 ns
Pulse Off Isolation 80 dB min., 90 dB typ.	compo
Pulse Input TTL level, 50 ohm nominal termination	Pulse Off
Noise Power Density	Pulse Inpu
(pulse on) Minus 65 dBm/Hz max., Minus 85 dBm/Hz typ.	Noise Power
(pulse off) Minus 140 dBm/Hz typ.	(pulse on
Harmonic Distortion Minus 19 dBc max.	(pulse off)
Primary Power	Harmonic Dis
208 VAC ±10%	Primary Powe
Three phase, delta (4-wire), 50/60 Hz	190–260
12 kVA max.	50/60 Hz,
Connectors	2 kVA max
RF input Type N female on rear panel	Connectors
RF output forward sample ports	RF input
(forward and reflected) Type NN female on rear panel	RF output
Pulse input Type BNC female on rear panel	RF output
Interlock DB-15 female on rear panel	Pulse inpu
GPIB IEEE-488 female on rear panel	Interlock
Cooling	GPIB
Forced air (self-contained fans), air entry and exit in rear.	Cooling
Weight 575 kg (1,250 lb.)	Forced air
Size (WXHxD) 57.5 x 196.0 x 82.5 cm / 22.6 x 77.2 x 32.5 in.	Weight
Export Classification 3A999.d	Size (WxHxD)

mm

3,000 watts, 12-18 GHz Pulse

5,000 Walls, 12-10 GHz Fulse	5,700 Walls, 12-10 V
Power (fundamental), Peak Pulse, @ Output Nominal 3,800 watts / min. 3,000 watts Frequency Response 12–18 GHz Input for Rated Output 1 milliwatt max. Sain (at max. setting) 65 dB min. Gain Adjustment (continuous range) 35 dB min. Input Impedance 50 ohms, VSWR 2.5:1 max. Dutput Impedance 50 ohms, VSWR 2.5:1 max. Dutput Juse width foldback protection at peak reflected power exceeding 1,000 watts. Will operate without damage with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Pulse Capability Pulse Width 0.07–50 microseconds Pulse Rate (PRF) 100 kHz max. Duty Cycle 4% max. RF Rise and Fall 30 ns max. (10% to 90%) Delay 300 ns max. from pulse input to RF 90% Pulse Width Distortion 80 dB min., 90 dB typ. Pulse Off Isolation 80 dB min., 90 dB typ. Pulse Input TIL level, 50 ohm nominal termination Noise Power Density (pulse on) Minus 55 dBm/Hz max. Minus 140 dBm/Hz typ. (pulse off) Minus 55 dBm/Hz max. Minus 8 dBc max. Minus 8 dBc max. Minus 8 dBc max. Minus 8 dBc max. Minus 140 dBm/Hz typ. Minus 140 dBm/Hz typ. Min	Power (fundamental), Peak Pulse, @ Outp Nominal 7,000 Flatness ±10 dB m Frequency Response Input for Rated Output Gain Adjustment (continuous range) Input Impedance 50 Output Impedance 50 Output pulse width foldback protection power exceeding 3,000 wdts. Will oper oscillation with any magnitude and pha impedance. May oscillate with unshield to input. Should not be tested with com Pulse Capability Pulse Rate (PRF) Duty Cycle RF Rise and Fall Delay 500 ns max. fro Pulse Width Distortion ±50 ns max. (50% points of output compared to 50% points of input pu Pulse Off Isolation Pulse Off Isolation Pulse off Noise Power Density (pulse on) Minus 55 dBm/Hz ma (pulse off) Harmonic Distortion Primary Power 208 ±10% VAC 50/60 Hz, three phase, delta (4 wire) 5 kVA max. Connectors RF input Type N precis RF output Type WR-62 waveg RF
Forced air (self-contained fans), air entry and exit in rear. Veight 52 kg (115 lb.)	Weight Size (WxHxD) 50.3 x 43.0 x 84.
Size (WxHxD) 50.3 x 26.0 x 81.0 cm / 19.8 x 10 x 31.9 in.	. ,



5 700 watts 12-18 GHz Pulse

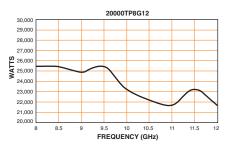
se	5,700 \	vans, 12-18 GHz Pulse
3,000 watts	Power (fundamenta Nominal	I), Peak Pulse, @ Output 7,000 watts / min. 5700 watts
:10 dB max.	Flatness	±10 dB min., ±5 dB at rated power
12–18 GHz	Frequency Respons	
illiwatt max.	Input for Rated Outp	put 1 milliwatt max.
65 dB min.	Gain (at max. settin	g) 67 dB min.
35 dB min.	Gain Adjustment (co	
2.5:1 max.	Input Impedance	50 ohms, VSWR 2.5:1 max.
'R 2.5:1 typ.	Output Impedance	50 ohms, VSWR 2.5:1 typ.
K 2.0.1 typ.	Mismatch Tolerance	
ted		Ith foldback protection at peak reflected
amage		3,000 watts. Will operate without damage or
npedance.	oscillation with a	iny magnitude and phase of source and load
o input.		oscillate with unshielded open due to coupling not be tested with connector off.
-	Pulse Capability	
	Pulse Width	0.2–50 microseconds
icroseconds	Pulse Rate (PRF)	
00 kHz max.	Duty Cycle	4% max.
4% max.	RF Rise and Fall	70 ns max. (10%–90%)
0% to 90%) t to RF 90%	Delay	500 ns max. from pulse input to RF 90%
110 1(1 7076	Pulse Width Dist	
		(50% points of output pulse width
	Pulse Off Isolatio	50% points of input pulse width) n 80 dB min., 90 dB typ.
, 90 dB typ.	Pulse Input	TTL level, 50 ohm nominal termination
termination	Noise Power Densit	
	(pulse on)	⁷ Minus 55 dBm/Hz max., Minus 80 dBm/Hz typ.
dBm/Hz typ.	(pulse off)	Minus 140 dBm/Hz typ.
dBm/Hz týp.	Harmonic Distortion	Minus 15 dBc max.
8 dBc max.	Primary Power	
	208 ±10% VAC	
		phase, delta (4 wire)
	5 kVA max.	
	Connectors	Tupo N provision famalo on roar panol
n rear panel	RF input RF output	Type N precision female on rear panel Type WR-62 waveguide flange on rear panel
n rear panel		d and reflected sample ports
	ni oupurioiwai	Type N precision female on rear panel
n rear panel	Pulse input	Type BNC female on rear panel
n rear panel	Interlock	DB-15 female on rear panel
n rear panel	GPIB	IEEE-488 female on rear panel
n rear panel	Cooling	
rear.		contained fans), air entry and exit in rear.
kg (115 lb.)	Weight	121 kg (265 lb.)
0 x 31.9 in	Size (WxHxD)	50.3 x 43.0 x 84.0 cm / 19.8 x 17 x 33 in.

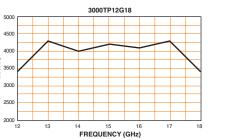


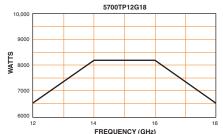
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Everyone knows AR equipment is built to last, but sometimes equipment gets traded in for a new model that has some extra features. The original AR equipment is still running strong and doing its job, which is why we created the AR Bargain Corner. Bargain Corner equipment includes trade-ins, demos, and discontinued models. New equipment is noted as such in the product description, and warranties are still included with many models.

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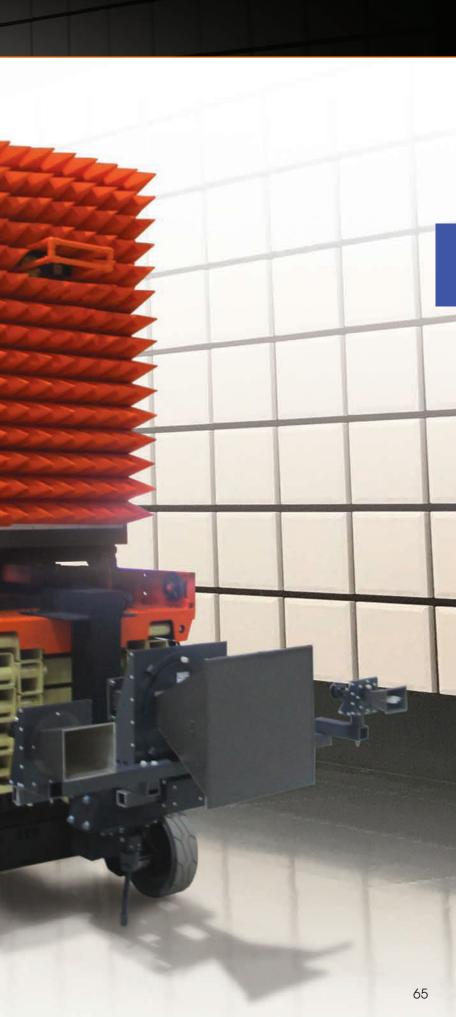
The Single Source for EMC Testing

AR Systems have always made EMC testing simple, efficient, and accurate. The process is easier than ever because we provide everything you need—complete test systems, software, training, support, and chambers.

When you need a fully or semi-anechoic chamber or a shielded room, all it takes is one call to AR. If you need support on any part of your system, AR is your single source. With our expanded resources, you have the power to get exactly what you want, when you need it.

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AR Systems— Fully Integrated Test Systems from DC to 50 GHz

EMC test systems from AR are known for their dependability. The knowledge gained through the years has translated into a number of benefits that customers value: ease of use, quality of construction, reliability, and affordability.

Why an AR System Is the Smart Choice

- Seamless integration with either emcware or Nexio software and Comtest chambers
- Developed by AR engineers with extensive experience in a wide range of EMC test standards
- Reduced test-lab downtime during system integration and training
- Performance guarantee—AR manufactures the majority of the critical system components, allowing us to match and guarantee them to meet your requirements
- Fully tested before being shipped and upon installation
- Global support and service

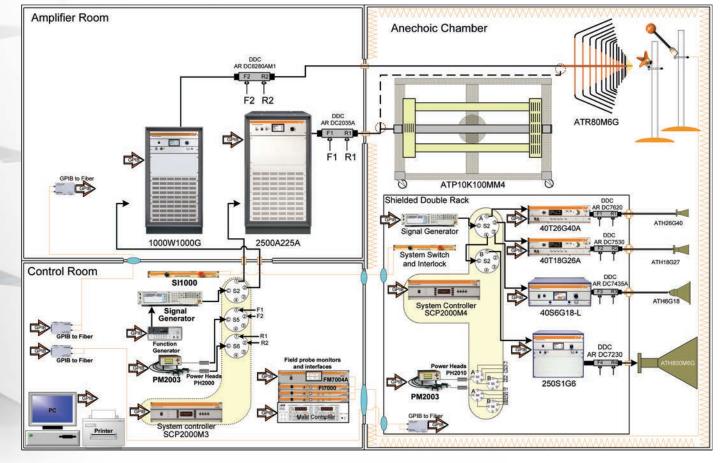
AR can deliver a solution that integrates all your testing needs: radiated and conducted immunity, radiated and conducted emissions, electrostatic discharge, lightning simulation...

whatever you need. We have the expertise and experience to supply fully automated systems needed to test various standards, including IEC 61000, MIL-STD 461 and 464, DO-160, wireless, automotive, HIRF, HERO, and many more.

H.

AR prides themselves on working with their customers to ensure that you get exactly what you need. By fully understanding your specifications and requirements, we are able to supply a system that meets all of them. In order to help streamline the process, AR has developed numerous Standard Systems to use as building blocks for meeting common requirements. We can easily tailor these or develop fully customized systems from the ground-up to satisfy whatever needs you have. During the system development process, we will-

- Identify an overall solution for your specific requirements
- Match equipment with appropriate components and auarantee performance
- Evaluate all packaging options, including proper rack sizing, cooling options (air conditioning, blowers, or liquid), AC power distribution, control, and shielding
- Select the appropriate cabling, coax, or waveguide to match the amplifiers and accessories within the system
- Determine the best method of automation, including signal routing (RF switching) and the integration of emcware or Nexio EMC test software
- Propose transient test equipment
- Propose emissions test equipment
- Propose a chamber solution



After your system has been designed and developed, we provide on-site installation and training according to your schedule. Our team of experienced system integrators will go step by step, explain how your system operates, and provide support through your testing procedures.

If you have existing equipment, we can integrate it into a system or leave space for future expansion to higher frequencies and power levels.

AR has the experience and ability to take the integration as far as you are willing to go, from a simple racking of equipment to a fully integrated state of the art facility, including installation with guaranteed performance.

Schematic of a 200 V/m System 10 kHz-40 GHz

AR Standard Turnkey Systems

We have complete test systems that perform entire tests up to 50 GHz with just the press of a few buttons. Everything you need—amplifiers, antennas, couplers, signal generators, system controllers, and more, along with the software to control it—all in one comprehensive test system.

New for 2020, AR has designed a line of Standard Systems. These systems are designed to meet the requirements of a number of today's common EMC test standards. Depending on your needs, these systems can then be tailored and customized to meet your specific requirements as well as additional test requirements.

Choose an AR Standard System...or let us customize to your specs.

IEC 61000-4-3 80 MHz - 6 GHz		Field Level (CW)		
		3 V/m	10 V/m	30 V/m
t nce	2 meters	SSIEC3V3M	SSIEC10V2M	SSIEC30V2M
Test Distano	3 meters	SSIEC3V3M	SSIEC10V3M	SSIEC30V3M

MIL-STD-461		Field Level (CW)			
		10 V/m	50 V/m	200 V/m	
lange	10 kHz to 18 GHz	SSMIL10V10K18G	SSMIL50V10K18G	SSMIL200V10K18G	
Frequency Range	2 MHz to 18 GHz	SSMIL10V2M18G	SSMIL50V2M18G	SSMIL200V2M18G	
Frequ	18 GHz to 40 GHz	SSMIL10V18G40G	SSMIL50V18G40G	SSMIL200V18G40G	

*1-meter test distance

ISO 11452-2		Field Level (CW)			
		50 V/m	100 V/m	200 V/m	
ency Ige	10 kHz to 18 GHz	SSISOC50V10K18G	SSISOC100V10K18G	SSISOC200V10K18G	
Frequency Range	80 MHz to 18 GHz	SSISOC50V80M18G	SSISOC100V80M18G	SSISOC200V80M18G	

*1-meter test distance

ISO 11451-2		Field Level (CW)		
		50 V/m	100 V/m	200 V/m
equency Range	10 kHz to 18 GHz	SSISOV50V10K18G	SSISOV100V10K18G	SSISOV200V10K18G
Frequend	20 MHz to 18 GHz	SSISOV50V20M18G	SSISOV100V20M18G	SSISOV200V20M18G

*2-meter test distance

AR's High Intensity Radiated Fields (HIRF) Equipment **Designed To Meet Tomorrow's Needs**

Inherent danger associated with High Intensity Radiated Fields (HIRF) is becoming increasingly evident with the growing complexity of military and aircraft systems. Sources of HIRF include high power radars, weapons, and naturally occurring environmental conditions. Unprotected equipment can fail with potentially devastating results. To prevent possible catastrophes, qualify them for harsh HIRF environments by testing the equipment with AR amplifiers and power-matched antennas. AR's ability to provide test systems with the highest-power, wideband amplifiers and power-matched antennas to produce these HIRF and other high field environments is AR's claim to fame. Through SunAR RF Motion, AR can offer a broad range of complimentary positioning equipment and reverberation tuners for EMC and HIRF testing, all from one company. To complete the product offering, reverberation and anechoic chambers are also available through AR's partnership with Comtest.

Whether you're generating HIRF per MIL-STD-464 testing, DO-160 or recreating RF/microwave environments for intelligence, counterintelligence, or jamming measures and infrastructure susceptibility testing, AR has the range of solutions to make you feel at ease.

Available HIRF System Components

RF Power Amplifiers for CW Tests

Model 16000A225A-L, RF Amplifier, 10 kHz-225 MHz, 16,000 watts Model 10000W1000A, RF Amplifier, 80 MHz-1,000 MHz, 10,000 watts Model 3000S1G2z5, RF Amplifier, 1-2.5 GHz, 3,000 watts Model 1500T2G8A, RF Amplifier, 2.5-7.5 GHz, 1,500 watts Model 1500T8G18, RF Amplifier, 7.5-18 GHz, 1,500 watts Model 200T18G26z5A, RF Amplifier, 18-26.5 GHz, 200 watts Model 200T26z5G40A, RF Amplifier, 26.5-40 GHz, 200 watts

RF Power Amplifiers for Pulse Tests

Model 10000W1000A, RF Amplifier, 80 MHz-1,000 MHz, 10,000 watts Model 8000SP1G2, RF Amplifier, 1-2 GHz, 8,000 watts Model 6900TP2G4, RF Amplifier, 2-4 GHz, 6,900 watts Model 7400TP4G8, RF Amplifier, 4-8 GHz, 7,400 watts Model 8300TP8G12, RF Amplifier, 8-12 GHz, 8,300 watts Model 5700TP12G18, RF Amplifier, 12-18 GHz, 5,700 watts

AR Antennas

Model ATP10K100M, Broadband Transmission Line, 10 kHz-100 MHz, 3,000 watts Model ATR26M1G, Log-Periodic Antenna, 26 MHz-1,000 MHz, 20,000 watts Model ATH800M6G, High-Gain Horn Antenna, 800 MHz-6 GHz, 2,300 watts Model ATH2G8A-1, Horn Antenna, 2.5–7.5 GHz, 12,000 watts Model ATH7G18, High-Gain Horn Antenna, 7.5-18 GHz, 2,800 watts Model ATH18G27, High-Gain Horn Antenna, 18-26.5 GHz, 350 watts Model ATH26G40, High-Gain Horn Antenna, 26.5-40 GHz, 240 watts

Other amplifiers and antennas available

Systems Solid State Field Generating Systems



Get More, Pay Less

Solid State Amplifier and Antenna Combos Generate up to 50 V/m Fields from 18-40 GHz for Far Less Cost than Traditional Setups

Solid State Amplifier and Antenna Combinations Generate up to 50 V/m • 18-26.5 GHz and 26.5-40 GHz units • 20 V/m and 50 V/m in each band Numerous benefits over traditional Traveling Wave Tube Amplifier (TWTA) solution for low-level radiated immunity testing • Fraction of the cost (~ 80% lower) • Far higher MTBF (solid-state vs. TWTA) • Improved harmonics specifications • Longer warranty (3 vs. 1 year)

AA1000

- Provides RF routing, fault protection, and DC power for AA units.
- with required bulkhead connectors.
- One AA1000 can be used with any AA unit

turnkey solution from 18-40 GHz

Numerous Applications

- Radiated Immunity
- 5G
- Satellite and Experimental communications
- TWTA Replacements



• Includes RF and twinax power cable set (2 m and 4 m for each type) along

Can be used with AR's SC2000 and Keysight signal generators to create a

"AA" Systems

Model	Frequency (GHz)	Field Strength (V/m)
AA18G26-20	18–26.5	20
AA18G26-50	18–26.5	50
AA26G50-20	26.5-40	20
AA26G50-50	26.5–40	50

Systems

Solid State Field Generating Systems

AA1000





Power Supply and Control Primary Power (Universal: Selected Automatically):

Primary Power (Universal; Selec	tea Automatically):	Ratec
	100–240 VAC, 50/60 Hz	
Connectors (Rack Unit):		Maxii
RF Input:	2.92 mm (K-type) female	Frequ
RF Output:	2.92 mm (K-type) female	3 dB
DC Output:	Twinax	AA
Remote Interfaces:		
IEEE-488:	24-pin female	3 dB
RS-232:	9-pin sub D (female)	AA
Fiber optic:	ST Conn Tx and Rx RS-232	Modu
USB 2.0:	Type B	Will f
Ethernet:	RJ-45	on in
Safety Interlock:	15-pin subminiature D	Spuri
Cooling:	Forced air (self-contained fans)	Primo
Weight:		
Rack Unit:	4.5 kg (10 lb.)	Conn
Size (W x H x D):		RF
Rack Unit:	48.3 cm x 8.9 cm x 53.3 cm	D
	19 in. x 3.5 in. x 21 in.	Cooli
Environmental:		Weig
Operating Temperature:	5°C / +40°C Operating	AA
Altitude:	up to 2,000 M	Size
Shock and vibration:	Normal Truck Transport	AA
Regulatory Compliance:		
EMC	EN 61326-1	Envir
Safety	UL 61010-1	0
	CAN/CSA C22.2 #61010-1	0
	CENELEC EN 61010-1	Sh
RoHS	Directive 2011/65/EU	Regu
WEEE	Directive 2012/19/EU	EN
Export Classification:	EAR99	Sc
		Ro



18-26.5	5 GHz, 20 V/m	
Rated Field Strength:		Rated Field
v	20 V/m at 1 meter antenna distance	
Maximum Amplifier Input:	+10 dBm max	Maximum A
Frequency Response:	18–26.5 GHz instantaneous	Frequency R
3 dB Beamwidth:		3 dB Beamv
AA18G26-20:	E Plane: 17.5 degrees	AA18G26
	H Plane: 17.8 degrees	
3 dB Spot Size @ 1 m:		3 dB Spot S
AA18G26-20:	0.31 m x 0.31 m	AA18G26
Modulation Capability:		Modulation
, ,	1, FM, or pulse modulation appearing	Will faithfully
on input signal.		on input sig
Spurious:	Minus 65 dBc typical	Spurious:
Primary Power (Supplied b	, ,	Primary Pow
	6 Amps max, +24 VDC @ 1 Amp max	. .
Connectors:		Connectors:
RF Input:	2.92 mm (K-type) female	RF Input:
DC Input:	Twinax	DC Input
Cooling:	Forced air (self-contained fans)	Cooling:
Weight:		Weight:
AA18G26-20:	2.5 kg (5.5 lb.)	AA18G26
Size (W x H x D): AA18G26-20:	10.1 cm v 19.4 cm v 17.9 cm	Size (W x H
AA 18620-20:	12.1 cm x 18.4 cm x 17.8 cm 4.75 in. x 7.25 in. x 7 in.	AA18G26
Environmental:	4.75 111. X 7.25 111. X 7 111.	Environmen
Operating Temperature:	5°C/+40°C	Operating
Operating Altitude:	up to 2,000 M	Operating
Shock and vibration:	Normal Truck Transport	Shock ar
Regulatory Compliance:	Normal fluck fluitsport	Regulatory (
EMC	EN 61326-1	EMC
		LINIC

UL 61010-1

EAR99

CAN/CSA C22.2 #61010-1

CENELEC EN 61010-1

Directive 2011/65/EU

Directive 2012/19/EU

Safety

RoHS

WEEE

Export Classification:

RoHS WEEE Export Classification:

Safety



AA18G26-50

18-26.5 GHz, 50 V/m

ed Field Strength:		
Minimum 50	V/m at 1 meter antenna distance	
kimum Amplifier Input:	+10 dBm max	
quency Response:	18–26.5 GHz instantaneous	
B Beamwidth: AA18G26-50:	E Plane: 8.1 degrees	
AA10020-JU.	H Plane: 9.5 degrees	
B Spot Size @ 1 m:		
AA18G26-50:	0.14 m x 0.17 m	
dulation Capability:		
	, or pulse modulation appearing	
input signal. Irious:	Minus 65 dBc typical	
nary Power (Supplied by AA	<i></i>	
/ / // /	nps max, +24 VDC @ 1 Amp max	
nectors:		
RF Input:	2.92 mm (K-type) female	
DC Input: bling:	Twinax Forced air (self-contained fans)	
ight:		
AA18G26-50:	2.7 kg (6 lb.)	
e (W x H x D):		
AA18G26-50:	12.1 cm x 18.4 cm x 35.6 cm	
ironmental:	4.75in x 7.25in x 14in	
Operating Temperature:	5°C/+40°C	
Operating Altitude:	up to 2,000 M	
Shock and vibration:	Normal Truck Transport	
ulatory Compliance:		
EMC	EN 61326-1	
Safety	UL 61010-1 CAN/CSA C22.2 #61010-1	
	CENELEC EN 61010-1	
RoHS	Directive 2011/65/EU	

Directive 2012/19/EU

EAR99



26.5-40 GHz, 20 V/m

AA26G40-20

Rated Field Strength:		Rated Field Strength:
Minimum 2	20 V/m at 1 meter antenna distance	Minimum
Maximum Amplifier Input:	+10 dBm max	Maximum Amplifier Input:
Frequency Response:	26.5–40 GHz instantaneous	Frequency Response:
3 dB Beamwidth:		3 dB Beamwidth:
AA26G40-20:	E Plane: 16.7 degrees	AA26G40-50:
	H Plane: 18.3 degrees	
3 dB Spot Size @ 1 m:		3 dB Spot Size @ 1 m:
AA26G40-20:	0.29 m x 0.32 m	AA26G40-50:
Modulation Capability:		Modulation Capability:
Will faithfully reproduce AM, F	FM, or pulse modulation appearing	Will faithfully reproduce AM
on input signal.		on input signal.
Spurious:	Minus 65 dBc typical	Spurious:
Primary Power (Supplied by	AA1000):	Primary Power (Supplied b
8 VDC @ 6	Amps max, +24 VDC @ 1 Amp max	8 VDC @
Connectors:		Connectors:
RF Input:	2.92 mm (K-type) female	RF Input:
DC Input:	Twinax	DC Input:
Cooling:	Forced air (self-contained fans)	Cooling:
Weight:		Weight:
AA26G40-20:	2.5 kg (5.5 lb.)	AA26G40-50:
Size (W x H x D):		Size (W x H x D):
AA26G40-20:	12.1 cm x 18.4 cm x 15.2 cm	AA26G40-50:
	4.75 in. x 7.25 in. x 6 in	
Environmental:		Environmental:
Operating Temperature:	5°C/+40°C	Operating Temperature:
Operating Altitude:	up to 2,000 M	Operating Altitude:
Shock and vibration:	Normal Truck Transport	Shock and vibration:
Regulatory Compliance:		Regulatory Compliance:
EMC	EN 61326-1	EMC
Safety	UL 61010-1	Safety
	CAN/CSA C22.2 #61010-1	
	CENELEC EN 61010-1	
RoHS	Directive 2011/65/EU	RoHS
WEEE	Directive 2012/19/EU	WEEE
Export Classification:	3A001	Export Classification:



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AA26G40-50

26.5-40 GHz, 50 V/m

Minimum 50 V/m at 1 meter antenna distance +10 dBm max 26.5–40 GHz instantaneous

> E Plane: 8.3 degrees H Plane: 9.7 degrees

> > 0.15 m x 0.17 m

faithfully reproduce AM, FM, or pulse modulation appearing

Minus 65 dBc typical

mary Power (Supplied by AA1000): 8 VDC @ 6 Amps max, +24 VDC @ 1 Amp max

> 2.92 mm (K-type) female Twinax Forced air (self-contained fans)

> > 2.7 kg (6 lb.)

12.1 cm x 18.4 cm x 25.4 cm 4.75in x 7.25in x 10in

5°C/+40°C up to 2,000 M Normal Truck Transport

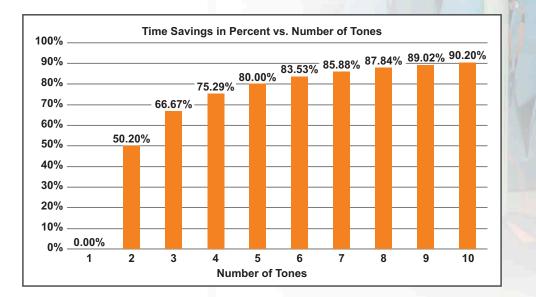
EN 61326-1 UL 61010-1 CAN/CSA C22.2 #61010-1 CENELEC EN 61010-1 Directive 2011/65/EU Directive 2012/19/EU 3A001

Maximize Your RF Immunity Testing and Minimize Costs

Testing faster than ever before is now achievable with AR's MultiStar Multi-Tone Tester (MT06002). AR Engineering has created this state-of-the-art system to test in accordance with commercial, aviation, and automotive EMC RF Radiated and Conducted Immunity standards. Included is AR's proprietary software, offering users numerous test and calibration routines utilizing multiple tone methodology, to meet these standards. Additionally, the use of a PXI bus and AR's SC2000 system controller allow for seamless integration of all hardware and streamlined routing of all RF to and from the embedded vector signal transceiver and amplifiers.

The enhanced MT06002 offers testing from 10 kHz to 6 GHz, with up to 1 GHz instantaneous bandwidth, greatly expanding an EMC laboratory's opportunities beyond IEC 61000-4-3 to include conducted immunity and allow for more tones to be used during testing. The system may control up to four RF amplifiers, antennas, and directional couplers. In addition, up to four field probes can be monitored with the MT06002 M1 option. AR's Application Engineering department is here to help you size your amplifiers, antennas, and directional couplers based on your required field levels and testing needs.

Not only does the multi-tone system significantly reduce test time, but also, in the event of an EUT failure, margin investigation (thresholding) and traditional single tone testing is easily performed through AR's software.





RF Conducted Immunity Testing to IEC, Military and Automotive **Standards**



If you are tired of mixing and matching various components, try AR's complete line of RF Conducted Immunity Test Systems. We now make one fully configured and stand-alone CI System from 4 kHz to 400 MHz with output powers designed to meet the latest commercial, custom, and military standards. In addition, AR provides configurable systems to meet your specific requirements of increased power and frequency range. Each CI System has the built-in flexibility to conduct standard and customized tests, using our supplied user-friendly software that can generate reports directly into Microsoft[®] Word or Excel.

CDN Testing to 250 MHz

25 watts, 10 kHz-250 MHz

Complete Testing Solutions to the following standards; EN/IEC 61000-4-6, IEC 60601-1 EN 50130-4, EN 61000-6-1/2, EN 55024, ISO 11452-4, and other automotive standards.

Signal Generator Specifications Frequency Range/Resolution Power Range/Resolution Modulation	9 kHz to 1.5 GHz / 0.01 Hz -110 to +13 dBm / 0.01 dB AM, FM, Phase, Int Pulse, Ext Pulse
Spectrum Analyzer Specifications Frequency Range/Resolution RF Power CW (max)	9 kHz to 1.5 GHz / 1 Hz
Atten = 30 dB Resolution BW Video BW Amplitude Measurement Range	20 dBm 10 Hz to 1 MHz 1 Hz to 3 MHz
	110 dBm to +20 dBm in 1 dB steps 20 dB (nom) 10 msec to 1,500 sec
RF Solid State Amplifier Specificatio Frequency Range Power Rating	10 kHz to 250 MHz 25 watts min.
At 1 dB compression the pow Harmonic Distortion Mismatch Tolerance	-20 dBc at 75 watts
damage or oscillation with a load impedance.	, 0
Gain Connections	50 dB min.
RF Out Monitor Port In Signal Generator Out RF Amp In/Out Directional Coupler In Pulse In Communication Directional Coupler Fwd Out Directional Coupler Fwd In Directional Coupler Rev Out Directional Coupler Rev In	Type N (front) Type N (front) Type N (rear) Type N (rear) BNC (rear) USB B (rear) Type SMA (rear) Type SMA (rear) Type SMA (rear) Type SMA (rear)
General Power 115/23 Breaker Cooling	0 VAC, 50/60 Hz, single phase 16 A 2 pole, 20 A Active cooling, air ventilation
Weight	10°C-40°Č (50°F-104°F) x 55.1 cm (19.8 x 21.0 x 21.7 in.) 49.9 kg (110 lb.)
Operating System RAM Screen Resolution Ports	AMD Athlon 64 or better processor Windows, 7, 8, or 10 2 GB Minimum 1024 x 768 2 available USB 2.0 ports licrosoft Word/Excel 2007 or newer

CDN or BCI Testing to 400 MHz BCI, EM, or TWC Testing to 1 GHz BCI, EM, or TWC Testing to 3 GHz

100 watts, 10 kHz-400 MHz Complete Testing Solutions to the following standards: MIL-STD-461 and CS114, DO160 (Section 20) BCI Testing, EN/IEC 61000-4-6., IEC 60601-1-2, EN 50130-4. other automotive standards EN 61000-6-1/2, EN 55024, ISO 11452-4, Internal Test Specifications* and other automotive standards. Internal Test Specifications* MIL-STD-461 (CS114), DO160 (Sec 20 BCI Test) IEC/EN 60601-1-2, IEC/EN 50130-4, IEC/EN 61326, IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-4-6 automotive standards CISPR 24/EN 55024, ISO 11452-4, EMC-CS-2009, GM GMW3097 Signal Generator Specifications BMW GS95002, Chrysler DC-11224, Renault 36-00-808, and other Frequency Range/Resolution automotive standards Power Range/Resolution Signal Generator Specifications Modulation Frequency Range/Resolution 9 kHz to 1.5 GHz / 0.01 Hz Spectrum Analyzer Specifications Power Range/Resolution -110 to +13 dBm / 0.01 dB Frequency Range/Resolution Modulation AM, FM, Phase, Int Pulse, Ext Pulse RF Power CW (max) Spectrum Analyzer Specifications Atten = 30 dB9 kHz to 1.5 GHz / 1 Hz Resolution BW Frequency Range/Resolution RF Power CW (max) Video BW 20 dBm Atten = 30 dBAmplitude Measurement Range 10 Hz to 1 MHz Resolution BW Video BW 1 Hz to 3 MHz Preamplifier Gain Amplitude Measurement Range Sweep Time, span> 100 Hz -110 dBm to +20 dBm in 1 dB steps **RF Solid State Amplifier Specifications** Preamplifier Gain 20 dB (nom) Frequency Range 10 msec to 1,500 sec Sweep Time, span> 100 Hz Power Rating **RF Solid State Amplifier Specifications** 9 kHz to 400 MHz Frequency Range Harmonic Distortion Power Rating 100 watts min. Mismatch Tolerance At 1 dB compression the power is 75 watts min. Harmonic Distortion -20 dBc at 75 watts Mismatch Tolerance load impedance. 100% of rated power without fold back. Will operate without Gain damage or oscillation with any magnitude of source and Connections load impedance. RF Out Gain 50 dB min. Monitor Port In Connections Signal Generator Out RF Out Type N (front) Directional Coupler In Monitor Port In Type N (front) RF Amp In/Out Signal Generator Out Type N (rear) Communication RF Amp In/Out Type N (rear) Directional Coupler Fwd **Directional Coupler In** Directional Coupler Fwd Type N (rear) BNC (rear) Directional Coupler Rev (Pulse In USB B (rear) Communicatio Directional Coupler Rev Type SMA (rear) **Directional Coupler Fwd Out** General Directional Coupler Fwd In Type SMA (rear) Power Type SMA (rear) **Directional Coupler Rev Out** Breaker Type SMA (rear) **Directional Coupler Rev In** Cooling Environmental Conditions General Power 115/230 VAC, 50/60 Hz, single phase 16 A Dimensions Breaker 2 pole, 20 A Weight Coolina Active cooling, air ventilation PC Requirements 10°C-40°Č (50°F-104°F) Environmental Condition: Computer Dimensions 50.3 x 53.3 x 55.1 cm (19.8 x 21.0 x 21.7 in.) Operating System Weight 49.9 kg (110 lb.) RÁM PC Requirements Screen Resolution Intel Pentium 4, AMD Athlon 64 or better processor Computer Ports Windows, 7, 8, or 10 **Operating System** Software Requirements ΡÅΜ 2 GB Minimum Screen Resolution 1024 x 768

2 available USB 2.0 ports

Microsoft Word/Excel 2007 or newer

Software Requirements

250 watts, 100 kHz-1,000 MHz

Complete Testing Solutions to the following standards; EN/IEC 61000-4-6, IEC 60601-1-2, EN 50130-4, EN 61000-6-1/2, ISO 11452-4, and

IEC/EN 60601-1-2, IEC/EN 50130-4, IEC/EN 61326, IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-4-6, ISO 11452-4, EMC-CS-2009, GM GMW3097, BMW GS95002, Chrysler DC-11224, Renault 36-00-808, and other

> 9 kHz to 1.5 GHz / 0.01 Hz -110 to +13 dBm / 0.01 dB AM, FM, Phase, Int Pulse, Ext Pulse 9 kHz to 1.5 GHz / 1 Hz 20 dBm 10 Hz to 1 MHz 1 Hz to 3 MHz -110 dBm to +20 dBm in 1 dB steps 20 dB (nom) 10 msec to 1,500 sec 100 kHz to 1,000 MHz

250 watts min At 1 dB compression the power is 175 watts min. -20 dBc at rated powe

100% of rated power without fold back. Will operate without damage or oscillation with any magnitude of source and

54 dB min.

load impedance.

Gain

RE Out

General

Power

Breaker

Cooling

DΩW

Ports

Free Hard Drive Space

Software Requirements

Screen Resolution

	Type N (front)
	Type N (front)
	Type N (rear)
	Type N (rear)
	Type N (rear)
	USB (rear)
Out	Type SMA (rear)
In	Type SMA (rear)
Dut	Type SMA (rear)
n	Type SMA (rear)

115/230 VAC, 50/60 Hz, single phase 16 A 2 pole, 20 A Active cooling, air ventilation 10°C-40°C (50°F-104°F) 128.9 x 56.1 x 91.4 cm (52.5 x 22.1 x 36 in. 72.6 kg (160 lb.) Intel Pentium 4, AMD Athlon 64 or better processor

Windows, 7, 8, or 10 2 GB Minimum 1024 x 768 2 available USB 2.0 ports Microsoft Word/Excel 2007 or newer

100/25 watts, 10 kHz-3 GHz Complete Testing Solutions to perform Automotive Conducted Immunity testing over the frequency range of 100 kHz-3 GHz at test levels of up to 200 mA. Internal Test Specifications* MIL-STD-461F and G, CS114, DO160D Section 20 BCI testing, DO160E, Section 20 BCI testing IEC/EN 60601-1-2, IEC 61000-4-6 procedure and levels IEC/EN 50130-4, IEC/EN 61326, IEC/EN 61000-6-1 IEC/EN 61000-6-2, CISPR 24/EN 55024, ISO 11452-4, GMW 3097, ES-XW7T-1A278-AC, DC-11224, BMW GS95002, and other automotive standards. Signal Generator Specifications 9 kHz to 3 GHz Frequency Range Amplitude Resolution 0.01 dB AM, PM, Pulse Modulation Modulation Power Range -144 to +26 dBm Spectrum Analyzer 9 kHz to 3 GHz Frequency Range Frequency Resolution 1 H: Positive and negative peak, sample, normal, RMS Detectors Amplitude Accuracy ± 0.5 dB, typical **RF Solid State Amplifier Specifications** 9 kHz to 400 MHz Frequency Range Power Ratina 100 watts min At 1 dB compression the power is 75 watts min Harmonic Distortion -20 dBc at 75 watt Mismatch Tolerance 100% of rated power without fold back. Will operate without damage or oscillation with any magnitude of source and

50 dB min Connections Type N Male (front) Monitor Port In Type N Male (front Communication GPIB (rear) 115/230 VAC, 50/60 Hz, single phase 16 A 2 pole, 20 A Active air cooling, air ventilation Environmental Conditions 10°C to 40°C (50°F-104°F) PC Requirements Minimum Intel Pentium 4/AMD Athlon 64 Computer or better processor Windows, 7, 8, or 10 Operating System

2 GB Minimum 2 GF 1024 x 768 2 available USB ports Microsoft Word/Excel 2007 or newe

Conducted Immunity Testing Accessories

Conducted Immunity and Emissions **Tubular Wave Couplers**

Our series of compact, versatile, and affordable tubular wave couplers is suitable for immunity testing and emissions measurement of power leads or other connection lines. The BI30000 Series features a bandwidth from 400 MHz to 3 GHz for immunity testing and 150 kHz to 3 GHz for emissions testing.

Immunity testing using the BI30000 Series is similar to using a BCI probe as in ISO 11451-2, ISO 11452-4, or IEC 61000-4-6, and emission measurements can be taken as a current probe according to EN 55025 (CISPR 25). With the proposed standards coming up in the automotive industry, the BI30000 Series will provide a low-cost alternative to perform conductive testing up to 3 GHz.



	BI30410	BI30413	BI30416	BI30520	BI30526
ISL Value <10 dB	0.50-2.80 GHz	0.60-2.80 GHz	0.80–2.50 GHz	0.60-1.40 GHz	
ISL Value <20 dB	0.15-3.00 GHz	0.15-3.00 GHz	0.20-3.00 GHz	0.15–2.50 GHz	0.20–2.50 GHz
Size (LxW)	40 x 40 mm (1.575 x 1.575 in.)	40 x 40 mm (1.575 x 1.575 in.)	40 x 40 mm (1.575 x 1.575 in.)	50 x 50 mm (1.97 x 1.97 in.)	50 x 50 mm (1.97 x 1.97 in.)
Internal Diameter	10 mm (0.394 in.)	13 mm (0.512 in.)	16 mm (0.630 in.)	20 mm (0.787 in.)	26 mm (1.02 in.)

M1 versions of the above models are available with 17025-compliant calibration.

Tubular Wave Coupler Calibration Kit

AR offers the CF30000 calibration fixture. This is designed to work with the BI30000 Series Tubular Wave



Couplers for the purpose of level setting prior to conducted immunity testing.

	Model CF30000
Frequency Range	150 MHz-3 GHz
Calibration Power (max. watts)	4 CW
Input Impedance	50Ω
Connectors	SMA(F)
Max. Diameter of TWC	50 mm (1.97 in.)
Length of coupling line	120 mm (4.72 in.)
Weight	1.1 kg 2.42 lb.
Size (approx.) L x W x H	230 x 95 x 90 mm (9.05 x 3.74 x 3.54 in.)

For more information about selecting accessories for our Conducted Immunity Systems, please see Application Note-Selection Guide for CI System Accessories.



Conducted Immunity Testing Kits

For use in CI requirements to 1 GHz. Contain all of the attenuators, injection probes, monitor probes, calibration fixtures, calibration resistors, and termination resistors necessary to perform Bulk Current Injection testing to various specifications.

	Model TK1000	Model TK1001	Model TK1002
Application	IEC For use with the CI00250A, CI00400A, CI00401A Testing up to 32 mm cable diameter	Testing up to 66 mm cable diameter	Testing up to 23 mm cable diameter
Accessories Included	AF06250, 6 dB 250 watt fixed attenuator	AF06250, 6 dB 250 watt fixed attenuator	AF06250, 6 dB 250 watt fixed attenuator
Included	AF20050, 20 dB 50 watt fixed attenuator	AF20050, 20 dB 50 watt fixed attenuator	AF10050, 10 dB 50 watt fixed attenuator
	AF10050, 10 dB 50 watt fixed attenuator	AF10050, 10 dB 50 watt fixed attenuator	AF20050, 20 dB 50 watt fixed attenuator
	TL50050, 50 ohm 50 watt termination	TL50050, 50 ohm 50 watt termination	TL50050, 50 ohm 50 watt termination
	BI00250, 10 kHz–250 MHz injection probe	BI00251, 10 kHz-250 MHz injection probe	EM10123, electromagnetic clamp
	CF00250, 10 kHz–250 MHz calibration fixture	CF00251, 10 kHz-250 MHz calibration fixture	EM10123CF, electromagnetic clamp calibration kit
	CR00100BC, 150-50 ohm adapter	CR00100BC, 150-50 ohm adapter	BP00250, 10 kHz-250 MHz Monitor Probe
	BP00250, 10 kHz–250 MHz Monitor Probe	BP00251, 10 kHz-250 MHz Monitor Probe	CC21111015 50 Ω Shielded Coaxial Cable, 1.5 m,
	CC21111015 50 Ω Shielded Coaxial Cable, 1.5 m, N male connectors (Qty 2)	CC21111015 50 Ω Shielded Coaxial Cable, 1.5 m, N male connectors (Qty 2)	N male connectors (Qty 2) CC21111003 50 Ω Shielded Coaxial Cable, 0.3 m.
	CC21111003 50 Ω Shielded Coaxial Cable, 0.3 m, N male connectors	CC21111003 50 Ω Shielded Coaxial Cable, 0.3 m, N male connectors	N male connectors

	Model TK2000	Model TK3000	Model TK4000
Application	MIL/DO For use with the Cl00400A Testing up to 32 mm cable diameter	Automotive For use with the CI00400A, CI00401A Testing up to 32 mm cable diameter	Cl requirements to 1 GHz Testing up to 32 mm cable diameter
Accessories Included	AF06250, 6 dB 250 watt fixed attenuator AF20050, 20 dB 50 watt fixed attenuator AF10050, 10 dB 50 watt fixed attenuator TL50050, 50 ohm 50 watt termination BI00400, 10 kHz–400 MHz injection probe CF00400, 10 kHz–400 MHz calibration fixture BP00100, 100 Hz–100 MHz monitor probe BP00400, 10 kHz–400 MHz monitor probe CC21111015 50 Ω Shielded Coaxial Cable, 1.5 m, N male connectors (Qty 2) CC21111003 50 Ω Shielded Coaxial Cable, 0.3 m, N male connectors	AF20050, 20 dB 50 watt fixed attenuator AF10050, 10 dB 50 watt fixed attenuator TL50050, 50 ohm 50 watt termination BI00401, 1–400 MHz injection probe CF00400, 10 kHz–400 MHz calibration fixture BP00400, 10 kHz–400 MHz monitor probe CC21111015 50 Ω Shielded Coaxial Cable, 1.5 m, N male connectors (Qty 2)	BI101000, 100 kHz–1,000 MHz injection probe CF01000, Calibration Fixture for BI001000 BP01000, 100 kHz–1,000 MHz monitor probe AF06250, 6 dB, 250 watt fixed attenuator AF20050, 20 dB, 50 watt fixed attenuator AF10050, 10 dB, 50 watt fixed attenuator CR00100BC, 150-50 Ohm adapter CC21111015, 50 Ohm Shielded Coaxial Cable, 1.5 m, N male connectors (Qty 2) CC21111003, 50 Ohm Shielded Coaxial Cable, 0.3 m, N male connectors TL50050, 50 Ohm, 50 watt termination

RF Conducted Probe and Cables

Model Cl00402.

Current Monitor Probe

AR offers a clamp-on monitoring probe used to measure RF currents flowing through the conductor onto which the probe is placed. The following model is available:

BP00250; 1 kHz-250 MHz

Coaxial Cables Available in 50 Ω

The following accessories are for use with our RF Conducted Immunity CI System

AR—Your Chamber Solution Provider

AR is a single-source provider with the ability to design, build, and service EMC test and RF chambers, AR's experienced chamber team is with you all the way, starting with your requirements definition phase and all throughout the life of an AR-supplied chamber. AR customers can expect the highest level of service and technical support with chambers that you are familiar with for AR's instrumentation and systems.

Applications:

• DO-160

ISO

• IEC

FTSI

CISPR

• MIL-STD-461G • MIL-STD-464C

AR is now the exclusive distributor for the US of Comtest Engineering products, including chambers, shielded rooms, absorbers, and antenna-measurement chambers.

Available Products:

- Semi- and fully anechoic chambers
- Reverberation chambers
- RF shielded rooms
- Antenna test ranges
- Chamber upgrades
- RF shielded doors
- Microwave absorbers
- Typical Chambers

At AR, we understand that the best option for our customers is being able to go to a single point. of contact and obtain a complete EMC solution. Moreover, a quick response for budgeting purposes is also a must. With that in mind, AR has established a number of standard chamber designs that can easily be used when requesting a ROM (Rough Order of Magnitude) price. The chambers below represent the offerings that are readily available for our customer's reference and early planning.

Model	Description	Model	Description
ARCP-0021	Shield Room	ARCP-0028	Vehicle Component Test Chamber
ARCP-0022	Radiated Immunity Chamber	ARCP-0029	Military Component Test Chamber (hybrid)
ARCP-0023	Semi Anechoic 3 m Chamber	ARCP-0030	Military Component Test Chamber (non-hybrid)
ARCP-0024	Semi Anechoic 5 m Chamber	ARCP-0031	Reverb Chamber LUF200
ARCP-0025	Semi Anechoic 10 m Chamber w/ 3 m Qz	ARCP-0032	Reverb Chamber LUF400
ARCP-0026	Semi Anechoic 10 m Chamber w/ 4 m Qz	ARCP-0033	Reverb Chamber LU1000
ARCP-0027	Semi Anechoic 10 m Chamber w/ 5 m Qz	ARCP-0034	Fully Anechoic 3 m Chamber

Although AR offers standard chamber designs, chambers are fully customizable, and offer a complete selection of accessories. Turntables, masts, and a wide array of antennas are part of the basic offering while other components such as fiber-optic converters, shielded RF penetrations, specialty bulkhead connectors, CCTV, and projection systems are also available.

Why Choose a Comtest Chamber Through AR?

- Over 1,000 chamber installations worldwide
- 30 years of experience in chamber design, manufacturing, and installation
- Chambers backed by AR's global customer service
- and chamber doors
- Typical designs are rated in excess of 40 GHz



Comtest absorber products are divided into two main categories: hybrid and microwave. Hybrid chamber solutions make use of ferrite tiles in combination with the hyrbid absorbers, and the microwave absorber line is typically used for research related to antenna pattern measurement.



Industry leading polystyrene absorber, and designs—oscillating wall, pan-type RF shielding,



Advancements In Antennas

Antennas for All Your EMC Applications

AR's EMC applications engineers and antenna designers are continually working together to develop antennas that not only meet today's test requirements but also greatly improve test efficiency as well. This is achieved through wider beamwidths and frequency bands, thus reducing the need for using multiple antennas to cover required bands, and reducing the overall number of antenna positions.

Our Radiant Arrow bent element antennas—for fields from 26 MHz to 6 GHz—are about 60% smaller, lighter, and more compact than standard log-periodic antennas. Yet they cover broad frequency ranges, offer up to 6 dBi gain, and produce high fields even in the toughest applications. The smaller size not only makes them more portable, but it also minimizes field loss from room loading.

The ATR26M1G Radiant Arrow antenna pushes the boundaries even further. ATR26M1G (26-1,000 MHz / 20,000 watts input power) goes beyond existing susceptibility requirements, so it's ready for future developments. And the robust design accommodates the high power levels needed to generate significant E-fields.

AR is also THE source for microwave and RF horn antennas, broadband log periodics, and antennas for HIRF testing. Antennas are available up to 50 GHz and 20,000 watts of input power. All AR antennas develop high fields, suitable for RF and EMC testing, and many models can be calibrated for emissions testing.

All our antennas are frequency- and power-matched to AR amplifiers, so it's easy to select the right combination.

ATH800M6G

High-Gain Horn Antenna 800 MHz to 6 GHz, up to 2.3 kW, fields up to 2,000 V/m @ 1 m. It is ideal for HIRF testing of aircraft, automotive and military applications. It has high gain and high power handling.

> ATR80M6G **Radiant Arrow** Loa-Periodic Antenna 80 MHz to 6 GHz, up to 5 kW, fields up to 500 V/m @ 1 m. It's ideal for coverina the full testing range of IEC 61000-4-3 while providing excellent gain and beamwidth throughout the band.

JB6 **Broadband Hybrid** Antenna from JUNOF

The 30 MHz-6 GHz Broadband Hybrid Antenna is a compact, high performance instrument designed for both EMC emissions and immunity testing.

ATT700M12G

Trapezoidal Log-Periodic Antenna

700 MHz to 12 GHz, broad, uniform beam up to 600 watts, fields up to 200 V/m @ 1 m. This is an all-purpose antenna that can be used in many applications. It's ideal for IEC 61000-4-3 and telecom testing. Furthermore, its wide beamwidth and small physical size makes this antenna desirable for small chambers.



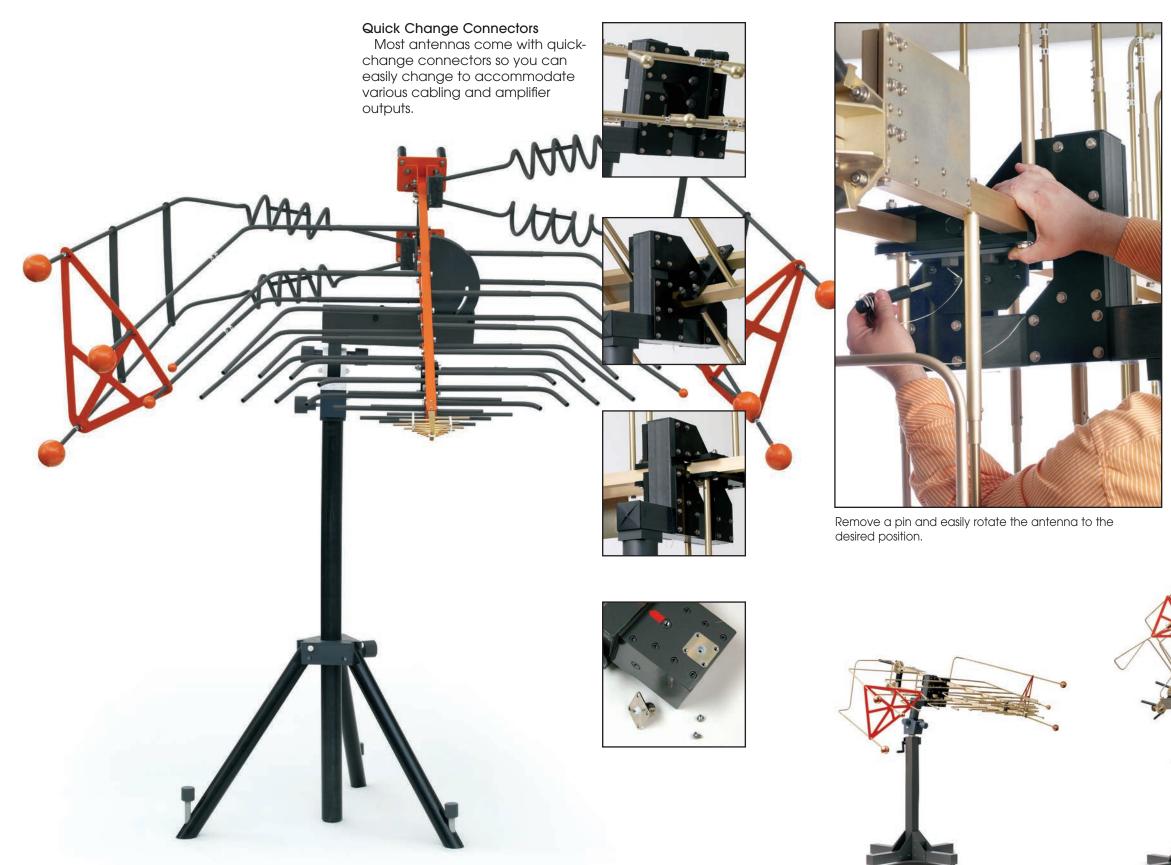
ATP10K100MM4 E-Field Generator 10 kHz to 100 MHz, fields up to 500 V/m. Primary application is MIL-STD-461 testing. It can also be used for automotive component testing.



Custom Striplines

10 kHz to 30 MHz typical up to 20 kW Direct Feed or Step-up Transformer. Its primary application is full-vehicle automotive testing. It's also applicable to MIL-STD-464 testing of large military systems and can be designed to meet your specific needs.

Radiant Arrow Antennas That Take Technology to New Heights

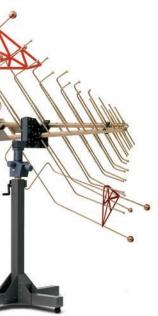


Model ATR26M6G-1 shown on model TP1000B tripod.

With the unique, patented design of our Radiant Arrow bent-element antennas, AR has advanced the science of log-periodic antennas for fields from 26 MHz to 6 GHz.

This exceptional family of antennas includes the ATR80M6G (80 MHz-6 GHz, 5,000 watts input power), the ATR26M6G and ATR26M6G-1 (26 MHz-6 GHz, 5,000 watts input power), and the ATR26M250 (26 MHz-250 MHz, 15,000 watts input power).

The Radiant Arrows utilize a bent-element approach that provides a size reduction up to 75%, without sacrificing key electrical performance such as gain or bandwidth. The size reduction minimizes field loss resulting from room loading, which is especially troublesome when conventional logperiodic antennas are used in small enclosures. All four models feature a vertical to horizontal pivot, to allow bore sight rotation without removing an element from the antenna or removing the antenna from the AR positioner.





Radiant Arrow Antenna

ATR26M1G

26 MHz to 1,000 MHz

The Model ATR26M1G is a wideband, high-gain, logperiodic antenna that is uniquely suited for use in both traditional applications as well as in new compact chambers. The proprietary design, which utilizes a bentelement approach combined with additional innovations, provides a size reduction of approximately 75% without sacrificing key electrical performance such as gain and beamwidth. The reduced profile and extremely low VSWR make it an excellent choice for high field-strength immunity testing, and the robust design can accommodate the high power levels necessary to generate significant E-fields. The ATR26M1G can also be calibrated for RF emissions testing.

Can be custom calibrated to the user's requirement for use in RF emission testing. The calibrated model is designated by adding a CC suffix to the desired model version. Calibration details must be provided using Form 701. Contact factory for details.



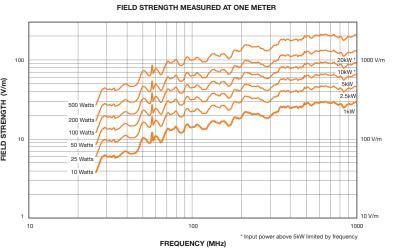
ATR26M6G-1 26 MHz to 6 GHz

The Model ATR26M6G-1 is uniquely suited for use in both traditional applications and in compact test chambers. Its exceptionally broad frequency range addresses existing RF susceptibility requirements as well as anticipated developments. The ATR26M6G-1 features a 75% size reduction over standard logperiodic antennas covering this frequency range. It is matched to work directly with AR's "W," "S," and "A" series RF power amplifiers. The robust design can accommodate the high power levels necessary to generate significant E-fields. The ATR26M6G-1 can also be calibrated for RF emissions testing. The antenna can be supported with the AP5010B antenna positioner or the TP1000BM3 with a ballast tray.

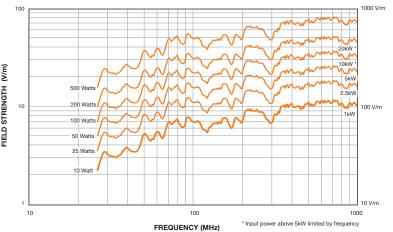
Can be custom calibrated to the user's requirement for use in RF emission testing The calibrated model is designated by adding a CC suffix to the desired model version. Calibration details must be provided using Form 701. Contact factory for details.

pecifications	
	ATR26M1G
Frequency range	26 MHz-1 GHz
Power input, CW	20 kW @ 26 MHz, derate to 5 kW @ 1,000 MHz
Gain (over isotropic)	-8 to 0 dB (26–80 MHz) 0–6 dB (80–1,000 MHz)
Gain flatness	±3 dB (80–1,000 MHz)
Impedance	50 ohms nominal
VSWR (max.)	6:1 (26–80 MHz) 3:1 (80–1,000 MHz)
Beamwidth (average)	Typical curves available on request
Connector	1 5/8 EIA male with removable center bullet
Size (W X H X D)	231 x 66 x 183 cm (91 x 26 x 72 in.)
Weight (max.)	29.5 kg (65 lb.)
Mounting	May be mounted in two perpendicular planes using an optional antenna positioner (AP5010B). One non-metallic m (4 foot) is included for vertical mounting.

ATR26M1G



FIELD STRENGTH MEASURED AT THREE METERS

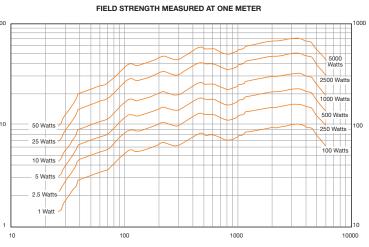


	ATR26M6G-1
Frequency range	26 MHz–6 GHz
Power input (max.)	5,000 watts
Gain (over isotropic)	-4 to 6 dB (26–80 MHz) 6 dB (80 MHz–6 GHz)
Gain flatness	±1.5 dB (80 MHz-6 GHz)
Impedance	50 ohms nominal
VSWR (max.)	6:1 (26–80 MHz) 3:1 (80 MHz–6 GHz)
Beamwidth (average)	Typical curves available on request
Connector	Type N (F) quick change connector; Type C (F) supplied for higher power applications
Size (w x h x d)	218.4 x 73.7 x 161.3 cm (86 x 29 x 63.5 in.)
Weight (max.)	13.6 kg (30 lb.)
Mounting	May also be mounted using the optional AP5010B antenna positioner or the TP1000BM3 tripor with ballast tray. Also includes 2 non-metallic masts (4 and 6 feet) vertical mounting.

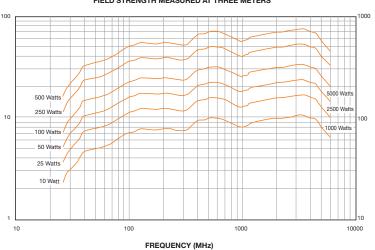
Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers, and test-system conditions will influence performance. Field strength also varies with frequency and position of antenna and EUT in non-anechoic testing environments.



ATR26M6G-1



FREQUENCY (MHz)



FIELD STRENGTH MEASURED AT THREE METERS

87

The Most Advanced Antennas for Radiated EMC Testing

q: ATR26M250-26 MHz to 250 MHz b: ATR26M6G-26 MHz to 6 GHz c: ATR80M6G-80 MHz to 6 GHz d: ATR200M6G-200 MHz to 6 GHz

Our Radiant Arrow Antennas offer up to 6 dBi gain and produce high fields even in the toughest applications. They can also be calibrated for emissions testing. These efficient, compact, portable antennas represent the innovative thinking and exceptional products that have earned AR the number-one position in the industry.

Antenna Mounting Adapters

These adapters are available for older versions of the AT1000, AT1080, and AT5080 antennas. They allow for vertical and horizontal polarization changes without removing the antenna from the tripod.

Can be custom calibrated to the user's requirement for use in RF emission testing. The calibrated model is designated by adding a CC suffix to the desired model version. Calibration details must be provided using Form 701. Contact factory for details.

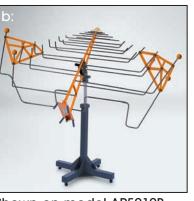
	ATR26M250	ATR26M6G	ATR80M6G	ATR200M6G
Frequency range	26 MHz-250 MHz	26 MHz–6 GHz	80 MHz-6 GHz	200 MHz-6 GHz
Power input (max.)*	15,000 watts	5,000 watts	5,000 watts	5,000 watts
Gain (over isotropic)	-3 to +6 dBi (26–80 MHz) 6 dBi (80–250 MHz)	-3 to +6 dBi (26–80 MHz) 6 dBi (80 MHz–6 GHz)	6 dBi	6 dBi
Gain flatness	±1.5 dBi (80–250 MHz)	±1.5 dBi (80–6 GHz)	±2 dBi	±1.5 dBi
Impedance	50 ohms nominal	50 ohms nominal	50 ohms nominal	50 ohms nominal
VSWR (max.)	3:1 (80–250 MHz) 10:1 (26–80 MHz)	3:1 (80–6 GHz) 10:1 (26–80 MHz)	3:1 2:1 (typical)	3:1 2:1 (typical)
Beamwidth (max.)	Typical curves available on request	Typical curves available on request	Typical curves available on request	Typical curves available on request
Connector	1 5/8 EIA quick change connector	Type N (F) quick change connector	Type N (F) quick change connector	Type N (F) quick change connector
Size (w x h x d)	279.4 x 53.6 x 202.4 cm (110 x 21.1 x 79.7 in.)	279.4 x 53.6 x 202.4 cm (110 x 21.1 x 79.7 in.)	132.1 x 20.32 x 97.8 cm (52 x 8 x 38.5 in.)	82.6 x 17.8 x 57.2 cm (32.5 x 7 x 22.5 in.)
Weight (max.)	31.8 kg (70 lb.)	22.7 kg (50 lb.)	7.94 kg (17.5 lb.)	5 kg (12 lb.)
Mounting	May be mounted in two perpendicular planes using an optional antenna positioner (AP5010B). One non-metallic mast (4 foot) is included for vertical mounting.	May be mounted in two perpendicular planes using an optional antenna positioner (AP5010B). Two non-metallic masts (4 and 6 foot) are included for vertical mounting.	May be tripod mounted in two perpendicular planes using optional tripod. Also includes one non-metallic mast for vertical mounting.	May be tripod mounted in two perpendicular planes using optional tripod. Also includes one non-metallic mast for vertical mounting

*Connector and frequency dependent. Contact factory for details.

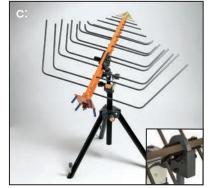
Typical gain charts and antenna patterns are available for most antennas. Contact factory for more information.



Shown on model AP5010B



Shown on model AP5010B

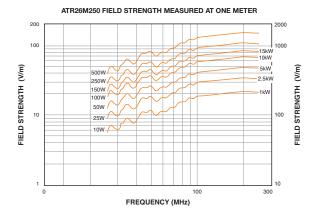


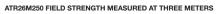
Shown on model TP1000B

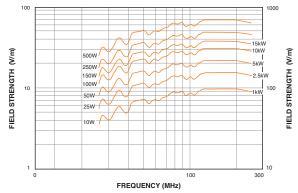


Shown on model TP1000B

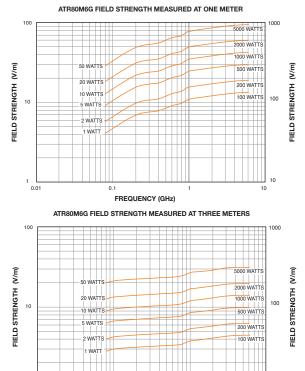
ATR26M250



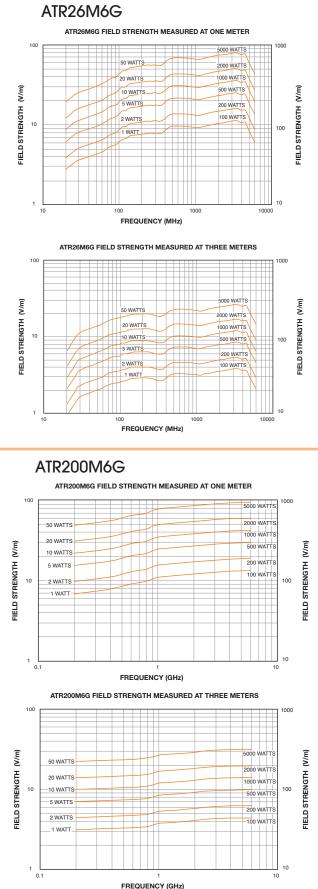




ATR80M6G



FREQUENCY (GHz) Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers and test systems conditions will influence performance. Field strength also varies with frequency and position of the antenna and EUT in non-anechoic testing environments.



Broadband Log Periodic. High Gain. Wide Band. Excellent Performance.

a: ATL80M1G b: ATL150M1G

80 MHz to 1 GHz • Fields up to 800 V/m

You can count on AR's high-gain log periodics to deliver the constant high-intensity fields you need for RFI and EMI testing, in and out of a shielded room. You'll also get frequency response and field intensity that goes beyond the norm.

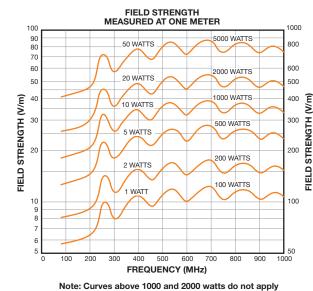
Their lightweight, compact design makes relocation easy, and they can easily be mounted on a flat surface or tripod. And these antennas are built tough to stand up to the outdoors.

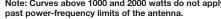
These antennas have been designed to allow polarization change without removing the antenna from a tripod and can be calibrated for emissions testing.

Can be custom calibrated to the user's requirement for use in RF emission testing. The calibrated model is designated by adding a CC suffix to the desired model version. Calibration details must be provided using Form 701. Contact factory for details.

Specifications			
	ATL80M1G	ATL150M1G	
Frequency range	80 MHz-1 GHz	150 MHz-1 GHz	
Power input (max.)	2,000 watts	2,000 watts	
Gain (over isotropic)	6.5 dBi min., 7.5 dBi avg.	6.5 dBi min., 7.5 dBi avg.	
Gain flatness	±1.0 dBi	±1.0 dBi	
Impedance	50 ohms nominal	50 ohms nominal	
VSWR	1.8:1 (max.) 1.5:1 (average)	1.8:1 (max.) 1.5:1 (average)	
Beamwidth (min.)	E plane 60° H plane 105°	E plane 60° H plane 105°	
Front to back ratio (min.)	15 dB	15 dB	
Connector Size (w x h x d)	Type N (F) quick change connector; Type C (F) supplied for higher power applications 193 x 13 x 160 cm (76 x 5.1 x 63 in.)	Type N (F) quick change connector; Type C (F) supplied for higher power applications 102 x 13 x 91 cm (40 x 5.1 x 36 in.)	
Weight (max.)	7 kg (15 lb.)	7 kg (15 lb.)	
Mounting	May be mounted using the optional TP1000B tripod.	May be mounted using the optional TP1000B tripod.	







5000 WATTS

2000 WATTS

1000 WATTS

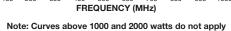
500 WATTS

200 WATTS

100 WATTS

800

FIELD STRENGTH MEASURED AT ONE METER 20 WATTS STRENGTH (V/m) 0 WATTS WATTS FIELD I WATT 200 300 400 500 600 700



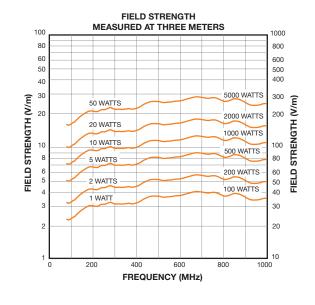
past power-frequency limits of the antenna

Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers, and test-system conditions will influence performance. Field strength also varies with frequency and position of antenna and EUT in non-anechoic testing environments.

900 1000



ATL80M1G

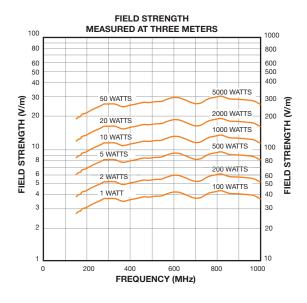


ATL150M1G

S

STRENGTH 0

FIELD



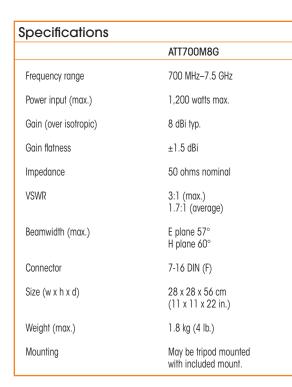
Wideband, High-Gain, Trapezoidal Log-Periodic Antennas

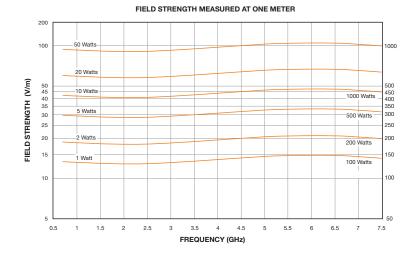
ATT700M8G

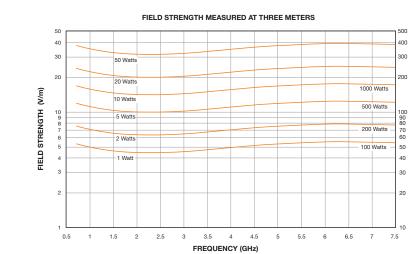
700 MHz to 7.5 GHz The model ATT700M8G is a wideband trapezoidal log-periodic antenna and handles twice the power of the ATT700M12G. It provides high power handling, nearly constant gain, and widebeam widths, which are nearly equal in the E and H planes. The lightweight, compact model is designed to complement AR's "S" Series amplifiers and easily mounts to a tripod using the included adapter.



ATT700M8G







ATT700M12G

700 MHz to 12 GHz The ATT700M12G is a wideband trapezoidal log-periodic antenna. It provides high power handling, nearly constant gain, and wide beam widths, which are nearly equal in the E and H planes. The lightweight, compact model is designed to complement AR's "S" Series amplifiers and easily mounts to a tripod using the included adapter.

Specifications			
	ATT700M12G		
Frequency range	700 MHz-12 GHz		
Power input (max.)	600 watts max.		
Far Field Gain	8 dBi typ.		
Gain flatness	±1.5 dBi		
Impedance	50 ohms nominal		
VSWR	3:1 (max.) 1.7:1 (average)		
3 dB Beamwidth (average)	E plane 57° H plane 60°		
Connector	Type N (F)		
Size (W X H X D)	28 x 28 x 55 cm (11 x 11 x 21.5 in.)		
Weight (max.)	1.7 kg (3 lb., 12 oz)		
Mounting	May be tripod mounted with included mount.		

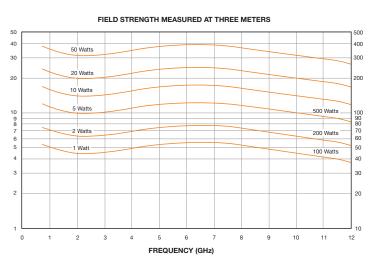
) STRENGTH (V/m)

Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers, and test-system conditions will influence performance. Field strength also varies with frequency and position of antenna and EUT in non-anechoic testing environments.



ATT700M12G

FIELD STRENGTH MEASURED AT ONE METER 50 Watts 20 Watts 10 Watts 5 Watts 500 Watts .200 Watt 1 Watt 100 Watts 2 3 4 5 6 9 10 11 1 7 8 12 FREQUENCY (GHz)



RF Horns: High Gain over a Broad Spectrum

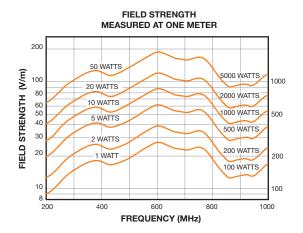
a: ATH200M1G b: ATH200M1G-1 c: ATH400M1G

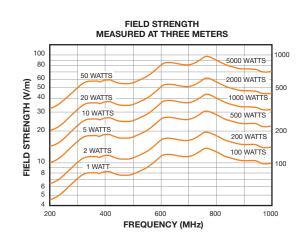
200 MHz To 1,000 MHz • Fields up to 800 V/m

Our RF horn antennas exhibit increasing gain with frequency up to 18 dBi at 1,000 MHz, helping to compensate for losses that occur elsewhere in an RF test system. The ATH200M1G handles up to 5,000 watts input power, and can be used with AR's high-power amplifiers. You can use these antennas in shielded rooms for free space testing.

Can be custom calibrated to the user's requirement for use in RF emission testing. The calibrated model is designated by adding a CC suffix to the desired model version. Calibration details must be provided using Form 701. Contact factory for details.

ATH200M1G

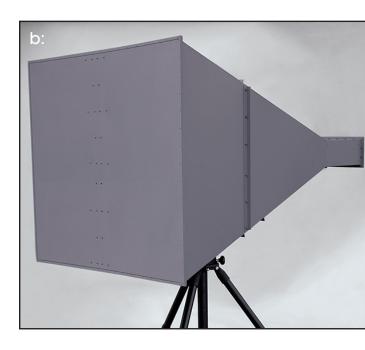




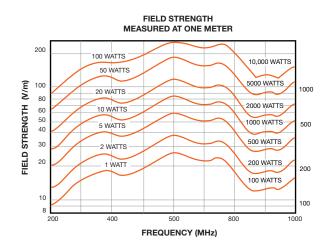


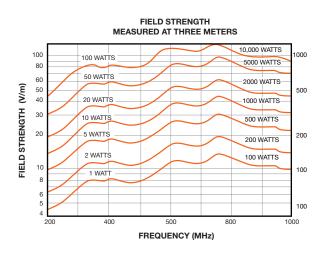
0 10 11					
Specifications					
	ATH200M1G	ATH200M1G-1	ATH400M1G		
Frequency range	200 MHz-1 GHz	200 MHz-1 GHz	400 MHz-1 GHz		
Power input (max.)	5,000 watts	10,000 watts	See graphs.		
Gain (over isotropic)	10 dBi min., typically increasing to 18 dBi at 1,000 MHz	10 dBi min., typically increasing to 18 dBi at 1,000 MHz	10 dBi min., typically increasing to 15 dBi at 1,000 MHz		
Impedance	50 ohms nominal	50 ohms nominal	50 ohms nominal		
VSWR	2.5:1 max., 1.5:1 avg.	2.5:1 max., 1.5:1 avg.	2.5:1 max., 1.5:1 avg.		
Beamwidth					
(front to back)	Typical curves available on request	Typical curves available on request	See curve		
Connector	Type 1-5/8 EIA Flange, Quick Change Connector	Type 1-5/8 EIA Flange	Quick Change block. See Model Configurations.		
Mounting	Heavy-duty tripod included. Pads with 3/8-16 thread for stand mounting vertically or horizontally.	Pads with 3/8-16 thread for stand mounting vertically or horizontally.	Rear flange for wall mount. Pads with 1/4-20 thread for tripod mount.		
Weight	46 kg (100 lb.)	46 kg (100 lb.)	9.1 kg (20 lb.)		
Size (W X H X D)	109.2 x 145.8 x 175.3 cm (43 x 57 x 69 in.)	109.2 x 145.8 x 175.3 cm (43 x 57 x 69 in.)	56.4 x 79.3 x 73.7 cm (22.2 x 31.2 x 29 in.)		

Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers, and test-system conditions will influence performance. Field strength also varies with frequency and position of antenna and EUT in non-anechoic testing environments.



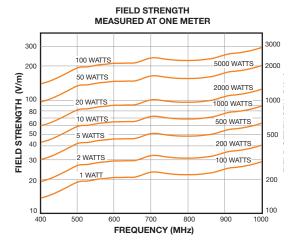
ATH200M1G-1



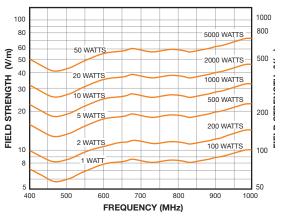




ATH400M1G



FIELD STRENGTH MEASURED AT THREE METERS



Antennas

Suite of Antennas for DO 160 HIRF Testing



a: ATH2G4-2 GHz to 4 GHz b: ATH4G6-4 GHz to 6 GHz c: ATH6G8-6 GHz to 8 GHz

A Special Family of Antennas for High Intensity Radiated Field (HIRF) Testing

High intensity fields—whether from radar or other electronic devices or generated by enemy/ terrorist forces—can cause electronic equipment to malfunction, stop working, or worse. Our amplifiers and antennas are critical components in generating high intensity fields for testing electronic equipment. To keep up with the demands of HIRF testing, AR has developed a family of antennas with the power and bandwidth needed for high intensity field testing.

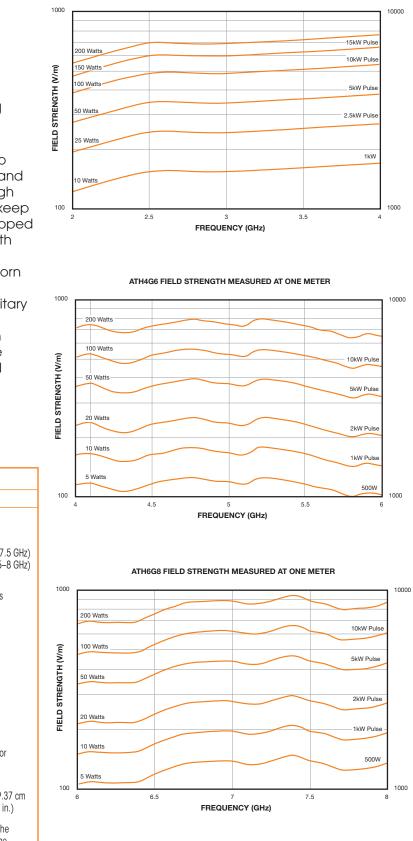
These are all high-gain, high-power microwave horn antennas that provide typical 20 dBi over isotropic. They supply high intensity fields for aviation and military HIRF testing. They are extremely compact and lightweight for easy mobility. Yet they're built tough to withstand the demands of outdoor use. All three antennas are designed to mount easily on a tripod or to a mounting plate and can be used with AR's pulsed-power traveling wave tube amplifiers.

Can be custom calibrated to the user's requirement for use in RF emission testing. The calibrated model is designated by adding a CC suffix to the desired model version. Calibration details must be provided using Form 701. Contact factory for details.

Specifications

	ATH2G4	ATH4G6	ATH6G8
Frequency range	2 GHz–4 GHz	4 GHz–6 GHz	6 GHz–8 GHz
Power input (max.)	1,000 watts CW	800 watts CW	700 watts CW (6–7.5 (600 watts CW (7.5–8 (
Peak pulse less than 20%	17 kW peak pulse (1% duty cycle 6µs pulse width)	15 kW peak pulse (1% duty cycle 6μs pulse width)	10 kW peak pulse (1% duty cycle 6µs pulse width)
Gain (over isotropic)	17 dBi min.	18 dBi typ.	18 dBi typ.
VSWR Max. Average	1.5:1 1.3:1	1.5:1 1.3:1	1.5:1 1.3:1
Beamwidth (avg.) E Plane H Plane	18° 16°	19° 19°	19° 19°
Connector	7–16 DIN connector	7–16 DIN connector	7–16 DIN connector
Weight	11.36 kg (25 lb.)	1.59 kg (3.5 lb.)	91 kg (2 lb.)
Size (WxDxH)	46.55 x 29.4 x 98.50 cm (19 x 12 x 40.2 in.)	23.11 x 17.01 x 46.99 cm (9.1 x 6.7 x 18.5 in.)	16.25 x 12.06 x 39.37 (6.4 x 4.75 x 15.5 in.)
Mounting	Mounting pad on the E-plane and H-plane for tripod	Mounting pad on the E-plane and H-plane for tripod	Mounting pad on the E-plane and H-plane for tripod

ATH2G4 FIELD STRENGTH MEASURED AT ONE METER



Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers, and test-system conditions will influence performance. Field strength also varies with frequency and position of antenna and EUT in non-anechoic testing environments.

Compact, Lightweight Microwave Horns to 50 GHz



Field strengths have been measured in free-space conditions. Individual shielded rooms, amplifiers, and test-system conditions will influence performance. Field strength also varies with frequency and position of antenna and EUT in nonanechoic testing environments.

a: ATH4G8 b: ATH7G18

Our microwave horns also provide exceptional performance. Along with our broadband RF antennas, they are specially designed to compensate for the losses that typically occur in test systems as frequency increases.

These innovative microwave horn antennas are compact and lightweight for easy mobility, yet they're tough enough for the extra demands of outdoor use, and they easily mount on a tripod. Several of our microwave horns have removable gain enhancers that improve the field strength to perform 3-meter testing.





Model ATH1G18A

C: ATH18G27 d: ATH18G27A-1 e: ATH26G40					
Specification	S				
	ATH800M6G	ATH2G18	ATH2G10	ATH2G8A	ATH2G8A-1
Frequency range	800 MHz-6 GHz	2 GHz–18 GHz	2 GHz-10 GHz	2.5 GHz-7.5 GHz	2.5 GHz-7.5 GHz
Power input (max.)	2,300 watts (connector dependent)	50 watts	700 watts	12 kW	12 kW
Gain	11 dBi min, increasing to 22 dBi at 6 GHz	6 dBi min, increasing to 12 dBi at 18 GHz	12.5 dBi min., increasing to 23 dBi at 10 GHz	9.5 dBi min, increasing to 18 dBi at 7.5 GHz.	12.5 dBi min, increasing to 22 dBi at 7.5 GHz.

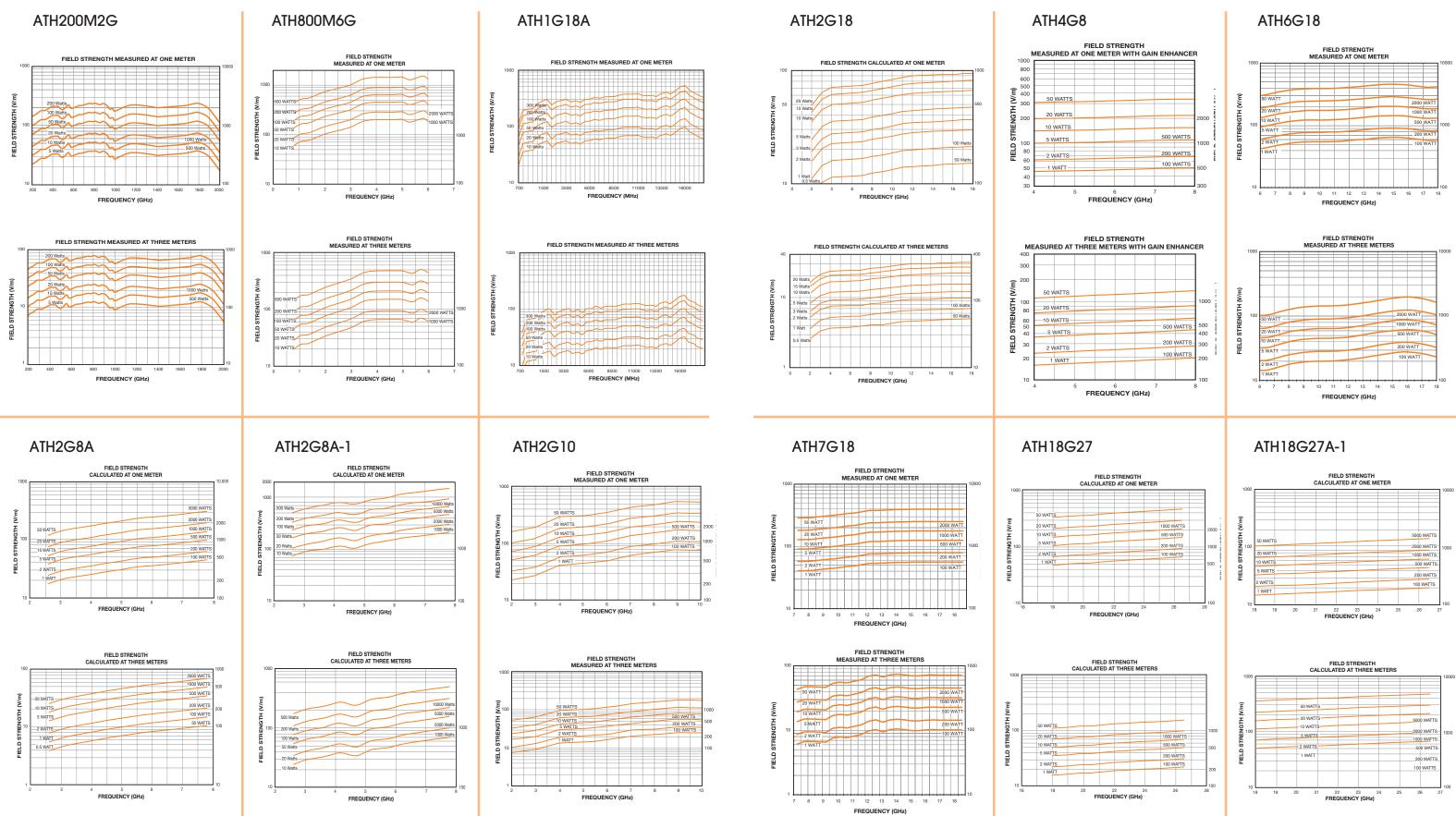
Specifications														
	ATH800M6G	ATH2G18	ATH2G10	ATH2G8A	ATH2G8A-1	ATH4G8	ATH6G18	ATH7G18	ATH18G27	ATH18G27A-1	ATH18G40	ATH26G40	ATH26G40A-1	ATH33G50
Frequency range	800 MHz-6 GHz	2 GHz–18 GHz	2 GHz–10 GHz	2.5 GHz-7.5 GHz	2.5 GHz-7.5 GHz	4 GHz–8 GHz	6 GHz–18 GHz	7.5 GHz–18 GHz	18 GHz-26.5 GHz	18 GHz-26.5 GHz	18 GHz-40 GHz	26.5 GHz-40 GHz	26.5 GHz-40 GHz	33 GHz-50 GHz
Power input (max.)	2,300 watts (connector dependent)	50 watts	700 watts	12 kW	12 kW	500 watts	3,000 max.	2,800 watts	350 watts	350 watts	450 watts	400 watts	240 watts	240 watts
Gain	11 dBi min, increasing to 22 dBi at 6 GHz	6 dBi min, increasing to 12 dBi at 18 GHz	12.5 dBi min., increasing to 23 dBi at 10 GHz	9.5 dBi min, increasing to 18 dBi at 7.5 GHz.	12.5 dBi min, increasing to 22 dBi at 7.5 GHz.	11.5 dBi min., increasing to 15.9 dBi at 8 GHz	19 dBi min, increasing to 23 dBi at 18 GHz	11.3 dBi min., increasing to 14 dBi at 18 GHz	18.7 dBi min, increasing to 21.6 dBi at 26.5 GHz.	8.8 dBi min, increasing to 11.3 dBi at 26.5 GHz.	15.5 dBi min, increasing to 21.2 dBi at 40 GHz.	18.9 dBi min, increasing to 21.8 dBi at 40 GHz.	9 dBi min, increasing to 12 dBi at 40 GHz.	20 ± 2 dBi
						17.8 dBi min., increasing to 21.2 dBi at 8 GHz with gain enhancer		17.4 dBi min., increasing to 20.2 dBi at 18 GHz with gain enhancer						
VSWR Max.	2.5:1	3.0:1	2:1	1.8:1	1.8:1	1.6:1	1.9 max., 6.5–18 GHz	1.2:1	1.5:1	1.4:1	1.5:1	1.5:1	1.3:1	
Average	1.6:1	2.0:1	1.5:1	1.3:1	1.3:1	1.3:1	2.5 max., 6.0–6.5 GHz	1.1:1	1.3:1	1.2:1	1.3:1	1.3:1	1.2:1	1.2:1
Beamwidth (avg.) at														
3 dBi down from peak E Plane H Plane	27.5° 25°	50° 50°	25° 27°	30° 30°	22° 25°	18° with gain enhancer 18° with gain enhancer	14° 15°	17° with gain enhancer 17° with gain enhancer	15° 15°	57° 55°	21° 19°	15° 15°	57.5° 56.5°	9.85° 11.9°
Connector	7-16 DIN (F)	SMA (F)	N (F)	WRD-250-D30	WRD-250-D30	N (F) Quick change connector	WRD-650 D28 waveguide, cover flange, alternating thru/tapped hole pattern	WRD-750 waveguide	WR-42 waveguide	WR-42 waveguide	WRD-180 C24 waveguide	WR-28 waveguide	WR-28 waveguide	WR-22 waveguide
Weight	7.26 kg (16 lb.)	283.5 g (10 oz.)	1.59 kg (3.5 lb.)	1.18 kg (2.5 lb.)	1.8 kg (4 lb.)	2.27 kg (5 lb.)	1.07 kg (2.36 lb.)	0.6 kg (1.25 lb.)	56.7 g (2 oz)	241 g (8.5 oz)	56.7 g (2 oz)	60 g (2.1 oz)	122 g (4.3 oz)	0.15 kg (0.33 lb.)
Size (WxDxH)	46.3 x 46.3 x 69.2 cm (18.25 x 18.25 x 27.25 in.)	12.64 x 8.23 x 9.85 cm (4.98 x 3.24 x 3.88 in.)	22.9 x 17.8 x 31.75 cm (9 x 7 x 12.5 in.)	12.2 x 9.9 x 20.3 cm (4.8 x 3.9 x 8 in.)	18 x 14.5 x 33.5 cm (7.1 x 5.7 x 13.2 in.)	without gain enhancer 7.62 x 10.3 x 15.14 cm (3.00 x 4.06 x 5.96 in.) with gain enhancer: 21.6 x 21.6 x 30.5 cm (8.5 x 8.5 x 12 in.)	17.7 x 12.7 x 30.8 cm (7 x 5 x 12.1 in.)	without gain enhancer 4.6 x 6.1 x 6.4 cm (1.8 x 2.4 x 2.5 in.) with gain enhancer: 8.9 x 11.4 x 13.3 cm (3.5 x 4.5 x 5.25 in.)	5.74 x 4.09 x 11.4 cm (2.26 x 1.61 x 4.49 in.)	2.2 x 2.2 x 3.2 cm (0.88 x 0.88 x 1.25 in.)	3.73 x 2.69 x 6.27 cm (1.47 x 1.06 x 2.47 in.)	3.7 x 2.75 x 8 cm (1.45 x 1.08 x 3.14 in.)	1.9 x 1.9 x 2.54 cm (0.75 x 0.75 x 1.00 in.)	4 x 3 x 9 cm) (1.57 x 1.18 x 3.54 i

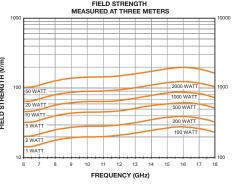
Specifications							
	ATH200M2G	ATH1G18A					
Frequency range	200 MHz-2 GHz	1 GHz–18 GHz					
Power input (max.)	1,000 watts	300 watts up to 7 GHz; above 7 GHz, derate linearly to 175 watts at 18 GHz					
Gain (over isotropic)	6 dBi typ.	See curve					
VSWR (typ.)	2:1	2:1					
Beamwidth (avg.) E Plane H Plane	(beamwidth graph available on request)	(beamwidth graph available on request)					
Front To Back Ratio (min.)	20 dBi	20 dBi					
Connector	N (f) Precision	N (f) Precision					
Weight	10.21 kg (22.5 lb.)	1.8 kg (4 lb.)					
Size (WxDxH)	72.9 x 97.8 x 93.2 cm (28.7 x 38.5 x 36.7 in.)	24.1 x 15.2 x 22.9 cm (9.5 x 6 x 9 in.)					

AR offers two wideband, double-ridged microwave horn antennas for RFI/EMI testing. Due to the wide beamwidth, these two antennas are compliant to many military and commercial emissions standards. Both horns are compact and lightweight for easy mobility yet are tough to withstand the extra demands of outdoor use.

Antennas

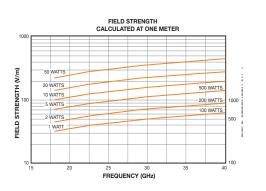
Microwave Horns: Now to 50 GHz



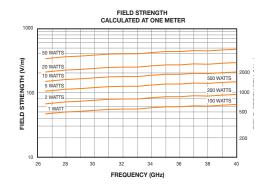


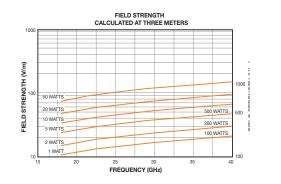
Microwave Horns: Now to 50 GHz

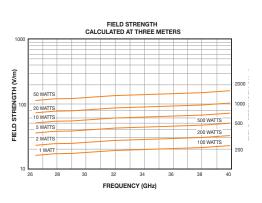
ATH18G40



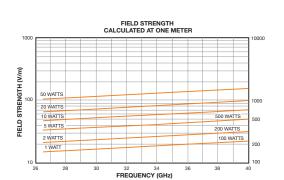
ATH26G40

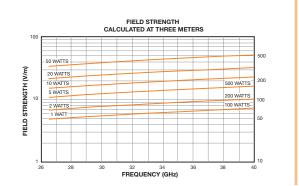




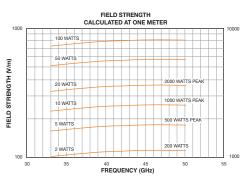


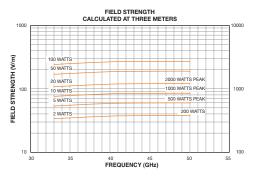
ATH26G40A-1





ATH33G50







Model ATH7G18

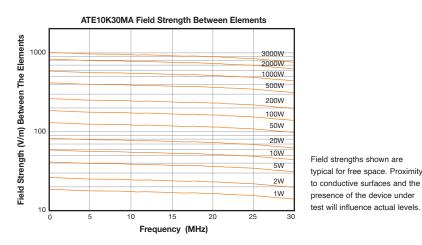
Model ATH26G40

E-Field Generators: For Uniformity Between the Elements

ATE10K30MA **Our Original Wideband** 10 kHz to 30 MHz • Fields up to 1,000 V/m Between the Elements

The ATE10K30MA E-field generator uses low-inductance, high-power internal load resistors to terminate RF power. An internal broadband balun transformer steps up the output voltage and also decouples the feed line. With optional forcedair cooling, the ATE10K30MA can handle power levels up to 3,000 watts. It is small enough to be handled easily in shielded rooms but capable of susceptibility testing at intense field levels.





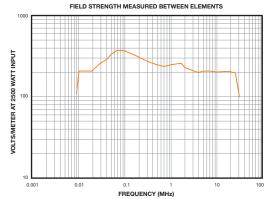
Specifications	
Frequency range	10 kHz–30 MHz
Power Input (max) without cooling option* with forced-air cooling option*	1,000 watts continuous 3,000 watts, 50% duty cycle
VSWR 10 kHz–15 MHz 15 MHz–22 MHz 22 MHz–30 MHz	2.0:1 Max 3.0:1 Max 5.0:1 Max
Electric Field Intensity	See graph.
Mounting Provisions (optional tripod available)	UNC ¼-20 tripod thread on 2 sides
Size	188 x 72 x 7.0 cm (74 x 28.3 x 2.5 in.)
Weight without cooling option with forced-air cooling	(field-generating elements are removable for storage and transportation) 17 kg (38 lb.) 21 kg (46 lb.)
Connector	Type C(F) Quick Change

ATE10K25M-1 for The BIG Jobs

10 kHz to 25 MHz Fields up to 200 V/m Between the Elements

Practically no job is too large for the ATE10K25M-1 broadband high-power E-field generator. It wraps around cars, small trucks, and other large EUTs. Unbolt the bottom elements from the field generator base to use the ATE10K25M-1 above a ground plane or turn table.

Its high input power and low VSWR capability mean the ATE10K25M-1 generates high E-field strengths for the large span between the elements.



*Adapter C (M)/ N(F) included.

FREQUENCY (MHz)	
Specifications	
Power Input (max)	3,000 watts CW
Frequency Range	10 kHz–25 MHz
Impedance	50 ohms
VSWR	2.0:1 max., 10 kHz–20 MHz 3.5:1 max., 20 MHz–25 MHz
Electric Field Intensity	200 volts/meter
Connector*	Type C (F)
Size (W x H x D)	303.53 x 222.25 x 101.8 cm (119.5 x 87.5 x 40 in.)
Weight (max.)	113 kg (250 lb.)
Mounting Provisions	Optional tripod available

CAUTION

HADHOOUS VICLTAGE AND RF FIELDS

Field strength is shown using

AR broadband power amplifiers.

Field strengths are typical and

do not include cable losses.

Individual shielded rooms,

reflections, amplifiers, and

influence performance

test-system characteristics will

ATE10K100M **Evolved Design** 10 kHz to 100 MHz Fields up to 300 V/m **Between the Elements**

Our engineers improved upon the parallel element design with this patented extended bandwidth E-field generator. It offers excellent spatial and spectral field uniformity within the defined test zone.

Two sets of elements accommodate a range of EUT sizes. They can be changed quickly and easily thanks to the specially designed quick-disconnect clamps.

Type A elements provide the highest field intensities and can test objects up to 36 x 46 x 36 cm. The larger elements, Type B, are suitable for testing objects up to 48 x 46 x 36 cm.

Specifications	
Frequency range	10 k
Input Impedance	50 ol
VSWR	2.5:1 max.,
Power input	50
Electric field intensity	
between Type B elements	y 350 V/m with 50
Max. Test Object Volume between Type A elements	y 200 V/m with 50 36 : (14)
between Type B elements	48 x (19 x
Connector*	
Size with Type A elements	74 x (29)
with Type B elements	104 x (41)
Weight (max.)	1
Mounting	Accepts trip 1/4 x 20 stud o (optional trip

*See data sheet for higher power operation and alternate duty cycles

300

200

kHz-100 MHz ohms nominal , 1.4:1 typical 00 watts max. See graphs.

tuani attaw 00 tuani attaw 00

x 46 x 36 cm x 18 x 14 in.) x 46 x 36 cm x 18 x 14 in.) Type N (F)

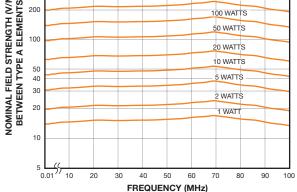
x 41 x 102 cm x 16 x 40 in.) x 41 x 102 cm x 16 x 40 in.)

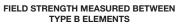
13 kg (28 lb.)

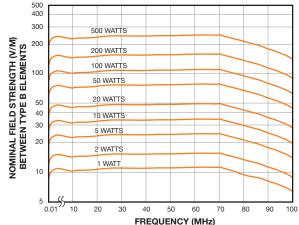
ripod threaded on three faces pod available)



FIELD STRENGTH MEASURED BETWEEN TYPE A ELEMENTS 500 WATTS 200 WATTS 100 WATTS 50 WATTS 20 WATTS 10 WATTS







Field strength is shown using AR broadband power amplifiers. Field strengths are typical and do not include cable losses Individual shielded rooms, reflections, amplifiers, and test-system characteristics will influence performance.

Free Space Fields From A Broadband Transmission Line

ATP10K100MM4

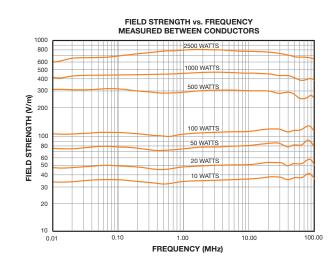
10 kHz to 100 MHz • Fields up to 500 V/m

360° Rotation Accommodates Any Test Object.

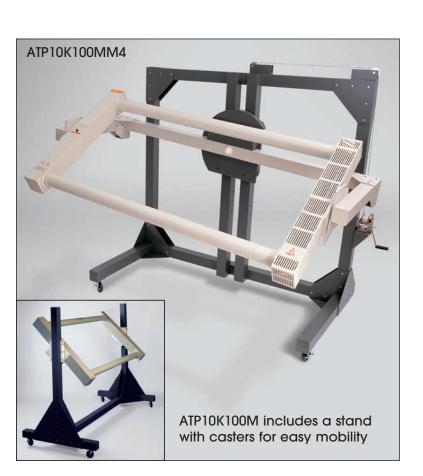
The ATP10K100MM4 adds possibilities to shielded room and anechoic chamber testing with its ability to match free space impedance, resulting in efficient production of E and H fields.

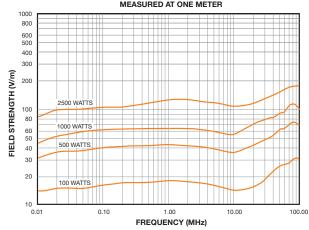
The parallel transmission line of the ATP10K100MM4 offers a 377-ohm wave impedance of free space. Matching transformer and load resistors are built in, and provide excellent VSWR characteristics over a frequency range of 10 kHz to 100 MHz.

The open area between conductors accommodates entire assemblies within the max, field volume. Test items too large for insertion between the elements can be brought near the parallel conductors and radiated. The ATP10K100MM4 easily rotates to any horizontal, vertical, or diagonal position and is equipped with height adjustment. Rotation accommodates large EUTs that can't fit between conductors.



FIELD STRENGTH vs. FREQUENCY MEASURED AT ONE METER





Field strength is shown using AR broadband power amplifiers. Field strengths are typical and do not include cable losses. Individual shielded rooms, reflections amplifiers, and test-system characteristics will influence performance

Specifications	
Power input (max)	3,000 watts CW
Frequency range	10 kHz–100 MHz
Input impedance	50 ohms
VSWR	2.0:1 max. 10 kHz–100 MHz 6:1 max. 10–20 kHz above 1 kW input power
Electric field intensity	See charts above
Connector	Type 7-16 DIN Female Cooling
Natural convection to 40°C	ambient temperature
Weight	159 kg (350 lb.)
Size (W x H x D)	261.1 x 215.4 x 141.7 cm (102.8 x 84.8 x 55.8 in.)

Custom Stripline Field Generators 10 kHz to 30 MHz Typical • Up to 20,000 watts

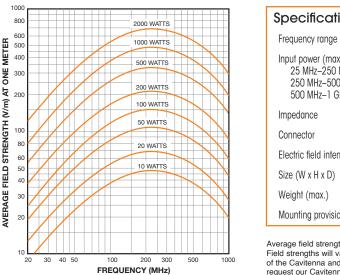
Let AR design a custom stripline system to meet your test needs. Optimum performance is best achieved when all pieces of the system are matched from amplifier through field generation. The results will be guaranteed performance, simplified execution, and best value.

Our engineers will develop the electrical and mechanical design to meet your specific requirements. They are highly experienced with 3D electromagnetic simulations and with high-power RF impedance transformers and lowinductance loads. AR will also configure the structural interface to your facility in partnership with your team.

The CAVITENNA: ATC25M1G 25 MHz to 1 GHz • Fields up to 700 V/m

This is the first RF antenna to make the shielded room an integral part of the radiator. A top-loaded monopole, the Cavitenna model ATC25M1G uses the shielded enclosure as a reverberating antenna and the wall as the antenna's ground plane. As a result, the Cavitenna accommodates extremely high power and corresponding field intensities comparable to those of log-periodic antennas four times its size. In a mode-tuned or mode-stirred reverberation chamber, the Cavitenna's compact design and high efficiency is very effective for lower frequency uses. Its small footprint does not protrude into the test volume as other antenna technologies, such as log-periodic and Biconical antennas.

The Cavitenna extends the lower end of its operational frequency range in some applications. In addition to antenna performance, the Cavitenna's ease of use makes it a perfect match for fully automated test configurations. A magnetic mounting clamp is provided to simplify installation in the shielded room.







ions	
	25 MHz-1,000 MHz
k.) MHz D MHz HHz	3,500 watts 2,000 watts 1,250 watts
	50 ohms nominal
	Type C (F)
nsity	See curves left
	117 x 61 x 51 cm (46 x 24 x 20 in.)
	14 kg (30 lb.)
ons	Magnetic clamps included

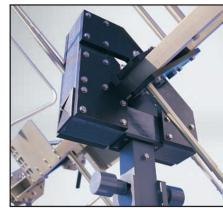
Average field strengths using AR broadband power amplifiers are shown. Field strengths will vary with individual shielded room geometry and placement

of the Cavitenna and test item within the room. Consult AR applications engineering or request our Cavitenna Test Report for more information

The AP5010B Antenna Positioner

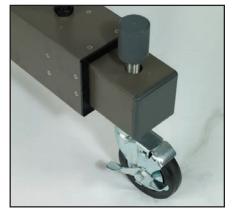
The Model AP5010B is a heavy-duty non-conductive support and positioner for models ATR26M6G, ATR26M6G-1, ATR26M1G or ATR26M250. Built-in casters allow for easy movement in a shielded room or open site testing. The design also allows the test engineer to position the antenna for either vertical or horizontal polarization and permits the antenna to be tilted 30 degrees. Height adjustment is from 2.07 m (81.69 in.) to 3.31 m (130.25 in.), measured from the floor to the center line of antenna. The AP5010B is equipped with base-lea adjustment from 1.53 m (60.19 in.) overall to 2.04 m (80.19 in.).

















The TP1000B Tripod Our lightweight,

nonconductive tripod supports many antennas. Angle, level and height are easily adjustable. The adjustable mount makes it simple to change antenna polarization. The TP1000BMI comes with locking casters and an additional swivel adapter head. AR offers other tripods including models TP2000, TP2010 and TP4000. For more information on these models, visit our website.

Specifica

Load Capacity Maximum Hei Minimum Heig Column Travel Pan Rotation:

Material:

Weight: Export Classifi



The TM 1000 Series Antenna Adapters AR also provides antenna adapters that allow bore sight rotation of microwave horn antennas. The TM series is compatible with AR Model TP1000B tripod. TM1000: For WRD-750 D24 waveguide and ATH7G18. TM1001: For WR-42 waveguide and ATH18G27 and ATH18G27A-1 TM1002: For WR-28 waveguide and ATH26G40 and ATH6G40A-1

TP3000 Standard Tripod

The Model TP3000 is a high-quality wooden-legged tripod for use in RF generation and measuring applications. The majority of the tripod is non-metallic, which minimizes the effect the tripod has on an RF field and allows for more accurate measurements. This tripod is ideal for use in applications where a non-conductive tripod is preferable. Adjustable legs allow for leveling of the tripod.

ations	
y:	10 kg (22 lb.)
ight (Approx.):	175 cm (69 in.)
ight (Approx.):	53 cm (21 in.)
9l:	45 cm (18 in.)
:	360°
lounting Screw:	1/4 in. x 20
	Wood
	2.6 kg (5.7 lb.)
fication:	EAR99



The AP4000 Antenna Positioner

The AP4000 antenna positioner is a heavy-duty positioner for AR's ATH200M1G, the 200 to 1,000 MHz highgain horn antenna. The height is easily adjustable, and the positioner rotates to change polarization. The AP4000 is built on wheels for easy movement in a shielded room or at free space testing. Also available is a 3-meter height positioner for the ATH200M1G antenna.

Power-Measuring Equipment

RF and Microwave Test Accessories More Options than Ever Before

Power and Frequency Matched to AR Amplifiers

If you use AR amplifiers, you obviously recognize the importance of quality and reliability. But when you add accessories, that's no time for a weak link.

All it takes is one component in your test setup that doesn't perform as well as it should, and all your test results become questionable. Why take chances?

AR offers a complete selection of accessories that give you the most reliable results. Many even make testing quicker, more efficient, and more accurate.

We've got probes, software, system controllers, couplers, and more. They're all matched to our amplifiers to make your setup as easy as possible...and to help you avoid any weak links.

Three-Channel Power Meter Features High-Speed Measurement Capability

Advanced digital signal processing combined wit full line of fast-response diode heads allow the PM20 to deliver 200 readings per second with one channel or 100 per second when two channels are used. Tw channels at a time can be simultaneously displayed and recorded, and the third channel can easily be switched in to be displayed or recorded. The PM200 measures signals from -70 dBm to +44 dBm (with appropriate powerhead), and can store calibration data for up to four heads in its internal, non-volatile memory. Its dynamic range extends to 90 dB when diode heads are used.

We offer a family of diode or thermo-couple 50 of powerheads with excellent specifications. All are supplied with NIST-traceable calibration factors. Each new powerhead is supplied with a Powerhead Data Adapter that has complete calibration data stored in a built-in EEPROM, and a 5 ft. powerhead cable. Please visit our web site for a full listing of available powerheads.





Frequency Range	10 kHz to	40 GHz, powerhead	d dependent
Power Range	-70 dBm	to +44 dBm, powerh	nead dependent
Measurement Speed:	1 channel: 200 Readings/Sec. 2 channels: 100 Readings/Sec.		
Dynamic Range	Up to 90 dB with diode heads, 50 dB with thermocouple heads.		
Inputs	Rear panel HEAD connectors and rear panel IEEE-488 connector standard.		
Outputs	Rear pan		or, 0 dBm, 50 MHz. onnector, 0 to 10 V into 1 MΩ. 2. May be operated into 1 kΩ or 1 V
Standard Power Heads ((Sensors)	Frequency	Dynamic range (model PM2003
PH2000A Dual diode		10 kHz to 8 GHz	-60 to +20 dBr
PH2005 Dual diode		500 kHz to 18 GHz	-70 to +20 dBr
PH2010 Dual diode		30 MHz to 40 GHz	-70 to +20 dBr

Rack mount kit (RM2000) also available for the PM2003.

Power-Measuring Equipment

PSP Series Pulse Power Sensors

The PSP Series Wideband USB pulse power sensors turn your PC or laptop with a standard USB 2.0 port into a pulse power analyzer without the need for any other instrument. Power measurements from the PSP Series can be displayed on the PC or can be integrated into a test system with a set of remote commands. A status LED on the sensor provides indication of its operational state for diagnostic purposes.

The PSP sensors PSP001 through PSP005 include 6, 18, and 40 GHz models for measurement of wideband modulated and unmodulated signals over a frequency range of 50 MHz up to 40 GHz.

The PSP Series Wideband USB pulse power sensors are supported by both AR's emcware[®] software and PulsewARe. PulsewARe is a Windows-based software package that provides control and readout of the sensors.

The unique PSP102 power sensor measures down to 4 kHz and has an upper frequency of 6 GHz.

The PSP Series is ideal for radiated and conducted immunity, telecommunications, and intentional radiator EMC testing as well as applications in manufacturing, design, and research. The design of these products allows for fast, accurate, and reliable RF power measurements of a wide range of pulsed, modulated, and CW signals.

PSP001-PSP005 Pulse Power Sensors.

Sampling Techniques:	Real-time/Equivalent Time/Statistical Sampling
Continuous Sample Rate:	100 MHz
Effective Sample Rate:	10 GHz
Time Resolution:	100 ps
Statistical Analysis:	Continuous or gated CCDF
Statistical Speed:	100 M points/sec
Trigger Sources:	Internal or External TTL
External Trigger in/out:	TTL in (slave) or out (master), SMB connector
Minimum Trigger Width:	10 ns
Maximum Trigger Frequency:	50 MHz
Trigger Jitter:	0.1 ns rms
Trace Acquisition Speed:	100 K sweeps/second
Measurement Speed:	100 K meas/sec (buffered mode) over USB 800 meas/sec (continuous)
Trigger Modes:	Auto, Normal, Single, Free run
Trigger Arming:	Continuous, Trigger Holdoff, Frame (gap) Holdoff
Remote Connectivity:	USB 2.0, type B connector
Command Protocol:	IVI-C and IVI-Com
Maximum Input Power:	200 mW avg, 1W for 1 us peak
Size (LxWxH):	145 x 43 x 43 mm (5.7 x 1.7 x 1.7 in.)
Weight:	363 grams/0.8 lb.
Power Consumption:	2.5W max (USB high power device)

PSP102 Pulse Power Sensor.

Continuous sample rate:	25 MSPS
Effective sample rate:	1 GSPS
Time resolution:	l ns
Tiger source:	internal or external TTL
External Trigger in/out:	TTL in (slave) or out (master)
Minimum Trigger Width:	4 us
Maximum Trigger Frequency:	120 kHz
Trigger Jitter:	1 ns rms, 20 ns rms (external)
Trace Acquisition Speed:	> 30 k sweeps/second
Measurement Speed:	100 k meas/sec (buffered mode) over USB 1000 meas/ sec (continuous)
Trigger Modes:	Auto, Normal, Single, Free run
Trigger Arming:	Continuous, Trigger Holdoff, Frame (gap) Holdoff
Remote Connectivity:	USB 2.0, type B connector
Command Protocol:	M-C and IVI-Com
Maximum Input Power:	200 mW avg, 1W for 1 us peak
Size (LxWxH):	145 x 43 x 43 mm (5.7 x 1.7 x 1.7 in.)
Weight:	363 grams/0.8 lb.
Power Consumption:	2.0W, (USB high power device)

Sensor Model	Frequency Range	Dynamic range
PSP001	50 MHz to 6 GHz	-60 to +20 dBm
PSP002	50 MHz to 18 GHz	-34 to +20 dBm
PSP003	50 MHz to 40 GHz	-34 to +20 dBm
PSP004	50 MHz to 18 GHz	-50 to +20 dBm
PSP005	50 MHz to 40 GHz	-50 to +20 dBm
PSP102	4 kHz to 6 GHz	-60 to +20 dBm



Laser Powered E-field Probes

Electric (E) field

2 MHz-60 GHz

2-1.000 V/m

CW

AR's Complete and Rugged Line of EMC Field Monitoring Equipment

Starprobe[®] Laser Powered Probes Cover the Broadest Frequency Range—5 kHz to 60 GHz!

AR has designed and manufactured a highly-advanced line of field-monitoring equipment. These E-field laser probes contain an internal microprocessor which provides the field probes with important features. Some features allow for optimal linearization, temperature compensation, control, and communication functions. And because they're laser powered, you never have to replace or recharge batteries. Ruggedized antenna cones and fiber optic cables provide exceptional reliability.

FI7000 Probe Interface

Provides both power and a serial communication with the FL7000 and PL7000 series probes. An additional, low-level loop back fiber-optic connection is used to sense unexpected disconnect of laser-driven fibers to ensure user-safe laser operation. The FI7000 can be used with the FM7004A field monitor or a PC by direct communication using the USB, GPIB, or RS-232 interfaces, All "FL7000" and "PL7000" series probes require the FI7000 probe interface.

All AR Laser Probes kits include-:

Starprobe® 4 (Model PL7004)*

• 10 meter fiber-optic cable set Accredited calibration report

The Most Advanced
Laser Powered
E-Field Probes on
the Planet

Field Probes



Starprobe[®] 1 (Model FL7030)



Starprobe® 2 (Model FL7006)



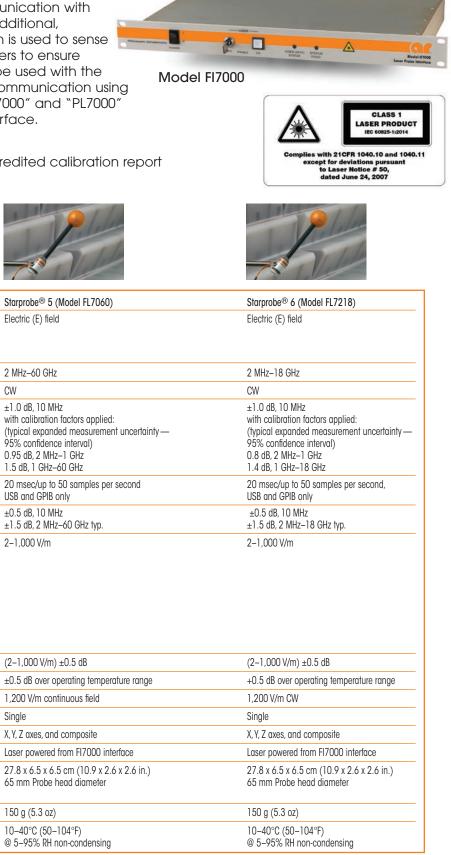
Starprobe[®] 3 (Model FL7040) Flee

ctric	(E)	field	

Sensor Type	Electric (E) field	Electric (E) field	Electric (E) field	Electric (E) field Relative Flatness (field aligned with sensor axes): ±2.5 dB, 800 MHz–3 GHz ±3.0 dB, 3–3.6 GHz
Frequency	5 kHz–30 MHz	100 kHz-6 GHz	2 MHz-40 GHz	800 MHz-3.6 GHz
Probe Use	CW	CW	CW	Pulse
Amplitude Accuracy (field aligned with sensor axes)	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty — 95% confidence interval) 0.8 dB, 5 kHz–30 MHz	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty — 95% confidence interval) 0.8 dB, 100 kHz –1 GHz 1.4 dB, 1 GHz–6 GHz	±1.0 dB, 10 MHz with calibration factors applied: (typical expanded measurement uncertainty— 95% confidence interval) 0.8 dB, 2 MHz–1 GHz 1.4 dB, 1 GHz–40 GHz	±1.5 dB, 1 GHz with calibration factors applied: (typical expanded measurement uncertainty — 95% confidence interval) 0.8 dB, 800 MHz –1 GHz 1.4 dB, 1–3.6 GHz
Response Time/Sampling Rate (through FI7000)	20 msec/up to 50 samples per second, USB and GPIB only	20 msec/up to 50 samples per second, USB and GPIB only	20 msec/up to 50 samples per second, USB and GPIB only	20 msec/up to 50 samples per second, USB and GPIB only
Isotropic Deviation (measured at the ortho angle)	±0.5 dB, 10 MHz ±0.5 dB, 5 kHz–30 MHz typ.	±0.5 dB, 10 MHz ±0.5 dB, 0.5 MHz –2 GHz typ.	±0.5 dB, 10 MHz ±1.5 dB, 2 MHz–40 GHz typ.	$\pm 1~\text{dB}$ at 1 GHz (for improved accuracy this probe should be used with a single axis aligned with the e-field being measured)
Sensitivity	1.5–300 V/m	0.5–800 V/m, 100 kHz–1 GHz 0.5–600 V/m, 1–4 GHz 0.7–800 V/m, 4–6 GHz	2–1,000 V/m	80–800 V/m Pulse width: 1 to 100 microseconds Pulse period: up to 5 milliseconds between pulses (greater than 200 Hz pulse rate) Pulse duty: 0.02% to 2% Pulse measurement variation (over range of pulse width, period, and duty relative to a 10 microsecond pulse width and 1 millisecond pulse period, 1 kHz pulse rate, 1% duty): +0.5 dB/-1.0 dB (typ.)
Linearity	(1.5–300 V/m) ± 0.5 dB and +0.9 V/m	(0.5–800 V/m) ± 0.5 dB and ± 0.3 V/m	(2-1,000 V/m) ±0.5 dB	(80-800 V/m) ±0.5 dB

Linearity (2-1,000 V/m) ±0.5 dB **Temperature Stability** ±0.5 dB over operating temperature range Damage Level 1.000 V/m continuous field 1.000 V/m continuous field 1,200 V/m CW 1.200 V/m CW 1,200 V/m continuous field Ranges Single Single Single Single Single Data Returned from Probe X, Y, Z axes, and composite Laser powered from FI7000 interface Power Requirement 27.8 x 6.5 x 6.5 cm (10.9 x 2.6 x 2.6 in.) Dimensions 5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in.) 5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in.) 5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in.) 2.92 cm (1.15 in.) DIA spherical housing 2.92 cm (1.15 in.) DIA spherical housing 2.92 cm (1.15 in.) DIA spherical housing 65 mm Probe head diameter 65 mm Probe head diameter 3.18 cm (1.25 in.) sensor Radome per axes 3.18 cm (1.25 in.) sensor Radome per axes 3.18 cm (1.25 in.) sensor Radome per axes 150 g (5.3 oz) Weight 62.5 g (2.2 oz) 62.5 g (2.2 oz) 150 g (5.3 oz) 62.5 g (2.2 oz) 10-40°C (50-104°F) 10-40°C (50-104°F) 10-40°C (50-104°F) 10-40°C (50-104°F) 10-40°C (50-104°F) Operating Temperature Range @ 5-95% RH non-condensing
* The model PL7004 is the only commercial pulsed E-Field probe approved by name in the new Ford-EMC-CS2009 specification.

Accredited Calibration of Field Probes is Available Through Our In-house Calibration Lab



Accessories Field Monitor



Starmonitor[®] Field Monitor

Model FM7004A is an E- and H-field control center that offers monitoring and display capabilities for immunity-test environments for up to four field probes or field analyzers. It is exceptionally precise, with auto-recognition to adapt to laser or battery-powered probes. The unit allows fieldstrength measurement for up to four probe locations simultaneously, with results displayed on a backlit color touch LCD.

The FM7004A has the ability to internally apply correction factors to field probe readings. Up to six tables of correction factors containing up to 30 different frequency points can be stored. From the menu-controlled front panel, call up composite field readings, or choose readings from each axis of a three-axis probe.

The FM7004A field monitor provides four digital interfaces (USB, GPIB, RS-232, and Ethernet) and a highly readable, user-configurable LCD touch display. Menu options are at your disposal. Communication from the chamber to the FM7004A is through fiber-optic cables.

Virtual Field Monitor

AR's VM7000 Virtual Field Monitor Software converts your computer into a field monitor. It can simultaneously control and operate any combination of the 7000 Series field probes or field analyzers. The VM7000 provides a graphical user interface that allows effortless control of all probe functions while clearly displaying probe data and status.

With this system, your computer becomes a direct connection for up to 16 simultaneous field probes and also acts as a complete control center. From the computer, you can enable and disable the individual axes of all probes at once or the ax of just one specific probe. Over-range, battery voltage, and temperature status can be displayed for continued and proper field monitoring. Field strength data can be displayed in a number of ways, and readings from all modes can be data logged.

The VM7000 runs under the Windows 7, 8, and 10 operating systems.

	Main Menu		
CH2	FP7018	V/m	Channel
	108.54		Display
	99.31 X		System
	42.37 Y 11.05 Z		Freq Cor
Freg Cor:	10.000MHz		Search

		Main Menu		
Min 17	V/m N		V/m	Channel
17.43		120.57		Display
Average	V/m	CH1 X Y Z		System
100.57				Freq Cor
Freq Cor: 1	0.000MHz	CH4 XYZ		Search

			Ma	in Menu		
CH1	FL7030	V/m	CH2	FP7018	V/m	81/162 MM
	31.93			350.39	6	Channel
	14.92 15.27	X Y		350.04 3.75	X	Display
CH3	23.74 FL7006	Z V/m	CH4	15.20 FL7040	Z V/m	System
	2.1.2.2020					
	2.70 0.78	х		190.85 10.08	x	Freq Cor
	1.07 2.35	YZ		19.80 189.55	Y Z	Search
Freq (<u>Cor: 10.000</u>	MHz				

Cables, Clamps, and Everything You Need to Do the Job Right

FC Series Fiber-Optic Cables

For use with our field-measurement systems

Model	Length (meters)	Compatible AR Equipment
FC7010	10	
FC7020	20	FI7000, FL7XXX, PL7XXX
FC7050	50	FI/000, FL/AAA, PL/AAA
FC7100	100	

MA7000 Fiber-Optic Mating Adapter Set

Used to join two FC7000 Series cables together



Measure CW and Pulse Modulated RF fields with the FA7000 Series Field Analyzers

The FA7000 Series Field Analyzers detect and accurately measure modulated and CW electric fields. This innovative device uses an isotropic field sensor to sample the composite field and transmits its amplitude digitally over optical fiber to a processor unit. The sample rate of the FA7000 Field Analyzer is 1.5 million samples per second—significantly faster than conventional RF field probes—enabling it to accurately measure pulsed electric fields in the microsecond range.

Each of the FA7000 Series analyzer kits provides a web-based, oscilloscope-type display of the instantaneous electric field strength or power density over time and calculates the minimum, maximum, and average field strength of the waveform as displayed. Each kit consists of an isotropic field sensor, glass fiber-optic cabling, and a processor unit. The processor unit stores all of the necessary amplitude corrections for its associated field sensor.

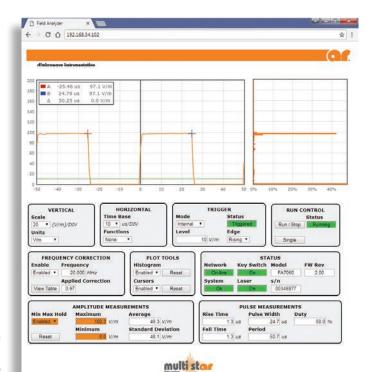
Frequency correction factors are provided with each kit. Loading these factors into the processor unit automatically corrects the field readings. Linear interpolation is used between calibration frequencies.

> Embedded webpage for viewing the modulation envelope of the measured electric field



FA7006, FA7218, FA7040, and FA7060 Processor Unit

Rack mount kit (RK7000) available for use with any FA7000 Series Field Analyzer.



Copyright @ AR RF/Microwave Instrumentation

FA7000 Series Processor Unit

Dimensions (W x H x D)	21.91 x 4.45 x 27.69 cm
Weight	1.36 kg
Operating Temperature Range	10°C to 40°C @ 5% to 95% RH non-condensing
Fiber Optic Connector	E2000 compact duplex (Yellow, keying #3)
Fiber Optic Cable length	20 m (supplied with kit)
Max Fiber Optic length	100 m (sold separately)
Remote Interfaces	LAN (Ethernet) USB 2.0 (Test and Measurement class) IEEE-488 (GPIB) Fiber Optic Serial (FSMA connectors; Reserved for use wit FM7004A Field Monitor)
Max Remote Transfer Rate	20 queries per second
External Trigger Port Impedance Threshold Voltage Maximum Input Voltage Minimum Pulse Width	>10 MΩ 3 V 5 V 40 ns
Readout Display Remote Interface Compatible Web Browsers Timebase Range Scale Range Trigger Modes Edges (Threshold trigger) Vertical Divisions Horizontal Divisions	Embedded Web Application through PC (PC not included) LAN (Ethernet) Chrome, Internet Explorer, Safari, Firefox, Opera 1 µs/Div to 400 µs/Div 0.1 (V/m)/Div to 5,000 (V/m)/Div Free Run, Internal (conventional threshold), External Rising and Falling 10
Laser Wavelength Output Power Shutdown Time	830 nm ≤500 mW <1 ms after fiber disconnect
Power Requirements Input Voltage Input Current Input type	90–260 VAC, 50–60 Hz 0.2–0.6A IEC inlet with filter
Sample Rate	1.5 MS/s
Max Record Length	6 k Points
Modulation Frequency Range	250 Hz to 750 kHz
Measurement Format	Composite only
Calibration Data	Accredited Calibration Report supplied with kit

FA7000 Series Field Sensors

	FA7006	FA7218	FA7040	FA7060
Amplitude Accuracy ¹	±1.0 dB @ 10 MHz ² 0.8 dB, 100 kHz-1 GHz ^{3,4} 1.4 dB, 1 GHz-6 GHz ^{3,4}	±1.0 dB @ 10 MHz ² 0.8 dB, 2 MHz-1 GHz ^{3,4} 1.4 dB, 1 GHz-18 GHz ^{3,4}	±1.0 dB @ 10 MHz ² 0.8 dB, 2 MHz-1 GHz ^{3,4} 1.4 dB, 1 GHz-40 GHz ^{3,4}	±1.0 dB @ 10 MHz ² 0.95 dB, 2 MHz–1 GHz ^{3,4} 1.5 dB, 1 GHz–60 GHz ^{3,4}
Isotropic Deviation ^{4,5}	± 1.2 dB @ 10 MHz ≤ 200 V/m ± 2.0 dB @ 10 MHz > 200 V/m	± 1.0 dB @ 10 MHz \leq 200 V/m ± 2.0 dB @ 10 MHz $>$ 200 V/m	$\pm 1.0 \text{ dB} @ 10 \text{ MHz} \le 200 \text{ V/m} \\ \pm 2.0 \text{ dB} @ 10 \text{ MHz} > 200 \text{ V/m}$	± 1.0 dB @ 10 MHz \leq 200 V/m ± 2.0 dB @ 10 MHz > 200 V/m
Operating Range ⁹	9–900 V/m	14-1,400 V/m	14–1,400 V/m	14–1,400 V/m
Linearity	±0.5 dB	±0.5 dB	±0.5 dB	±0.5 dB
Typical Analog Rise Time ^{6,7}	300 nS	300 nS	300 nS	300 nS
Minimum Pulse Width	1 ms	1 ms	1 ms	1 ms
Damage Level (CW)	1,000 V/m	1,200 V/m	1,200 V/m	1,200 V/m
Temperature Stability	±1.0 dB, 10°C-40°C ⁸	±1.0 dB, 10°C-40°C ⁸	±1.0 dB, 10°C-40°C ⁸	±1.0 dB, 10°C-40°C ⁸
Approximate Dimensions (w x h x d)	5.7 x 5.7 x 5.7 cm	27.8 x 6.5 x 6.5 cm	27.8 x 6.5 x 6.5 cm	27.8 x 6.5 x 6.5 cm
Weight	62.5 g	150 g	150 g	150 g

¹ Single axis aligned with field

² Without correction factors applied

³ With correction factors applied

⁴ Typical expanded measurement uncertainty (95% confidence interval)

⁵ Measured at the ortho angle

FAC Series Fiber-Optic Cables

For use with our field analyzer systems

Model	Length (meters)	Compatible AR Equipment
FAC7010	10	
FAC7020	20	FA7XXX
FAC7050	50	1777/00
FAC7100	100	

FAM7000 Fiber-Optic Mating Adapter

Used to join two FAC7000 Series cables together



6 10%-90%

⁷ Pre-digitization

⁸ 5%–95% Relative humidity, non-condensing

⁹ Less than 50% duty

CMCWGfC[®] 5.0 for Automated EMC Testing

The emcwore[®] 5.0 Suite by AR RF/Microwave Instrumentation provides automated Electromagnetic Compatibility (EMC) testing and report generation for users ranging from OEM, independent, and R&D test laboratories. It is a standalone software application designed to operate on a PC running a Microsoft Windows[™] operating system.

The emcware[®] suite stands apart from other EMC software packages by implementing a unique workflow, producing an extremely user-friendly and flexible tool for laboratories. It is broken up into modules based on different types of EMC testing. Within each module, there are pre-defined standards. The ability to create custom test standards is also available through emcware[®].

Equipment Management

Contained within the emcware® is a built-in Equipment List Manager. This tool allows for equipment to be entered one time and then accessed from within any of the modules. The Equipment List Manager also keeps track of calibration dates and can warn the user when the calibration date of a specific piece of equipment is approaching.

EUT Monitoring

Use custom equipment or a National Instruments DAQ card to monitor and report the status of the equipment under test (EUT). Custom equipment, in conjunction with dynamic link library (DLL) files, allows for complete EUT monitoring and control.

Instrument Drivers

An extensive equipment driver library is installed with the software. Drivers can also be created and imported by the user in the form of dynamic link library (dll's) files. The software can communicate with equipment through GPIB, RS-232, and USB remote interfaces.

Signal Routing

The emcware[®] is designed to allow the user to select between manual and automatic signal routing. Automatic signal routing is implemented using one or more AR RF/Microwave Instrumentation Model SC2000 System Controllers.

User Security Levels

Define equipment and test setups as a system administrator, then change the security level to Restricted User to ensure secure testing.

Reports

Extensive report generation capability is built in using Microsoft Word and Microsoft Excel

Help File

Included with the software is a detailed help utility with tutorials and a searchable index.

A yearly support contract for emcware[®] is available.

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oftware Mode		Test Option	AR System	O
adiated Susceptibility		IEC-61000-4-21 (Reverb)	V None	~
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Equipment	O Test Setup		test	Reports



emcwore[®] 5.0

Included Test Standards

Radiated Susceptibility Module

- IEC 61000-4-3
- 50130-4
- 61000-6-1
- 60601-1-2
- 61326
- GR-1089
- ISO 11452
- 11452-2
- ES-XW7T-1A278-AC (FORD) GMW3097 (GM)
- 11452-3
- 11452-5
- MIL STD 461 RS103
- (Rev D, E, F, G)
- RTCA/DO-160 Section 20 (Rev D, E, F, G)

Conducted Immunity Module

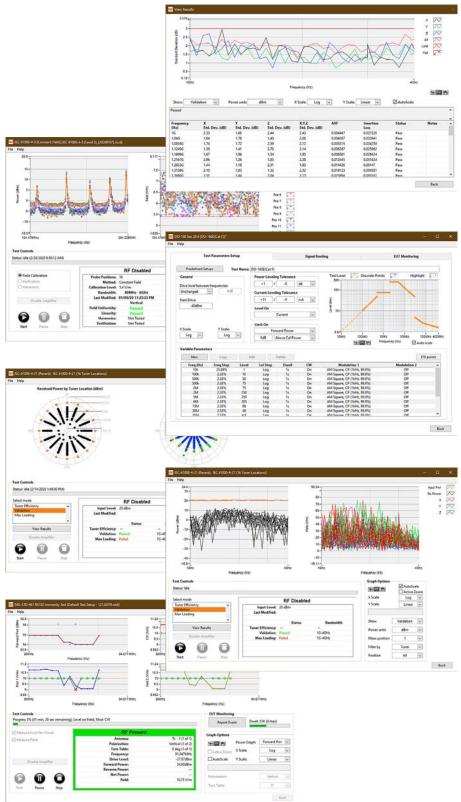
- IEC 61000-4-6
- 50130-4
- 61326
- 60601-1-2
- 61000-6-2
- 61000-6-1
- ISO 11452-4
- ES-XW7T-1A278-AC (FORD)
- GMW3097 (GM)
- 36-00-808 (Renault)
- GS 95002 (BMW)
- B21 7110 (Peugeot)
- DC11224 (Chrysler)
- MIL STD 461 CS114 (Rev D, E, F, G)
- RTCA/DO-160 Section 20 (Rev D, E, F, G)

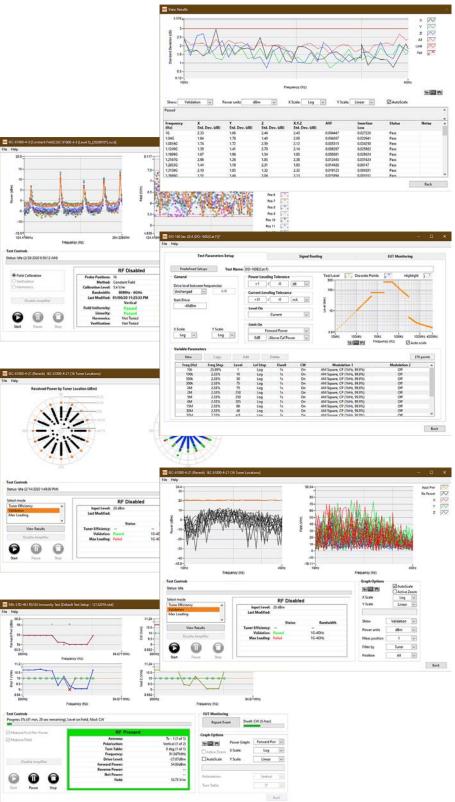
Emissions Module

- MIL STD 461
- (RE101/RE102/CE101/CE102)
- RTCA/DO-160 Section 21
- CISPR 11, 25 and 32

Reverb Test

- RTCA DO-160F/G
- MIL STD-461G
- IEC61000-4-21









The AR SI1000 System Interlock



The SI1000 System Interlock provides a means of interlocking up to 12 independent pieces of equipment and/or other SI1000 units through the use of relay contacts and a fiber-optic output, which change state based on a single master interlock signal. The master interlock signal can be either a monitored switch state change or a fiber-optic signal state change. The master interlock input signal and relay output signals can be wired either NO or NC. A front-panel key switch enables the system and can be removed in the disabled position to lockout the system from accidental access. Interlock status is displayed on the front panel through the use of a bicolor (red and green) LED.

By using two SI1000 units, one configured for wired master interlock and one configured for fiber-optic master interlock and a connecting fiber-optic cable, a single switch outside an anechoic chamber (door closure switch) can be used to disable the RF generation of a system inside the chamber. Multiple units can be linked together either by wires or fiber optically to expand the interlock system.

The SI1000 front panel also includes a main power (on/off) switch and an emergency power off (EPO) switch. The outputs of these switches are routed to the rear panel of the interlock system and are provided for systems with power distribution systems with remote capability.

SI1000 System Interlock

Specifications	
Wired Interlock, Remote Out, and Relay Connections	Molex receptacle, 3-pin, 0.093 in. DIA terminals
Mating 3-pin plug connector and terminals supplied	
Fiber Optic Connectors	(2) FSMA for fiber connection
Compatible with FC2000 Series Cables	
Power Requirements Input Voltage Input Current Input type	90-260 VAC, 50-60 Hz 0.2–0.6 A IEC inlet with filter
Enclosure	Rack mount case, 1U high
Dimensions (WxHxD)	48.3 x 4.5 x 17.8 cm (19.0 x 1.75 x 7.0 in.)
Weight	2.5 kg (6.25 lb.)
Operating Temperature Range	10 C to 40 C (50 F to 104 F) @ 5% to 95% RH non-condensing

AR's SC2000 System Controller Makes System Integration Possible

The SC2000 switch controller family is a versatile and expandable platform which provides switching functions for RF systems. Unlike our previous design, the SC2000 has five user-configurable module slots on the rear panel that offer great flexibility for numerous applications. Eighteen different SCM series switch modules are available to populate the available slots; these switch modules include different switching configurations and connector types—SMA(f), K(f), or N(f). The SC2000 system can be further expanded by fiber optically linking up to seven SCX2000 expansion units that include an additional five module slots.

Features:

- Five user configurable slots per chassis
- Fiber-optically expandable up to 8 chassis
- Preconfigured versions available
- (Drop-in replacements for legacy model, SC1000)
- Color touch screen
- Remote or local control
- Multiple interlocks
- User defined switch states
- More than 18 switch modules available

The SC2000 switch control platform accommodo systems using combinations of multiple signal source amplifiers, antennas, and forward/reverse powermeasurement equipment for radiated immunity testing in a wide variety of configurations. Alternative applications include the use of the system controller to switch in various RF filters for reducing harmonic distortion.

The SCP2000 model variants are preconfigured versions of the SC2000 family specifically configured to replace, on a one-for-one basis, the legacy model SC1000 System Controller model variants with the same switching and control functionality.

System-interlock capability is provided by sensing a switch closure. Interlock, "safe," and common switch states are user programmable. A fused 24 VDC output, four open drain outputs, and four TTL I/O lines are supplied to allow the control and

monitoring of external switches or other peripherals. Operational control is available manually, using the provided color LCD touch screen display, or remotely, using any of the four provided remote ports (USB, GPIB, RS-232, and Ethernet).

For more information, see the specification sheets on www.arworld.us for details on the SC2000, SCX2000 and SCP2000 products and their RF switch modules, configurations, and performance (power handling and derating factors), along with specifications for base unit dimensions, weight, power requirements, power consumption, etc.

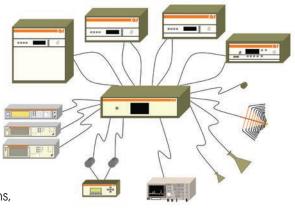


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SC2000 Configuration Guide

SC2000 Versions	Max # of signal generators	Max # of amplifiers	Max # of Loads	Ability to Switch in a receiver/spectrum analyzer	# of forward power ports can be switched to 1 power head	# of reverse power ports can be switched to 1 power head	Can work up to 40 GHz	Total # of switches installed
SCP2000	3	4	4	No	4	NA	No	5
SCP2000M1	3	4	4	Yes	4	4	No	7
SCP2000M2	3	4	NA	No	4	NA	No	3
SCP2000M3	3	4	NA	No	4	4	No	4
SCP2000M4	3	4	NA	No	4	4	Yes	4
SCP2000M5	3	4	NA	No	4	4	No	5
SCX2000	3	4	4	No	4	NA	No	5

System Configuration Example



The Competitive Edge in Couplers

A Wide Range of Couplers Monitor Forward And Reflected Power to 50 GHz

Cover the RF spectrum from 4 kHz to 50 GHz with power handling capability from 50 to 15,000 watts continuous, 60,000 watts peak pulse power. This broad range gives you flexibility in coupling low- and highpower amplifiers to power meters, spectrum analyzers, receivers, oscilloscopes, and other sensitive measuring instruments.

Dual directional design—two couplers in the same package—lets you monitor forward and reflected power. The directivity, flatness, and coupling factors are excellent, allowing for accurate measurement of power.

Dual directional couplers are required for measurements per IEC 61000-4-3 and -6. Popular applications include power sampling, amplifier leveling, VSWR monitoring, field control, and amplifier load protection.

All AR couplers are power- and frequency-matched to our amplifiers and antennas.

Different connector configurations are available for all models.







	DC2035A	DC2500AM1	DC2600A	DC3001A	DC3010A	DC3100	DC3100A	DC3300A
Frequency Range	10 kHz-250 MHz	10 kHz-250 MHz	10 kHz-250 MHz	100 kHz-1,000 MHz	10 kHz-1,000 MHz	10 kHz-1,000 MHz	10 kHz-1,000 MHz	4 kHz-400 MHz
Power (max. watts)	3,500 CW	1,000 CW 2,000 peak	600 CW, 1,200 peak (10 kHz–100 MHz)	100 CW 1,000 peak	100 CW 200 peak	500 CW	500 CW	250 CW
Flatness (max.)	± 0.9 dB	± 0.9 dB	± 0.5 dB	± 0.6 dB	± 0.6 dB	± 0.5 dB	± 0.5 dB	50 ± 1.5 dB (4 kHz–10 kHz) 50 ± .75 dB (.01 MHz–400 MHz)
Coupling Factor (includes flatness)	50 ± 1 dB	50 ± 1 dB	50 ± 1 dB	$40 \pm 0.8 \text{ dB}$	$40 \pm 0.8 \text{ dB}$	40 ± 1.5 dB	40 ± 1.5 dB	50 ± 1.5 dB (4 kHz-10 kHz) 50 ± 1 dB (.01 MHz-400 MHz)
Directivity typical minimum	25 dB 20 dB	25 dB 20 dB (20 kHz–250 MHz) 18 dB (10 kHz–20 kHz)	25 dB 18 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	20 dB 15 dB
Insertion Loss (max.)	0.30 dB	0.22 dB	0.25 dB	0.6 dB	0.6 dB	0.45 dB	0.45 dB	0.2 dB
VSWR (main line)	1.2:1 max.	1.2:1 max.	1.3:1 max.	1.3:1 max.	1.3:1 max.	1.30:1 max.	1.30:1 max.	1.2:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	7-16(M)/7-16(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(F)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)
Weight (max.)	1.8 kg 4 lb.	1.13 kg 2.5 lb.	0.64 kg 1.4 lb.	0.39 kg 0.86 lb.	0.9 kg 2 lb.	1.1 kg 2.5 lb.	1.1 kg 2.5 lb.	.36 kg 0.8 lbb
Size (approx.) W x H x D	25.4 x 8.9 x 11.7 cm (10 x 3.5 x 4.6 in.)	26.6 x 8.1 x 7.6 cm (10.1 x 3.2 x 3.0 in.)	10.2 x 7.6 x 6.6 cm (4 x 3 x 2.6 in.)	12.7 x 5.1 x 3.8 cm (5 x 2 x 1.5 in.)	12.7 x 5.1 x 3.8 cm (5 x 2 x 1.5 in.)	17 x 5.8 x 4.3 cm (6.7 x 2.27 x 1.69 in.)	17 x 5.8 x 4.3 cm (6.7 x 2.27 x 1.69 in.)	19.3 x 5.1 x 5.6 cm (7.6 x 2.0 x 2.2 in.)

	DC3400A	DC3401A	DC3510A	DC4255*	DC4256*	DC4260*	DC6080A	DC6180A
Frequency Range	10 kHz-400 MHz	10 kHz-400 MHz	9 kHz-1,000 MHz	10 kHz-250 MHz	10 kHz-250 MHz	10 kHz-250 MHz	80–1,000 MHz	80–1,000 MHz
Power (max. watts)	250 CW 400 peak	500W CW	200 CW 400 peak	10,000 CW 35,000 peak	13,000 CW 50,000 peak	20,000 CW 60,000 peak	500 CW 1,000 peak	600 CW 1,000 peak
Flatness (max.)	± 0.5 dB	±0.6 dB	± 0.6 dB	± 0.9 dB	±1 dB	±2 dB	± 0.5 dB	± 0.5 dB
Coupling Factor (includes flatness)	$40 \pm 1.0 \text{ dB}$	50 dB ±0.8 dB	$40 \pm 0.8 \text{ dB}$	60 dB ± 1 dB	60 dB ± 1 dB	$60 \text{ dB} \pm 2 \text{ dB}$	$40 \text{ dB} \pm 1 \text{ dB}$	60 ± 1 dB
Directivity typical minimum	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB (.01–1,000 MHz) 15 dB (.009–.01 MHz)	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB
Insertion Loss (max.)	0.5 dB	0.5 dB	0.5 dB	0.1 dB	0.1 dB	0.1 dB	0.25 dB	0.15 dB
VSWR (main line)	1.3:1 max.	1.30:1 max.	1.3:1 max	1.20:1 max.	1.20:1 max.	1.25:1 max.	1.2:1 max.	1.15:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	EIA fixed flanges 1 ⁵ /8 in. EIA (m) N(F)/N(F)	EIA fixed flanges 1 ⁵ /8 in. EIA (m) N(F)/N(F)	EIA fixed flanges 3 ¹ /8 in. EIA (m) N(F)/N(F)	N(M)/N(F) N (F)/N F)	N(M)/N(F) N(F)/N(F)
Weight (max.)	0.8 kg 1.8 lb.	0.8 kg 1.8 lb.	1.36 kg 3 lb.	7 kg 15.5 lb.	7 kg 15.5 lb.	7.9 kg 17.5 lb.	0.45 kg 1 lb.	0.6 kg 1.2 lb.
Size (approx.) W x H x D	13.2 x 6.8 x 4.1 cm (5.2 x 2.7 x 1.6 in.)	13.2 x 6.8 x 4.32 cm (5.2 x 2.7 x 1.7 in.)	15.7 x 5.8 x 4.3 cm (6.2 x 2.28 x 1.69 in.)	15.2 x 11.4 x 30.48 cm (6.0 x 4.5 x 12 in.)	15.24 x 11.43 x 32.38 cm (6.0 x 4.5 x 12.75 in.)	25.4 x 25.4 x 23 cm (10 x 10 x 9 in.)	7.62 x 7.62 x 2.77 cm (3.0 x 3.0 x 1.09 in.)	10.9 x 6.3 x 3.2 cr (4.3 x 2.5 x 1.3 in.



*Power required for fan cooling.

RF Couplers 4 kHz to 1 GHz (cont.)

	DC6280AM1	DC6380	DC6380M1	DC6380M2	DC6430	DC6440	DC6580AM1
Frequency Range	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80–1,000 MHz	80-1,000 MHz
Power (max. watts)	1,500 CW 3,000 peak	3,000 CW 6,000 peak	4,500 CW 9,000 peak	7,000 CW 10,000 peak	15,000 CW	15,000 CW	1,500 CW 3,000 peak
Flatness (max.)	± 0.5 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 0.5 dB
Coupling Factor (includes flatness)	63 ± 1 dB	$65 \pm 1.5 \text{ dB}$	$68 \pm 1.5 \text{ dB}$	$70 \pm 1.5 \text{ dB}$	68 dB	70 dB	$50 \pm 1 \text{ dB}$
Directivity typical minimum	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	20 dB 18 dB	20 dB 18 dB	25 dB 20 dB
Insertion Loss (max.)	0.15 dB	0.15 dB	0.15 dB	0.15 dB	0.1 dB	0.1 dB	0.15 dB
VSWR (main line)	1.2:1 max.	1.5:1 max.	1.5:1 max.	1.5:1 max	1.15:1 max.	1.10:1 max.	1.2:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	7-16(M)/7-16(F) N(F)/N(F)	EIA flange 1 ⁵ /8 in. EIA (m) N(F)	EIA flange 1 ⁵ /8 in. EIA (m) N(F)	EIA flange 1 ⁵ /8 in. EIA (m) N(F)	EIA fixed/swivel flanges, 3 ¹ /8 in. N(F)	EIA fixed/swivel flanges, 4 ¹ /16 in. N(F)	7-16(M)/7-16(F) N(F)/N(F)
Weight (max.)	0.6 kg 1.2 lb.	1.8 kg 4 lb.	1.8 kg 4 lb.	1.8 kg 4 lb.	3.0 kg 6.6 lb.	3.5 kg 7.7 lb.	0.6 kg 1.2 lb.
Size (approx.) W x H x D	10.9 x 6.3 x 3.2 cm (4.3 x 2.5 x 1.3 in.)	20.3 x 8.9 x 10.2 cm (8 x 3.5 x 4 in.)	20.3 x 8.9 x 10.2 cm (8 x 3.5 x 4 in.)	20.3 x 8.9 x 10.2 cm (8 x 3.5 x 4 in.)	15.2 x 13.2 cm (6.0 x 5.2 in.)	15.2 x 15.8 cm (6.0 x 6.2 in.)	7.62 x 7.62 x 2.79 cm (3 x 3 x 1.1 in.)

Microwave Couplers 0.7 to 50 GHz (cont.)

	DC7210A	DC7215A	DC7230	DC7230A	DC7276M1	DC7281A	DC7351	DC7352A
Frequency Range	0.7–6 GHz	0.7–6 GHz	0.7–6 GHz	0.7–6 GHz	2.5–7.5 GHz	2–8 GHz	4–8 GHz	4–8 GHz
Power (max. watts)	500 CW	750 CW	500 CW 20 K peak	500 CW	2,800 CW	600 CW 10 K peak	6,000 CW 92 K peak	600 CW 10 K peak
Flatness (max.)	± 1.0 dB	±0.5 dB	$\pm 0.5 \text{ dB}$	± 0.5 dB	± 2.5 dB	±1 dB	± 1.5 dB	±1 dB
Coupling Factor (includes flatness)	$50 \text{ dB} \pm 1.2 \text{ dB}$	$50 \text{ dB} \pm 1.5 \text{ dB}$	$48~\text{dB} \pm 1.5~\text{dB}$	$48~\text{dB} \pm 1.5~\text{dB}$	$50 \pm 3 \text{ dB}$	$50 \pm 2 \text{ dB}$	$40 \pm 2 \text{ dB}$	50 ± 2 dB
Directivity typical minimum	18 dB 15 dB	18 dB 15 dB	20 dB 15 dB	20 dB 15 dB	28 dB 25 dB	15 dB 16 dB	35 dB 30 dB	15 dB 18 dB
Insertion Loss (max.)	0.2 dB	0.2 dB	0.2 dB	0.2 dB	0.3 dB	0.2 dB max.	0.15 dB max.	0.2 dB
VSWR (main line)	1.35:1 max.	1.35:1 typ. 1.45:1 max.	1.35:1 max.	1.35:1 max.	1.1:1 max	1.30:1 max.	1.1:1 max.	1.30:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	7-16(M)/7-16(F) N(F)/N(F)	7-16(M)/7-16(F) N(F)/N(F)	N(F)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	WRD-250 N(F)	N(M)/N(F) N(F)/N(F)	WRD-350 N(F)	N(M)/N(F) N(F)/N(F)
Weight (max.)	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.	1.7 kg 3.8 lb.	0.22 kg 0.48 lb.	1.24 kg 2.75 lb.	0.22 kg 0.48 lb.
Size (approx.) W x H x D	54.6 x 50.8 x 34.5 cm (2.15 x 2.0 x 1.36 in.)	5.5 x 5.1 x 3.5 cm (2.15 x 2.0 x 1.36 in.)	5.1 x 5.1 x 2.7 cm (2.0 x 2.0 x 1.06 in.)	5.1 x 5.1 x 2.7 cm (2.0 x 2.0 x 1.06 in.)	45.7 x 8.1 x 8.1 cm (18 x 3.2 x 3.2 in.)	10.49 x 3.07 x 2.54 cm (4.13 x 1.21 x 1 in.)	4.1 x 6.9 x 45.8 cm (1.61 x 2.72 x 18 in.)	10.49 x 3.07 x 2.54 cm (4.13 x 1.21 x 1 in.)

Microwave Couplers 0.7 to 50 GHz.

	DC7128A	DC7144A	DC7154A	DC7154AM1	DC7164	DC7164M1	DC7200A	DC7205A
Frequency Range	0.8–2.8 GHz	0.7–4.2 GHz	0.7–4.2 GHz	0.7–4.2 GHz	0.8–4.2 GHz	0.8–4.2 GHz	1–6 GHz	0.7–6 GHz
Power (max. watts)	1,500 CW 10 K peak	400 CW 4 K peak	400 CW	700 CW	700 CW	1,400 CW	250 CW	250 CW
Flatness (max.)	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB	± 0.8 dB
Coupling Factor (includes flatness)	$50 \pm 1.0 \text{ dB}$	$40 \pm 1.3 \text{ dB}$	$50 \pm 1.3 \text{ dB}$	50 ± 1.3 dB	60 dB ±1 dB	65 dB ±1 dB	$40\pm1.2\;dB$	41 ± 1.2 dB
Directivity typical minimum	25 dB 20 dB	19 dB 15 dB	19 dB 15 dB	19 dB 15 dB	19 dB 15 dB	19 dB 15 dB	18 dB 15 dB	18 dB 15 dB
Insertion Loss (max.)	0.2 dB	0.4 dB	0.4 dB	0.4 dB	0.4 dB	0.4 dB	0.2 dB	0.2 dB
VSWR (main line)	1.3:1 max.	1.25:1 max.	1.25:1 max.	1.25:1 max.	1.25:1 max.	1.25:1 max.	1.2:1 max.	1.2:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	7-16(M)/7-16(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)	7-16(M)/7-16(F) N(F)/N(F)	7/8 EIA N(F)	7/8 EIA N(F)	N(M)/N(F) N(F)/N(F)	N(M)/N(F) N(F)/N(F)
Weight (max.)	0.7 kg 1.5 lb.	0.24 kg 0.525 lb.	0.29 kg 0.64 lb.	0.29 kg 0.64 lb.	0.91 kg 2 lb.	0.91 kg 2 lb.	0.27 kg 0.6 lb.	0.27 kg 0.6 lb.
Size (approx.) W x H x D	7.6 x 7.6 x 2.9 cm (3 x 3 x 1.125 in.)	2.35 x 5.84 x 19 cm (0.925 x 2.3 x 7.48 in.)	3.2 x 6.3 x10.9 cm (1.3 x 2.5 x 4.3 in.)	3.2 x 6.3 x 10.9 cm (1.3 x 2.5 x 4.3 in.)	5.71 x 8.25 x 15.25 cm (2.25 x 3.25 x 6.0 in.)	5.71 x 8.25 x 15.25 cm (2.25 x 3.25 x 6.0 in.)	6.8 x 5.1 x 3.05 cm (2.7 x 2.0 x 1.2 in.)	6.8 x 5.1 x 3.05 cm (2.7 x 2.0 x 1.2 in.)

	DC7435A	DC7445	DC7450M1	DC7462	DC7490	DC7530	DC7620	DC7820
Frequency Range	4–18 GHz	6–18 GHz	7.5–18 GHz	12–18 GHz	8–12 GHz	18–26.5 GHz	26.5–40 GHz	33–50 GHz
Power (max. watts)	200 CW 3 K peak	3,000 CW 16 K peak	3,000 CW 21 K peak	1,400 CW 6.5 K peak	3,000 CW 208 K peak	300 CW 80 K peak	200 CW 30 K peak	200 CW 30 K peak
Flatness (max.)	± 1.0 dB	± 3.0 dB	± 1.5 dB	± 1.5 dB	± 1.5 dB	±1dB	±1dB	± 1.0 dB
Coupling Factor (includes flatness)	$35\pm2.5~\text{dB}$	$48 \pm 4 \text{ dB}$	$50 \pm 2 \text{ dB}$	$40~\text{dB}\pm2.0~\text{dB}$	$40~\text{dB}\pm2.0~\text{dB}$	$40 \pm 2 \text{ dB}$	$40 \pm 2 \text{ dB}$	$40~\text{dB}\pm2.0~\text{dB}$
Directivity typical minimum	16 dB 12 dB	30 dB 20 dB	28 dB 25 dB	30 dB 25 dB	40 dB 35 dB	40 dB 30 dB	28 dB 23 dB	32 dB 30 dB
Insertion Loss (max.)	0.6 dB	0.3 dB max.	0.15 dB	0.15 dB	0.14 dB	0.20 dB	0.26 dB max.	0.15 dB max.
VSWR (main line)	1.5:1 max.	1.3:1 max.	1.1:1 max.	1.1:1 max.	1.1:1 max.	1.10:1 max.	1.15:1 max.	1.1:1 max.
Connectors main line (J1/J2) coupled (J3/J4)	N(M)/N(F) SMA(F)	WRD-650 N(F)	WRD-750 D24 N(F)	WR62 N(F)	WR90 N(F)	WR42 K(F)	WR28 K(F)	WR22 2.4 mm (F)
Weight (max.)	0.1 kg 3 oz	0.64 kg 1.4 lb.	0.64 kg 1.42 lb.	0.17 kg 0.38 lb.	0.45 kg 1.0 lb.	204 g 7.2 oz	113 g 4 oz	0.45 kg 1 lb.
Size (approx.) W x H x D	4.3 x 1.6 x 1.9 cm (1.7 x 0.625 x 0.75 in.)	2.9 x 3.5 x 30.5 cm (1.13x1.4x12 in.)	3.5 x 4.4 x 30.5 cm (1.4 x 1.7 x 12 in.)	1.8 x 7.6 x 28 cm (0.7 x 3.0 x 11 in.)	2.54 x 8.43 x 33 cm (1.0 x 3.32 x 13 in.)	2.2 x 3.5 x 22.9 cm (0.88 x 1.4 x 9 in.)	3.5 x 1.9 x 14 cm 1.4 x 0.75 x 5.5 in.)	3.3 x 3.3 x 15.24 cm (1.3 x 1.3 x 6 in.)

Please check individual coupler data sheets available on the AR web site price list for other connector combinations.

12500A225A-L

16000A225-A

20000A225A-

25A250B

50A250

125A250

500A250D

100A400A

175A400

250A400

350A400

600A400

1000A400

"W" Series / 50W1000D

150W1000B 250W1000C

500W1000C

750W1000B 1000W1000G

1500W1000A

2000W1000D 3000W1000B

4000W1000B

6000W1000

10000W1000A

100A400AM20

DC4256

DC4260

Call Factory

DC3010A

DC2600A

DC2600A

DC2500AM1

DC3400A

DC3300A

DC3401A

DC3401A

DC3401A

DC3410A

DC3410A

DC3001A

DC6080A

DC6180A

DC6180A

DC6280AM1

DC6280AM1

DC6380

DC6380

DC6380M1

DC6380M2

DC6430

DC6440

LA150

LA150

LA250

LA500

LA1000

LA4000

LR5000

LR5000

LR5000

Dual Directional Couplers and Termination Loads for RF Amplifiers

Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator	Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator	Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator	Power Amplifier	Dual Directional Coupler	Load Resistor or Attenuator
"U" Series Amp	lifiers		"S" Series Amp	lifiers		Solid State Puls	ed Amplifiers		TWT Amplifiers-	Pulse	
1U1000	DC3010A		15S1G6	DC7205A		1300SP1G2	DC7154A		1000TP8G18	DC7450M1	LR1000
2.5U1000	DC3010A		30S1G6	DC7200A		2000SP1G2	DC7128A		2000TP2G8B	DC7281A	LR2000M1
5U1000	DC3010A		50S1G6AB	DC7200A		4000SP1G2	DC7128A		2000TP8G18	DC7450M1	LR1000
10U1000	DC3010A		60S1G6	DC7205A		8000SP1G2	DC7128A		4000TP2G4	DC7281A	LA500
25U1000	DC3010A		100S1G6AB	DC7200A		1500SP1z2G1z4	DC7154A		12000TP2G4	DC7281A	
50U1000	DC3010A		125S1G6	DC7205A		4000SP1z2G1z4	DC7128A		4000TP4G8	DC7351	
100U1000	DC3100A		250S1G6	DC7230A		8000SP1z2G1z4	DC7128A		12000TP4G8	DC7351	
250U1000	DC3100A		350S1G6A	DC7210A		15000SP1z2G1z4	Call Factory		4000TP8G12	DC7490	
500U1000	Call Factory		500S1G6A	DC7215A		1000SP2G4	DC7154A		20000TP8G12	DC7490	
	,		125S1G2z5	DC7144A		2000SP2G4	DC7154A		3000TP12G18	DC7462	
"A" Series Amp	lifiers		250S1G2z5B	DC7144A		10000SP2G4	DC7154AM1		5700TP12G18	DC7462	
350AH1	Call Factory		500S1G2z5A	DC7154AM1		1000SP2z7G3z1	DC7154AM1		6500TP1z5G2	DC7128A	
800A3B	DC2500AM1		1000\$1G2z5B	DC7164M1		3000SP2z7G3z1	Call Factory		6900TP2G4	DC7154AM1	
150A100D	DC2600A	LA500	2000\$1G2z5	DC7128AM6		6000SP2z7G3z1	Call Factory		7400TP4G8	DC7351	
1200A225	DC2500AM2		3000\$1G2z5	DC7128AM6		12000SP2z7G3z1	Call Factory		8000TP1G1z5	DC7128A	
2500A225B	DC2035A		20S6G18A-L	DC7435AM1					8000TP2z7G3z1	DC7154AM1	
5000A225A	DC4255		40S6G18A-L	DC7435AM1		TWT Amplifiers—	-CW		8300TP8G12	DC7490	
10000A225A-A	DC4256					300T2G8	DC7281A		10000TP8G10	DC7490M1	

-	Dual-Band, Solid	State Amplifiers
	150/150AW1000	DC3510A
_	xx/xxS1G18	
	dual-output	DC7205A and DC7435AM1

		3
Soli	d State Amplifiers	5
000	DC3510A	1
	DC7205A and DC7435AM1	1 2
		2

00003FZZ/03Z1	Guil Fucioly	
12000SP2z7G3z1	Call Factory	
TWT Amplifiers-	-CW	
300T2G8	DC7281A	
500T2G8	DC7281AM2	
1000T2G8B	DC7276M1	LR2000M1
1500T2G8A	DC7276M1	LR2000M1
200T4G8	DC7352A	LR0500
250T6G18	DC7445	
250T8G18	DC7450M1	
500T8G18	DC7450M1	LR1000
1000T8G18B	DC7450M1	LR1500M1
1500T8G18	DC7450M1	LR1500M1
40T18G26A	DC7530	LR142
130T18G26z5B	DC7530	
200T18G26z5A	DC7530	
40T26G40A	DC7620	LR128
130T26z5G40B	DC7620	
200T26z5G40A	DC7620	
70T40G50	DC7820	

DC7820

100T40G50

6 50	Model DCT1A4, 0.8 - 4.2 GHz Model DCT1A4, 0.8 - 4.2 GHz AD dB, 400 Watts	
	Mod 40 da	

LA Series Load Attenuators



Monitor Signals at Acceptable Levels

This series of high-power fixed coaxial attenuators is recommended for use with RF power amplifiers that operate in the same frequency and power range as the attenuators. The attenuated output provides a means of monitoring the signal at an acceptable level by sensitive measuring instruments like a spectrum analyzer, power meter, or oscilloscope and permits use of a detector for RF leveling.

LA Load Attenuators

	LA100	LA150	LA500	LA1000
Frequency Range	DC-18 GHz	DC-6 GHz	DC-5 GHz	DC-3 GHz
Power (max. watts)	100 W continuous to 25°C*	150 W continuous to 25°C*	500 W continuous to 25°C*	1,000 W continuous to 25°C*
Attenuation	40 dB**	40 dB**	40 dB**	40 dB**
Input VSWR (max.)	1.25:1 (DC-8 GHz)	1.1:1 (DC-2 GHz) 1.2:1 (2-6 GHz)	1.15:1 (DC-2.5 GHz) 1.35:1 (2.5-5 GHz)	1.15:1 (DC-1.5 GHz) 1.25:1 (1.5-3 GHz)
Output VSWR (max.)	1.35:1 (8–12.4 GHz) 1.45:1 (12.4–18 GHz)	1.20:1 (2–5 GHz)	1.15:1 (DC-2.5 GHz) 1.25:1 (2.5-5 GHz)	1.15:1 (DC-1.5 GHz) 1.25:1 (1.5-3 GHz)
Connectors Input Output	N (M) N (F)	N (M) N (F)	N (M) N (F)	N (F) N (F)
Ambient Temperature Range	–55°C to 125°C	–55°C to 125°C	–55°C to 125°C	–55°C to 125°C
Operating Position	Horizontal Only	Horizontal Only	Horizontal Only	Horizontal Only
Weight (max.)	320 g 11 oz	1.13 kg 2.5 lb.	3.63 kg 8 lb.	13.15 kg 29 lb.
Size (approximate) W x H x D	21.8 x 4.2 x 4.2 cm (8.6 x 1.62 x 1.62 in.)	80 x 80 x 137.1 mm (3.15 x 3.15 x 5.4 in.)	138.7 x 109.5 x 259.6 mm (5.46 x 4.31 x 10.22 in.)	178 x 332 x 451 mm (7.00 x 13.1 x 17.76 in.



500W

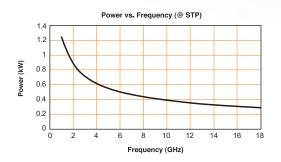
* See specification sheet for derating curves. ** See specification sheet for tolerances.

Accessories Coaxial Cables

Coaxial Cables

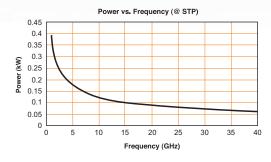
AR offers a line of low-loss microwave coaxial cables. Several connector options and lengths are available. To see a full listing of our available cables, please view the specification sheets on our website.

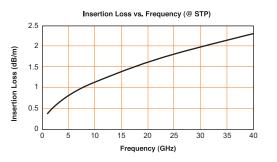
CC1 Series: Armored low-loss microwave cables for applications with frequencies less than 18 GHz, VSWR typically less than 1.35:1



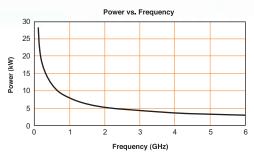


CC2 Series: Armored low-loss microwave cables for applications with frequencies less than 40 GHz. VSWR is typically less than 1.45:1



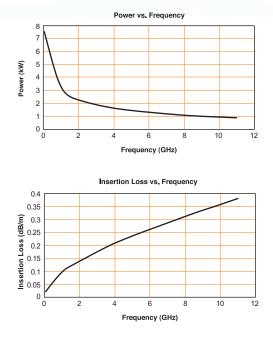


CC4 cables are recommended for AR's high power "A," "W," and "S" series amplifiers or other applications in the appropriate frequency and power range. VSWR is typically less than 1.25:1.

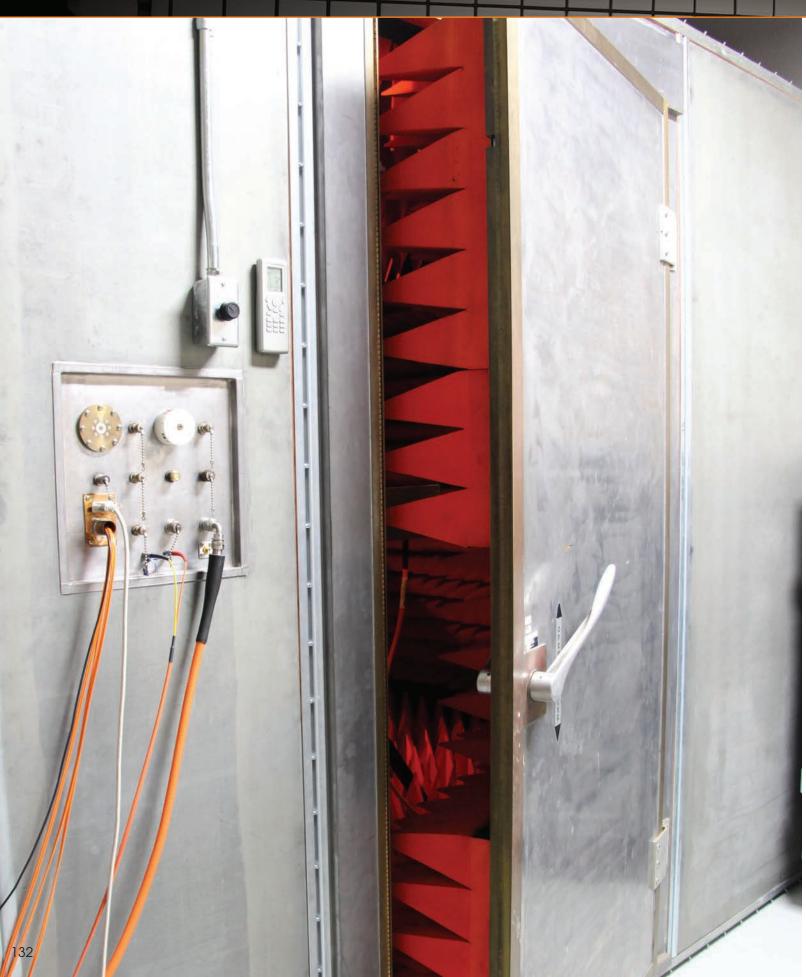




CC5 Series: Low-loss microwave cables designed for higher power applications with frequencies up to 11 GHz. VSWR typically less than 1.25:1.



Accessories EMI Accessories



Identify Shielding Discontinuities with the AR CL-105A/CL-106A Shielded Enclosure Leak Detection System (SELDS)

The CL-105A/CL-106A provides a convenient and easy-to-use means of testing electromagnetic shielding effectiveness. The CL-105A/CL-106A can be used on shielded apparatuses such as shielded cables, cable plenums, and shielded enclosures. This leakage detector is specifically designed to identify points of degradation in seams, doors, patch panels, and cable to enclosure interfaces, to name a few. The system consists of a transmitter, receiver, headphones, and durable carrying case. The incredible sensitivity of the model CL-105A Receiver allows it to meet the most rigid MIL standards (i.e., MIL-STD-188/125) for shielded room acceptance. The rugged construction and sleek appearance allow it to be used under the most adverse conditions.

The transmitter generates an output signal that is coupled directly to the shield under test. The receiver is then moved along the surface of any suspect areas of the item under test to detect and alert the user both visually and audibly in the event a discontinuity in the shield is detected. This method can detect much smaller discontinuities than typical shielding effectiveness measurements. To further aid the user with detection of leakages, the receiver features a meter, audio output for headphone operation, battery operation for portable use, and dynamic range of 120 dB. The meter is calibrated in logarithmic units that provide an indication of how severe the shielding discontinuity is.

For information about Shielding Effectiveness and Shielded Enclosure Leakage Detector System (SELDS), download Application Note—Shielding Effectiveness and Shielded Enclosure Leakage Detector System (SELDS), http://bit.ly/AppNote80.



Our Outstanding Service and Support Is Always There.

The highest quality precision equipment is only as good as the service that supports it. AR has one of the best service organizations in the world.

Our highly trained technicians maintain equipment so that even older or rebuilt AR products perform better than some other brand's new equipment. There are rebuilt AR amplifiers over 20 years old that are still going strong and delivering precision results.

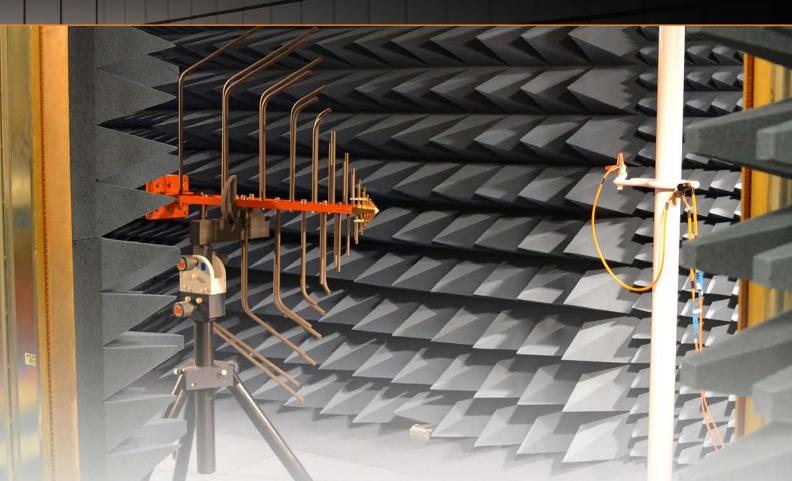
From calibration and regular maintenance, to trouble-shooting and repairs, you can depend on AR's service.

Three-Year, No Questions Asked Warranty

We set a new standard when we introduced our three-year warranty (one-year warranty for TWTs and powerheads). It's easy to stand behind your products when their quality is unsurpassed.

Making sure that AR products exceed your expectations is our goal. We do whatever it takes to achieve that.





	Basic Warranty	Assured	Enhanced	Performance
Technical Support (HW and SW)				
Email / Phone Case Response Time	24 hrs.	8 hrs	4 hrs	2 hrs
24 x 5 Technical Support				v
On-Site Post-Sales Support				v
Hardware Support				
Repair Service Coverage Turnaround Time	15 business days	14 business days	10 business days	7 business days
Calibration Service Turnaround Time	15 business days	10 business days	5 business days	3 business days
Firmware Release and Updates	4	<i>v</i>	V	v
Spare Parts/Consignment Inventory			optional	v
Product Maintenance	optional	optional	optional	optional
Software Support				
Updates and Maintenance Releases	v	~	\checkmark	
Proactive Release Notification	v	V	V	v
Success Services				
Customer Success Manager-Advocate, Escalation Point			 	
Onboarding and Support Performance Metrics Report		✔ Annual	✔ Bi-Annual	✔ Quarterly

1. Response time based on AR standard business hours and hardware support turnaround time excludes component lead time.

2. AR Software Agreement required for software support.

3. All the offered services are subject to availability of capabilities in country and legal terms and conditions. 4. Contact your local AR sales representative for more information.

SunAR RF Motion Manufacturers of Positioning Equipment and Antennas for EMC and Wireless Testing

The SunAR RF Motion product line includes precision positioners for EMC testing, antenna measurements, and OTA testing; antennas for EMC and wireless testing, distributed antenna systems (DAS); turntables; and reverberation system design and stirrers for EMC, shielding effectiveness and OTA testing. Formerly known as Sunol Sciences, the Dublin, CA-based company has built a reputation for providing reliable, high performance and high-quality products; characteristics that make it a perfect fit for AR.

Product Overview

- Full line of standard products
- Scalable designs for specific applications
- Turntables
- Antenna masts / positioners / stands
- Reverberation chamber stirrers
- Antennas
- EMC and wireless testing
 Distributed antenna systems (DAS)
- System controllers

Reverberation Chamber Stirrers and Tuners

Features

- Proven designs
- Scalable designs for existing chambers
- High performance
- High precision
- No detectable shakedown
- Servo-motor driven
- Variable speed
- Linear or s-curve acceleration
- Fully programmable
- Manual or automated operation
- Homing function
- Stirring-only models available

System Controllers

SC110V

- .01 cm or degree resolution
- TTL Triggering

Features

The Model SC100V system controller provides fully independent control of up to three positioning devices and three auxiliary devices.

Configuration Options

Purchase one, two, or three module units; each module has one channel of full device control plus one auxiliary channel.



Stirrers and Tuners, System Controllers



Turntables

Turntables

Flush Mount Turntables For EMC Testing

Features

- Advanced, low-maintenance grounding scheme
- Pit ring with self-cleaning ground plane interface (optional square interface)
- Exceeds site attenuation requirements
- Positioning switch located at turntable
- Variable speed standard
- Custom sizes and load ratings available
- All metal construction
- Variety of deck-mounted component options
- Precision—<.5° (greater precision optional)
- Manual and remote operation
- Gear driven
- Scan or continuous rotation
- Extremely low maintenance
- Adjustable height
- Fiber-optic interface

Flush Mount Turntables—Standard Models

Model Number (VS-variable speed)	Diameter, m (ft.)	Distributed Load, kg (lb.)	Caster Load, * kg (lb.)	Min. Pit Depth, mm (in.) **
FM410VS	1.2 (4.0)	500 (1,100)	125 (275)	300 (11.8)
FM1505VS	1.5 (4.9)	500 (1,100)	125 (275)	300 (11.8)
FM1511VS	1.5 (4.9)	1,000 (2,200)	250 (550)	300 (11.8)
FM2005VS	2.0 (6.6)	500 (1,100)	125 (275)	300 (11.8)
FM2011VS	2.0 (6.6)	1,000 (2,200)	250 (550)	300 (11.8)
FM2022VS	2.0 (6.6)	2,000 (4,400)	500 (1,100)	300 (11.8)
FM2044VS	2.0 (6.6)	4,000 (8,800)	1,000 (2,200)	410 (16)
FM2066VS	2.0 (6.6)	6,000 (13,200)	1,500 (3,300)	410 (16)
FM2522VS	2.5 (8.2)	2,000 (4,400)	500 (1,100)	300 (11.8)
FM2544VS	2.5 (8.2)	4,000 (8,800)	1,000 (2,200)	410 (16)
FM3022VS	3.0 (9.8)	2,000 (4,400)	500 (1,100)	300 (11.8)
FM3044VS	3.0 (9.8)	4,000 (8,800)	1,000 (2,200)	410 (16)
FM3066VS	3.0 (9.8)	6,000 (13,200)	1,500 (3,300)	410 (16)
FM4044VS	4.0 (13.1)	4,000 (8,800)	1,000 (2,200)	460 (18)
FM4066VS	4.0 (13.1)	6,000 (13,200)	1,500 (3,300)	460 (18)
FM5044VS	5.0 (16.4)	4,000 (8,800)	1,000 (2,200)	460 (18)
FM5066VS	5.0 (16.4)	7,000 (15,400)	1,750 (3,850)	460 (18)
FM7066VS	7.0 (23.0)	6,000 (13,200)	1,500 (3,300)	460 (18)

* Caster Load is defined as the load evenly distributed on four casters, each separated by at least 46 cm (18 in.)

** Low-profile models, custom sizes and weight capacities available consult factory

Surface Mount Turntables

Features

- No pit required
- Indoor/outdoor
- Non-slip drive belt
- Cable access between turntable top and bottom
- Fiber-optic interface
- Self-cleaning, fixed rollers
- Non-conductive
- No drive shaft increases position accuracy
- Variable speed standard
- Motor box to table separation optional and customer specified
- <0.5° position accuracy
- Electrically-shielded motor box

Surface Mount Turntables—Standard Models

Model Number	Diameter	Running Load	Table Top Height
SM46C	1.2 m (4 ft.)	800 lb.	2 in. (5 cm)
SM411C	1.2 m (4 ft.)	1,100 lb.	3 in. (7.6 cm)
SM2015C	2 m	1,500 lb.	3 in. (7.6 cm)

ARE Madion

FS121 Free-Space Turntable

Features

- 12 in. diameter deck
- Non-conductive deck and riser
- 36 in. height (customer specified)
- EUT load rating: 10 lb.
- Variable speed: 0-6 rpm
- Soft start/stop
- <1° resolution and repeatability
- Low RF cross section
- Portable
- RS-232 control from PC
- Hollow riser tube for cable access
- Simple ASCII command set
- Precision stepper motor drive
- Electromechanical home switch
- 120 or 230 VAC, 50-60 Hz

Options

• Fiber-optic interface

FS-241 Free-Space Turntable

Features

- Diameter: 24 in. (custom diameters available)
- Height at deck: to be specified by customer (15 in.-96 in.)
- Distributed load capacity: ~45 kg (100 lb.)
- Rotation speed: Variable at 0.5, 1.0, 2.0, ~2.2 rpm (custom speeds available)
- Speed may be selected either by pushing a single button on the front panel of the System Controller or by sending a command to the System Controller via the GPIB port (customized control available)
- Position resolution: <0.25°
- All material beyond the motor box is nonconductive
- Cables may be routed between the rotating deck and its base
- Power requirement: 115 VAC / 230 VAC, 50/60 Hz, single phase, 4A



Antennas

Antennas

SunAR RF Motion antennas feature an innovative design philosophy that makes them the practical choice for EMC testing. New manufacturing techniques simplify assembly and minimize the use of hardware, creating an electrically-stable measuring instrument that stays in calibration and holds up to the environment.

JB Series **Broadband EMC Test Antennas**

30 MHz-6 GHz

Applications

- Radiated Emissions
- Radiated Immunity
- Pre-Scan/Full Compliance

Features

SunAR RF Motion JB Series antennas are compact, high-performance instruments designed for EMC emissions and immunity testing. The broadband characteristics of these antennas enable them to operate over a wide frequency range—a must for automated test environments. Innovative design and manufacturing techniques result in long-lasting strength and mechanical integrity. The result is an electrically-stable measuring instrument that maintains calibration over extended use.

Broadband EMC Test Antennas

JB Series Antennas	Frequency Range
JB1	30–2,000 MHz
JB3	30–3,000 MHz
JB6	30-6,000 MHz





30 MHz-5 GHz

Applications

- Radiated Emissions
- Radiated Immunity
- Pre-Scan/Full Compliance

Features

SunAR RF Motion log-periodic antenna booms are made from a custom aluminum extrusion that reduces the number of parts at the front of the antenna, resulting in a stronger, more stable feedpoint. The unique shape allows for a larger feed cable to be used, which significantly increases the maximum power rating. Dipole elements are permanently attached to the boom by a construction technique that maintains excellent electrical characteristics for the life of the antenna. A tough powder-coat finish with UV inhibitors seals the aluminum structure and protects it from sunlight and moisture. Includes individual A2LA accredited calibration.

Log-Periodic Antennas: 200 MHz-2, 3, 5 GHz

LP Series Antennas	Frequency Range
LP1	2 GHz
LP3	3 GHz
LP6	6 GHz

LP80. LP100 **Directional Antennas**

80 MHz-3 GHz

100 MHz-3 GHz **Applications**

- EMC Radiated Emissions
- EMC Radiated Immunity
- Signal Monitoring and Detection

Features

Model LP80 & LP100 are directional antennas designed for transmitting and receiving RF signals from 80 or 100 MHz to 3 GHz. The broadband characteristics of the log-periodic structure enable it to operate with a nearly constant gain and radiation pattern over the entire frequency range.

Innovative design and manufacturing techniques result in long-lasting strength and performance. The antenna boom is made from a custom aluminum extrusion that reduces the number of mechanical RF junctions. Dipole elements are attached to the boom by a technique that maintains excellent electrical characteristics for the life of the antenna. A tough powder-coat finish with UV inhibitors seals the aluminum structure and protects it from sunlight and moisture.

The LP80 & LP100 have a rear tube that allows polarization adjustments without changing antenna height. This also minimizes the effect of the RF cable by keeping it well behind the antenna elements. The SNAP! mount provides a secure interface to antenna positioning towers. It locks the antenna in place and prevents unwanted rotation during polarization changes.



LP Series Directional Antennas 80 MHz-6 GHz

LP60 **Directional Antennas**

400 MHz-6 GHz **Applications**

- EMC and wireless testina
- Site survey
- In situ testing

Features

Our low-profile directional antennas are designed for EMC and wireless testing applications from 400 MHz to 6 GHz and beyond. These antennas are etched on a low-loss microwave substrate. The broadband, log-periodic structure enables operation over a very wide frequency range with constant gain. Innovative design and manufacturing techniques result in long-lasting performance.

A stainless steel rear mounting tube aids in mounting and handling. An optional Polarization Mount (pictured) is available for use with a tripod or permanent fixture. Kits available.

Model	Frequency Range	Typical Gain
LP430	400 MHz-3 GHz	5 dBi
LP460	400 MHz-6 GHz	5 dBi
LP6530	650 MHz-3 GHz	7 dBi
LP760	700 MHz-6 GHz	6 dBi
LP60	1.3–6 GHz	6 dBi

Directional Antennas

Antennas

Antennas (Continued)

PD Series **Precision Dipole Antennas**

450 MHz-3 GHz

- **Applications**
- Signal Injection
- EMC and Wireless Testing
- Signal Monitoring and Detection

Features

Our PD Series Precision Dipoles are narrowband, resonant antennas that are designed for transmitting and receiving RF signals at specific frequencies. They are manufactured in accordance with ANSI/ AAMI PC69:2000. Each dipole is one-half wavelength long at its frequency of operation and contains a series-parallel coaxial stub balun that meets rigid specifications. Dipoles cut to custom frequencies are available upon request.

An optional polarization mount is available for use with a tripod or permanent fixture.

Precision Dipole Antennas

Model	Center Freq.
PD450	450 MHz
PD600	600 MHz
PD800	800 MHz
PD825	825 MHz
PD850	850 MHz
PD875	875 MHz
PD900	900 MHz
PD930	930 MHz
PD1500	1,500 MHz
PD1610	1,610 MHz
PD1850	1,850 MHz
PD1910	1,910 MHz
PD2450	2,450 MHz
PD3000	3,000 MHz



DRH Series **Broadband Horn Antennas**

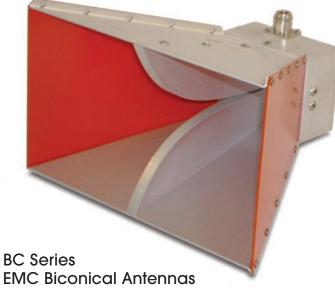
1 GHz-40 GHz

Applications

- Radiated Emissions
- Radiated Immunity
- Pre-Scan/Full Compliance

Features

SunAR RF Motion double-ridged horn antennas are ideal for high power radar stations, phased array and broadband iammina systems as well as for RFI/EMI testing. Due to the wide beam width, the DRH Series are compliant with many military and commercial emissions standards. They are compact and lightweight for easy mobility yet tough enough to withstand the extra demands of outdoor use.



30 MHz-300 MHz

- Applications
- Radiated Emissions
- Radiated Immunity
- Pre-Scan/Full Compliance

Features

SunAR RF Motion antennas feature an innovative design philosophy that makes them the practical choice for EMC testing. New manufacturing techniques simplify assembly and minimize the use of hardware, creating an electrically-stable measuring instrument that stays in calibration and holds up to the environment.

DAS: Distributed Antenna Systems

SunAR RF Motion broadband directional antennas are designed for transmitting and receiving wireless communications signals. The broadband characteristics of the log-periodic structure enable it to operate over a very wide frequency range with constant gain. Our innovative design and manufacturing techniques result in long-lasting strength and performance.

Our standard directional antenna features a logperiodic structure and includes dipole elements and a universal mounting bracket for easy installation. Its metal alloy construction reduces the number of mechanical RF junctions and keeps PIM (Passive Intermodulation) to a minimum. Permanently attached dipole elements allow a stronger, more stable feedpoint with a low VSWR. The radome cover (UL94VO flame rated) and optional UV-inhibiting powder-coat finish offer exceptional protection.

Our low-profile directional antennas are etched onto low-loss microwave substrate material with options for outdoor rated and half inch thick waterresistant housing. Dielectric and reactive loading of the antenna elements reduce the overall size of certain models. For these, the antenna is mounted in a protective housing that is only 1 cm thick. Every low-profile directional antenna is designed with four mounting holes for simple installation on to any flat nonconductive surface, such as an office wall or ceiling. Contact our factory for guidance on mounting antennas to concrete or other surfaces.

Applications

- Distributed Antenna Systems (DAS)
- Cellular
- Wi-Fi
- Public Safety Bands

Broadband Directional Antennas

Model	Frequency Range	Typical Gai
LP425	400 MHz-3 GHz	7 dB
LP425PCB	400 MHz-3 GHz	5.5 dB
LP425PCB-O-DIN	400 MHz-3 GHz	5.5 dB
LP460PCB	400 MHz-6 GHz	5-6 dB
LP6530PCB	650 MHz–3 GHz	7 dB
LP6560PCB	650 MHz–6 GHz	6 dB

Model LP6530PCB

Broadband 650 MHz-3 GHz Directional DAS Antenna

> Model LP425 Broadband 400 MHz-3 GHz **Directional DAS Antenna**

Antenna Masts and Positioners

Antenna Masts and Positioners

TWR99, TWR95

Motorized Antenna Positioning Towers Standard/Compact Antenna Towers

Features

- 1-2.5 m (TWR99) and 1-4 m (TWR95) antenna height standard, 1-6 m optional
- Electric height adjustment
- 1 cm height resolution, 0.1 m/sec speed
- Low-stretch polyester rope suspension (750 lb. breaking strength)
- Pneumatic polarization, 0-90°, standard (70-150 PSI CDA required), ¼ in. NPT male hose needed
- Safety brake
- Zero maintenance
- Total height (2.5 m scan): 116 in. (~295 cm)
- Total height (4 m scan): ~180 in. (~457 cm)
- Absolutely no conductive material above motor box
- Strong, stable construction
- Fiber-optic interface standard (62.5/125 duplex ST)
- Height and polarization switches located at tower
- Molded one-piece foot and trolley for greater strength, durability
- Easy assembly/disassembly
- Maximum antenna load (may require counterweight):
- TWR95: 35 lb. (~16 kg)
- TWR99: 30 lb. (~14 kg)
- 120 V/230 VAC, 50/60 Hz, 6A/2x4A
- TWR95 base size: 48 in. x 48 in. (1.2 m x 1.2 m)
- TWR99 base size: 30 in. x 36 in. (.76 m x .76 m)
- Custom sizes and configurations available

TLT2

Bore-Sight Antenna Positioning Tower

SunAR RF Motion Antenna Positioning Towers feature innovative design and manufacturing concepts that result in great ruggedness, durability and performance at a competitive price. The new Model TLT2 provides a very stable platform for the largest and smallest EMC test antennas of all types. Variable speed with soft start & stop.

Features

- New trolley guide concept enhances azimuthal stability
- Dual load carriers give rigid, stable elevation under heaviest loads
- Stable boom extension allows proper focal point placement for any size antenna without moving tower
- Monolithic construction of major components results in unbreakable lifetime utility
- Absence of conductive material above the motor box minimizes the electro-magnetic cross section and minimizes coupling to antennas
- Materials are selected for resistance to UV radiation and resistance to water absorption
- Standard model is operated by a single, standard controller channel
- Developed for indoor and outdoor use

TLT3

Bore-Sight Antenna Positioning Tower

SunAR RF Motion Antenna Positioning Towers feature innovative design and manufacturing concepts that result in great ruggedness, durability and performance at a competitive price.

Features

- EUT distance: 1 m (worst case)
- Calibration point height: 4 m
- Tower height: 15-ft. 3 in.
- Taller towers for larger antennas available (contact us)

Arbitrary setup parameters

- EUT distance
- Bore-sight initiation height

APS-1, APS-1EMP Antenna Positioner Stands

Features

- Adjustable leveling casters
- Hard stops at 1, 1.5 and 2 m
- Fine height adjust
- Adjustable calibration point
- Remote controlled polarization
- Lightweight
- Disassembles easily
- Exceptionally stable

EL75, ELAZ75

Elevation over Azimuth Positioners

Features

- Allows for heavy EUT loads in both elevation (75 lb.) & azimuth (600 lb.)
- Variable speed in both elevation & azimuth
- Continuous rotation allowed in both elevation & azimuth (with optional components)
- Low RF cross-section materials above drive units
- Portable (no permanent installation necessary)
- Remote azimuth drive option
- Height customer-defined
- Fiber-optic connections to controller (requires SC104V or SC110V System Controller)
- GPIB full control
- Custom EUT mounts

Request Service

For an applications engineer, call 800-933-8181 or email applications@arworld.us

Direct-to-Service, call

925-833-9936 or email sunarinfo@arworld.us



AR Modular RF for Tactical Booster Amplifiers, RF Systems And Modules

Located in Bothell, WA, AR Modular RF manufactures and distributes RF amplifier modules and broadband solid-state RF amplifier systems that play a critical role in wireless and radio communications, military communications, electronic warfare, electronic countermeasures, and homeland security. They have a variety of medical, scientific, and industrial applications.

- RF amplifier modules: 80 kHz-3,000 MHz, 5 to 500 watts - Broadband, narrowband, and custom designs available
- Rack-mount amplifier systems: 80 kHz–3,000 MHz, 5 to 1,000 watts
- Booster amplifiers for tactical military radios from 30 MHz to 3 GHz, 20–125 watts
- Power amplifiers for legacy communication designs as well as virtually every new and emerging communications system

Read the Waves

From market pioneers to industry technology trailblazers, we have always recognized the critical elements that drive the market: technological performance, dependability, and time to market. We pride ourselves in developing plug and play products and turnkey solutions.

We are focused on amplifiers and boosting signals and providing turnkey solutions to one of the most demanding customers in the world—the military. We work as a trusted partner to provide the most innovative solutions in the business. We look at the entire picture. We balance size, weight, and power requirements to provide an optimal solution.

On the battlefield, in the air, and on the ground, we keep on passing the toughest tests. In the most extreme and tortuous environments, our products are constantly pushed to their limits. Our amplifiers consistently perform beyond expectations.





Experienced specialists in amplifiers and boosting signals, we read the next wave of technology and market trends to deliver mission-critical, software-savvy solutions.

AR Modular RF Military Products

AR Modular RF Airborne Applications Airborne Certified, Gunship Approved

The booster amplifiers specified for these aircraft are the most reliable, easiest-to-use, long-range, and innovative booster amplifiers available today.

- Reliable
- Sophisticated
- In use
- Proven
- LighterTested

Our products have been tested and certified for military airborne applications.





AR-20H









AR-35





EC-130J AR-75



C-130 Gunship AR-35



CV-22 Osprey AR-50



MH-60M Blackhawk AR-20H



MH/AH-6M Little Bird AR-20H



MC-12 Liberty AR-50



MH-47G Chinook AR-20H



Unmanned Aerial Vehicle AR-20H

AR Modular RF Military Products

Performs in Extreme Conditions, Highest Quality. Best Warranty.

AR delivers innovative technology, advanced design, and superior workmanship with lower cost per watt, plus a worldwide support network that is here for you today, tomorrow, and always. Everything we sell is backed by the best and most comprehensive warranty in the industry.

Waveforms Supported:

• ANW2, IW, SRW, WNW, ASCM, SINCGARS, HAVEQUICK I and II, and others!

Frequency Bands Supported:

• HF/VHF/UHF/L-Band

Supports Multiple Radio Platforms:

 AN/PRC-154 Rifleman[™] Radio, AN/PRC-117F, AN/PRC-117G, AN/PRC-152, AN/PRC-148 (MBITR/JEM), AN/PSC-5D, AN/ARC-210, and others!

AR-50SE • 50 watts

- 30-88 MHz
- SINCGARS compatible
- Compatible with Thales PRC-148, Harris PRC-152, Harris PRC-117F, Harris PRC-117G, and others

AR-50 Tactical Booster Amplifier Selected in the V-22 Osprey Upgrade



SM-AR-50 • Shock mount kit

Vehicle and aircraft

Airborne Flight Certified AR-20H

- 20 watts
- 30–512 MHz
- Lighter package
- Lower profile
- Supports legacy and modern networking waveforms
- MIL-STD 810G (Including Gun Ship)
- MIL-STD 461F, MIL-STD 464C, MIL-STD 704F
- AR-20
- 20 watts
 - 30–512 MHz
 - Lighter package
 - Lower profile
 - Internal LNA
 - Co-site filtering
 - Supports legacy and modern networking waveforms

AR-50S

- 50 watts
- 30–88 MHz
- SINCGARS compatible
- Compatible with Thales PRC-148, Harris PRC-152, Harris PRC-117F, Harris PRC-117G, and others

AR-50

• 50 watts

- 30–512 MHz
- Internal LNA
- Supports legacy and modern networking waveforms
- DAMA and IW Certified
- 810G (including SB-X10001B)
- Compatible with Thales PRC-148, Harris PRC-152, Harris PRC-117F, Harris PRC-117G, and others

AR-75

- 75 watts
- 30–512 MHz
- Compatible with Harris PRC-117F, Harris PRC-117G, and others
- Includes
- MIL-STD 461/1275 Filter
- Supports legacy and modern networking waveforms
- Airborne Safety Flight Certified



AR-125R

- 125 watts
- 30–512 MHz
- Internal and external LNA
- 2U Rack Mount
- CW duty cycle
- Compatible with Harris PRC-117F, Harris PRC-117G, and others
- Supports legacy and modern networking waveforms

Tactical Booster Amplifiers

DESCRIPTION
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier with LNA
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier Kit with LNA. Kit includes amplifier, cables, pouches and LOS antenna.
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier Kit with LNA. Kit includes amplifier, cables, pouches, switch, LOS and SATCOM antennas.
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier Kit. Kit includes amplifier, cables, pouches and LOS antenna.
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier Kit. Kit includes amplifier, cables, pouches, switch, LOS and SATCOM antennas.
20 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier with Remote Keyline
20 watts CW/PEP, 225–450 MHz, Tx/Rx Booster Amplifier
20 watts PEP, 300–512 MHz, Tx/Rx Booster Amplifier
35 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier
50 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifer
25 watts PEP, 30–512 MHz / 50 watts PEP 290–320 MHz, RF Tx/Rx Booster Amplifier
50 watts PEP, 30–88 MHz, Tx/Rx Booster Amplifier
50 watts PEP, 30–88 MHz, Tx/Rx Booster Amplifier
50 watts PEP, 30–512 MHz / 75 watts PEP 220–324 MHz, Tx/Rx Booster Amplifier
50 watts PEP, 30–88 MHz, Tx/Rx Booster Amplifier
45 watts PEP, 1.2–1.8 GHz, Tx/Rx Booster Amplifier
75 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifier
50 watts PEP, 30–512 MHz, Tx/Rx Booster Amplifer
125 watts PEP, 30–512 MHz, Tx/Rx 19-in. Rack Mount Booster Amplifier



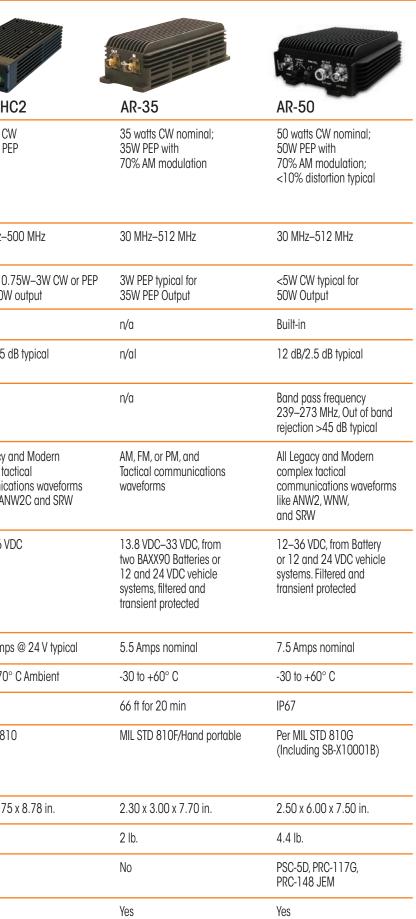
Find It Fast. AR Modular RF Military Products.

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FEATURES	AR-20	AR-20KT	AR-20B	AR-20BKT	AR-20H	AR-20EP	AR-20HC
Power Output	20 watts CW 20 watts PEP	20 watts CW 20 watts PEF					

Frequency Range	30 MHz-512 MHz	30 MHz-512 MHz	30 MHz-512 MHz	30 MHz-512 MHz	30 MHz-512 MHz	225 MHz-450 MHz	300 MHz-50
Input Power	2W CW or PEP for full 20W output	2W CW or PEP for full 20W output	2W CW or PEP for full 20W output	2W CW or PEP for full 20W output	Nominal 2W–5W CW or PEP for full 20W output	2W CW or PEP for full 20W output	Nominal 0.75 for full 20W o
SATCOM Rx LNA	Built-in	Built-in	n/a	n/a	Built-in	Built-in	Built-in
SATCOM Rx LNA Gain/Noise Figure	12 dB/<2.5 dB typical	12 dB/<2.5 dB typical	n/a	n/a	6 dB/4 dB typical	12 dB/4 dB typical	10 dB/2.5 dB
SATCOM Rx Co-site Filter	Co-Site filter provides >35 dB protection to the SATCOM receive channels	Co-Site filter provides >35 dB protection to the SATCOM receive channels	n/a	n/a	n/a	n/a	Yes
Modulation	All Legacy and Modern complex tactical communications waveforms like ANW2, IW, and SRW	All Legacy and Modern complex tactical communications waveforms like ANW2, IW, and SRW	All Legacy and Modern complex tactical communications waveforms like ANW2, IW, and SRW	All Legacy and Modern complex tactical communications waveforms like ANW2, IW, and SRW	All Legacy and Modern complex tactical communications waveforms like ANW2C and SRW	All Legacy and Modern complex tactical communications waveforms	All Legacy an complex tacti communicati likeF SK, ANW
Power Requirements	12–35.5 VDC single XX90 battery or 12 and 28 VDC vehicle supply	12–35.5 VDC single XX90 battery or 12 and 28 VDC vehicle supply	12–35.5 VDC single XX90 battery or 12 and 28 VDC vehicle supply	12–35.5 VDC single XX90 battery or 12 and 28 VDC vehicle supply	18 to 35.5 VDC compliant to MIL-STD-704F, , MIL-STD 461F, MIL-STD 464C	12 to 35.5 VDC	9.5 to 36 VD0

Current@24 VDC nominal	<3.2A Amps @ 28 V typical	<3.2A Amps @ 24 V typical	<3.2A Amps @ 24 V typical	<3.5A Amps			
Operating Temperature	-30 to +60° C Ambient	-40 to +71° C Ambient	-30 to +60° C Ambient	-40 to +70° (
Water	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Vibration/Shock/ Humidity	Designed to meet applicable sections of MIL STD 810/ designed for ground/base vehicle use	Designed to meet applicable sections of MIL STD 810/ designed for ground/base vehicle use	Designed to meet applicable sections of MIL STD 810/ designed for ground/base vehicle use	Designed to meet applicable sections of MIL STD 810/ designed for ground/base vehicle use	MIL-STD-810G	MIL-STD-810	MIL-STD-810
Size (HxWxD) Inches	1.58 x 3.75 x 5.05 in.	1.86 x 3.75 x 8.78 in.	1.58 x 3.75 x 5.05 in.	1.86 x 3.75 x			
Weight	1 lb. 10 oz	2 lb. 15 oz (Full Kit)	1 lb. 10 oz	2 lb. 15 oz (Full Kit)	2.6 lb.	1 lb. 10 oz	2.6 lb.
JITC Certified	Yes	Yes	No	No	No	No	No
GSA Schedule	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Cable assemblies, power cables, shock-mount kits, and other accessories are available for booster amplifiers.



Find It Fast. AR Modular RF Military Products.

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AR-50RC	AR-50RCS	AR-50S	AR-50SE	AR-55L	AR-75	AR-75-M50	AR-125R/C2
OS: 25 watts CW nominal; 25W PEP with 70% AM nodulation; <10% distortion typical SATCOM (290 MHz to 320 MHz): 50 watts	50 watts CW nominal; 50W PEP with 70% AM modulation; <10% distortion typical	50 watts CW nominal; 50W PEP with 80% AM modulation; <10% distortion typical	50 watts CW nominal; 50W PEP with 80% AM modulation; <10% distortion typical	45W PEP (+2 dB / -1 dB), typical across the band, with 5W PEP input	75 watts CW nominal; 75 W PEP with 70% AM modulation; <10% distortion typical	Nominal 50 watts CW; 50W PEP 70% DOM; < 10% distortion <5% typical	125 watts CW typical
30 MHz-512 MHz	30 MHz-90 MHz	30 MHz-88 MHz	30 MHz-88 MHz	1,250–1,800 MHz	30 MHz-512 MHz	30 MHz-512 MHz	30 MHz-512 MHz
<5 watts CW typical for 25W LOS and 50W SATCOM Outputt	<5 watts CW typical for 50 watts Output	<5 watts CW typical for 50 watts Output	<5 watts CW typical for 50 watts Output	2–5 W PEP	5–8 watts CW typical for nominal 75 watts Output	~5–7 watts CW typical for 50 watts Output	10 watts typical, up to 20W without damage
Built-in	n/a	n/a	n/a	Built-in	Built-in	Built-in	External/KMW2030P
2 dB/2 dB typical	n/a	n/a	n/a	12 dB/<3.5 dB typical	12 dB/2 dB typical	12 dB/2 dB typical	12 dB/2 dB typical
3and pass frequency 239 MHz–273 MHz, Out of band ejection 35 dB typical	n/a	n/a	n/a	High pass Filter, Out of band rejection 40 dB typical	Band pass frequency 239–273 MHz, Out of band rejection 45 dB typical	Band pass frequency 239 MHz–273 MHz, Out of band rejection 45 dB typical	n/a
AM, FM, or PM, and tactical communications vaveforms	AM, FM, or PM, and tactical communications waveforms	AM, FM, or PM, and tactical communications waveforms	AM, FM, or PM, and tactical communications waveforms	Constant Envelope Waveforms	AM, FM, or PM, and Tactical communications waveforms	AM, FM, or PM, and modern Tactical networking communication waveforms	AM/FM/PM, SINCGARS, HPW, HAVEQUICK, DAMA, IW, SRW and ANW2, plus others
2–35.5 VDC filtered and ransient protected for 2 or 24 volt vehicle systems or Jual XX90 batteries	12–35.5 VDC filtered and transient protected for 12 or 24 volt vehicle systems or dual XX90 batteries	12–36 VDC filtered and transient protected for 12 or 24 Volt vehicle systems or dual XX90 batteries	12–33 VDC MIL-STD-461E and 1275	28 VDC filtered and transient protected	18–35.5 VDC filtered and transient protected for 24 volt vehicle systems batteries MIL-STD 1275 and 461 compliant DC-DC internal power supply	18–35.5 VDC filtered and transient protected for 24 volt vehicle systems batteries; MIL-STD 1275 and 461 compliant DC-DC internal power supply filter	AC power (AR-125R): 100 to 240 VAC, 50 Hz–60 Hz DC power (AR-125RC2): 18 to 36 VDC (approximately 650 watts @ 24 VDC)
<7.5 Amps @ 24 V typical	<7.5 Amps @ 24 V typical	<7.5 Amps @ 24 V typical	<7.5 Amps @ 24 V typical	7 Amps @ 28 V typical	<9.5 Amps @ 24 V typical	< 9.5 Amps @ 24 V typical	27 Amps typical
30 to +60°C	-30 to +60°C	-30 to +60°C	-40 to +55°C	-30 to +60 °C Ambient	-30 to +60 °C Ambient	-30 to +60° C	-30 to +60° C (ambient)
P67	IP67	IP67	IP67	IP67	IP67	IP67	No
Per MIL STD 810F	Per MIL STD 810F	Per MIL STD 810F	Per MIL STD 810F	Designed to meet applicable sections of MIL STD 810F/ designed for ground/base vehicle use	Per MIL STD 810F	Per MIL STD 810F	Per MIL-STD-461
2.50 x 6.00 x 7.50 in.	2.50 x 6.00 x 7.50 in.	2.50 x 6.00 x 7.50 in.	2.50 x 6.50 x 9.93 in.	2.5 x 6.0 x 7.5 in.	3.00 x 6.00 x 11.17 in.	3.00 x 6.00 x 11.17 in.	3.5 x 19 x 24 in.
4.4 lb.	4.4 lb.	4.4 lb.	8.0 lb.	6.0 lb.	10.5 lb.	10.5 lb.	~ 25 lb.
Based off AR-50 design	Based off AR-50 design	Based off AR-50 design	Based off AR-50 design	No	No	No	No
/es	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$ = \frac{12}{12} = \frac$	5W PEP with 70% AM hodulation; 10% distortion typical ATCOM (290 MHz to 320 MHz): 0 watts 0 MHz–512 MHz 5 watts CW typical for 25W LOS nd 50W SATCOM Outputt uilt-in 2 dB/2 dB typical and pass frequency 39 MHz–273 MHz, Out of band ejection 35 dB typical M, FM, or PM, nd tactical ommunications raveforms 2–35.5 VDC filtered and ansient protected for 2 or 24 volt vehicle systems or ual XX90 batteries 7.5 Amps @ 24 V typical 30 to +60°C 267 er MIL STD 810F .50 x 6.00 x 7.50 in. .4 lb. ased off AR-50 design es	5W PEP with 70% AM nodulation; 10% distortion typical ATCOM (290 MHz to 320 MHz):50W PEP with 70% AM modulation; 10% distortion typical0 MHz-512 MHz30 MHz-90 MHz5 watts CW typical for 25W LOS nd 50W SATCOM Outputt<5 watts CW typical for 50 watts Output2 dB/2 dB typicaln/aand pass frequency 39 MHz-273 MHz, Out of band ejection 35 dB typicaln/aM.FM, or PM, nd tactical communications aveforms12–35.5 VDC filtered and tansient protected for 12 or 24 volt vehicle systems or ual XX90 batteries7.5 Amps @ 24 V typical<7.5 Amps @ 24 V typical	SW PEP with 70% AM modulation: 10% distortion typicalSOW PEP with 70% AM modulation: 10% distortion typicalSOW PEP with 80% AM modulation; 10% distortion typical10% distortion typical ACCOM (290 MHz to 320 MHz):30 MHz-90 MHz30 MHz-88 MHz0 MHz-512 MHz30 MHz-90 MHz30 MHz-88 MHz5 watts CW typical for 25W LOS for 50 watts Output<5 watts CW typical for 50 watts Output<5 watts CW typical for 50 watts Output2 dB/2 dB typicaln/an/an/aand pass frequency 39 MHz-273 MHz, Out of band jection 35 dB typicaln/an/aM, FM, or PM, and tactical communications waveformsAM, FM, or PM, and tactical communications waveformsAM, FM, or PM, and tactical communications waveforms12–35.5 VDC filtered and transient protected for 12 or 24 volt vehicle systems or dual XX90 batteries12–35.5 VDC filtered and transient protected for 12 or 24 volt vehicle systems or dual XX90 batteries12–30 to +60°C30 to +60°C-30 to +60°C-30 to +60°C-30 to +60°C167IP67IP67IP67er MIL STD 810FPer MIL STD 810F2.50 x 6.00 x 7.50 in50 x 6.00 x 7.50 in.2.50 x 6.00 x 7.50 in.2.50 x 6.00 x 7.50 in41b.4.4 lb.4.4 lb.4.4 lb.ased off AR-50 designBased off AR-50 designBased off AR-50 design	SW PEP with 20% AM and addition: SOW PEP with 20% AM addition: SOW PEP with 20% AM addition: SOW AM addition: 10% distortion typical atCOM (290 MHz): -10% distortion typical -10% distortion typical -10% distortion typical 0 Miz-512 MHz 30 MHz-90 MHz 30 MHz-86 MHz 30 MHz-88 MHz 30 MHz-88 MHz 5 waths CW typical for 25W LOS < swaths CW typical for 50 waths Output	SW FP with 70% A44 opticulation: 10% distantion typicalSOW FP with SW FP w	WHEP-Built Condition (10% sitisfunction special (10%	WH FF with You Mu calibility cal

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Cable assemblies, power cables, shock-mount kits, and other accessories are available for booster amplifiers.



If You Can Imagine It, We Can Build It

The company is also known for superior quality rack-mounting and table-top amplifier systems and modules from 80 kHz to 3,000 MHz. With output powers from 5–1,000 watts, these systems and modules are used for communications and a variety of medical, scientific, and industrial applications.

Perhaps most important, AR Modular RF helps clients find the best solutions to their most demanding requirements by offering customer-specific designs and semi-custom modifications to our existing line of products.

All AR Modular RF products are backed by the three-year, no-nonsense warranty.



AR-5010 Basic Communications • Lightweight, 19-in., 2U rack mount • Ethernet remote control • 500 watts CW/PEP

30 MHz to 88 MHz



AR-5030/AR-5030C2 Shipboard Communications Lightweight, 19-in., 2U Rack Mount Ethernet remote control

- 80 watts CW/PEP
- 700 MHz to 960 MHz



AR-5000 Series

Base Platform for Quick Customizations

- Class A or Class AB
- Lightweight 19-in., 2U rack mount
- Ethernet remote control
- 100–500 watts CW, 1,000 watts peak
- 80 kHz to 1 GHz

Modules for OEMs and Integration

- 10 kHz to 6 GHz
- High- and low-gain power
 amplifier modules
- Mini-system PA modules with ALC and interfaces



Subsystems for Integration

- Custom packaging
- Engineered to customer specifications
- Sub-octave and multi-octave designs



Communication Systems

- VHF/UHF band operation
- Up to 1,000 watt output
- 24/7 operation capable
- Repeatable performance unit to unit for field interchangeability
- Single-phase and three-phase AC power capable from same unit







Physics Applications

- Custom frequency band
- Highly repeatable performance
 unit to unit
- Multiple calibrated monitoring ports
- Highly reliable for long-term 24/7 use

Find It Fast: AR Modular RF Commercial Products

Rack Mount Amplifiers

MODEL NAME	DESCRIPTION
AR-5010	500 watts, 30 MHz–88 MHz, 19-in. Rack Mount
AR-5030	80 watts, 700 MHz–960 MHz, 19-in. Rack Mount
AR-5030C2	80 watts, 700 MHz–960 MHz, Shipboard 19-in. Rack Mount
AR-5000	19-in. Rack Mount Product Series. 100–500 watts, 80 MHz–1,000 MHz (Call factory for details)
KAA1020	25 watts, 10 kHz–230 MHz RF Amplifier
KAA4020	500 watts, 1 MHz–50 MHz, RF Amplifier, 19-in. Rack Mount
KAW1080	25 watts, 10 kHz–1,000 MHz, Dual Band RF Amplifier, 19-in. Rack Mount
KAW2020-M16	100 watts, 220 MHz–245 MHz, RF Amplifier, 19-in. Rack Mount
KAW2100-M2	200 watts, 200–500 MHz, RF Amplifier, 19-in. Rack Mount
KAW5050	1,000 watts PEP, 500 watts CW, 225 MHz–400 MHz, RF Amplifier, 19-in. Rack Mount
KAA2020	100 watts, 500 kHz–100 MHz, RF Amplifier, 19-in. Rack Mount
KAA2026	125 watts, 700 kHz–3 MHz, RF Amplifier, 19-in. Rack Mount
KAA2030	200 watts, 500 kHz–40 MHz, RF Amplifier
KAA2030-M11	300 watts, 500 kHz, RF Amplifier
KAA2070-M11	100 watts, 70 MHz–76 MHz, RF Amplifier, 19-in. Rack Mount
KAA3020	250 watts, 2 MHz–32 MHz, RF Amplifier, 19-in. Rack Mount
KAA4021P	300 watts, Pulse, 1 MHz–50 MHz, RF Amplifier, 19-in. Rack Mount
KAA5170P	1,000 watts, Pulse, 500 kHz–5.5 MHz, RF Amplifier, 19-in. Rack Mount
KAW1020	5 watts, 500 kHz–1,000 MHz RF Amplifier
KAW1040	20 watts, 1 MHz–512 MHz, RF Amplifier
KAW1050	25 watts, 1 MHz–400 MHz, RF Amplifier
KAW2020	100 watts, 200 MHz–500 MHz, RF Amplifier, 19-in. Rack Mount
KAW2040	100 watts, 100 MHz–500 MHz, RF Amplifier, 19-in. Rack Mount
KAW2300	100 watts PEP, 100 MHz–1,000 MHz, RF Amplifier, 19-in. Rack Mount
KAW4040-M12	500 watts, 390 MHz–410 MHz, RF Amplifier, 19-in. Rack Mount
KAW5030	200 watts, 800 watts Peak, 100 MHz–400 MHz, RF Amplifier, 19-in. Rack Mount

Amplifier Modules

MODEL NAME	DESCRIPTION
KMA1040	50 watts, 200 KHz–50 MHz, Am
KMA2040	200 watts, 500 kHz–40 MHz, Ar
KMA2040-M12	200 watts, 500 kHz–40 MHz, An
KMA2040-M22	200 watts CW, 250 watts Peak,
KMA2040-M25	100–500 watts, 100 KHz–50 M
KMA2040P	200 watts, (CW/Pulse) 500 kHz-
KMA4040	400 watts, 30–40 MHz, Amplifie
KMW2025	100–200 watts CW, 500 watts I
KMW2026-M15	40 watts, 225–450 MHz, Amplif
KMW2026-M20	100–200 watts, 30–512 MHz A
KMW2026-M26	60 watts, 291 MHz, Amplifier Mo
KMW2040-LTE	100 watts CW/125 watts Peak,
KMW2040-M17	100 watts, 225–400 MHz, Ampl
KMA1001	1 watt, 225–400 MHz, Amplifier
KMA2020	100 watts, 10 kHz–230 MHz, An
KMW1020	10 watts, 500 kHz–512 MHz, An
KMW1060	20 watts, 1–512 MHz, Amplifier
KMW2026-M5	30 watts, 30–512 MHz Amplifier

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Amplifier Module
Amplifier Module
k, 2–30 MHz, Amplifier Module
MHz, Amplifier Module
Hz–40 MHz, Amplifier Module
fier Module
s Pulse, 30–512 MHz, Amplifier Module
lifier Module
Amplifier Module with Break Point
Module
k, 225–400 MHz, Amplifier Module
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er Module
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Amplifier Module
er Module
ier Module with Break Point

Your Partner for All Your Equipment Needs

AR Europe is not just a distribution network; we are a system and solution provider! In collaboration with our third-party sales partners, we supply a broad range of test equipment/ systems for RF/Microwave, EMC, electrical safety, power electronics, test and measurement, and RF shielding applications.

AR Europe is comprised of five AR offices (Ireland, UK, France, Benelux, and Germany) and an extensive network of independent sales representatives' companies. Our network of experienced sales associates and service technicians allows us to provide the best technical solution for our customers' requirements as well as local training, installation, repair, and maintenance support.

With our extensive range of products, services, skills, and experience, AR Europe is the perfect partner for all your test-equipment needs. We have the solutions, from instrumentation to turnkey systems and one-off projects.

A Formidable Force

No one has more experience in all facets of EMC testing equipment than AR Europe and our partners around the world. Working as a team together with our customers, we have the ability to find solutions, solve problems, and provide exceptional service in the most efficient, cost-effective, and timely manner.

With locations throughout Europe, we're nearby and ready to help make EMC testing quicker, easier, and more accurate than ever.

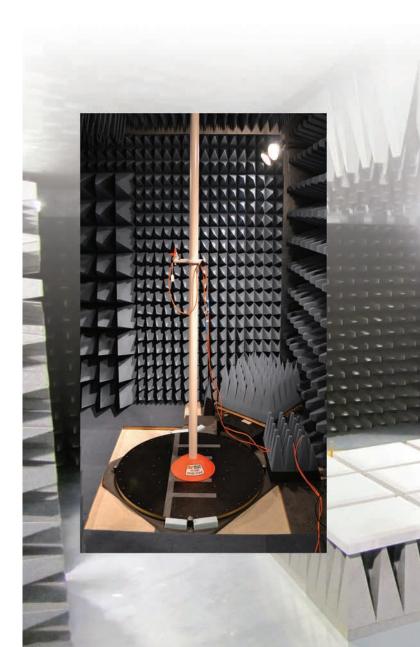
We have developed a very strong customer base in a wide range of electronic/electrical business sectors covering communications, military, commercial, medical, automotive, aerospace, product compliance testing, research, and educational markets.



AR Europe Systems

Not only are we able to provide individual components or instruments, but we also have the know-how and capability to design and develop custom test systems and turnkey solutions. Our team of applications engineers and project managers work closely with our customers to understand their requirements in order to tailor and deliver the best solution available.

With the strong and diverse engineering capabilities of the AR Europe engineers and our sales partners, we have worked on a number of projects where our customers' unique needs have been realized!





Our Support Is As Strong As Our Products

We believe local after sales support and service is essential, and we strive to provide the best service possible. That's why we continually invest in our facilities, equipment, and staff.

Throughout Europe, we have well-equipped service centers staffed by our experienced factory-trained engineers, enabling us to provide high quality local warranty support, repair, and calibration if needed.

We are able to offer full after sales product support, service, and calibration on a broad range of products, including—

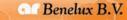
- RF and microwave amplifiers and accessories from DC-40 GHz, up to very high power
- ESD and transient equipment
- Antennas and E-field generators
- Current injection and monitoring probes, coupling/decoupling networks and LISNS
- E- and H-field monitoring probes/system
- AC/DC power sources and loads
- Electrical safety test equipment
- Optical links and cables
- Miscellaneous test and measurement instrumentation

With an extensive range of spare parts available in stock in Europe we can respond quickly, providing a fast turnaround on service helping to minimise your downtime.

Additional services include—

- On-site repair and calibration
- Bespoke service contracts
- Routine maintenance programs
- Management of all your calibration needs (including accredited calibration)
- Shielding effectiveness measurements

Contact your local service centre for more information.



Of United Kingdom

Or Deutschland GmbH

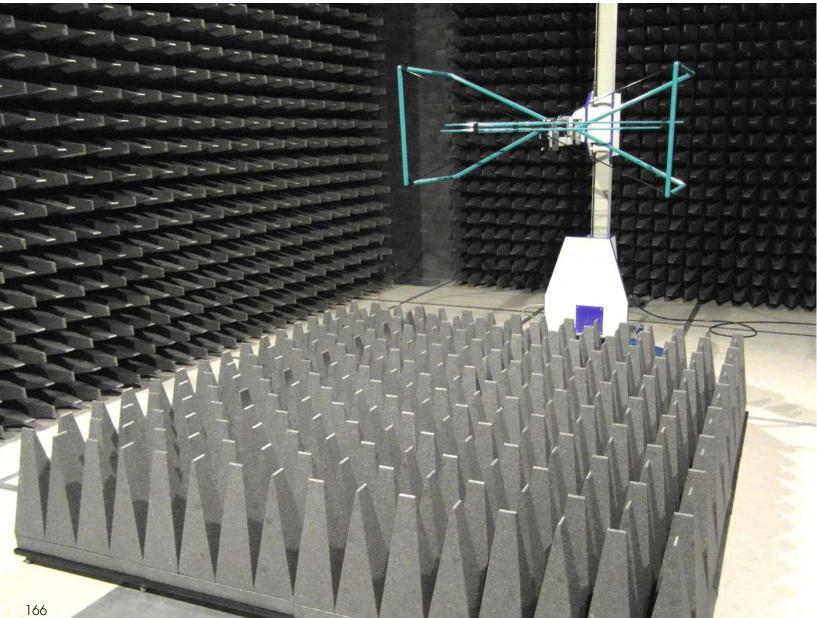
France



Our Present Partners Include The Following Renowned Companies:



Not all chambers offer the same performance or quality. All reverberation and fully and semianechoic chambers provided by AR RF/Microwave Instrumentation through Comtest Engineering BV offer customers the highest level of performance, quality, and support. There are several outstanding advantages of Comtest chambers. One unique advantage is the Pan Shield design. The approach used by Comtest allows for premium performance and seamless construction over older designs techniques, such as wood core shielded chambers. The baseline performance of the pan-type shield is far more reliable and exceeds 100 dB level of attenuation up to 40 GHz without any modifications or addons. This provides a great testing environment for your testing needs.



GER/AC

For more than 25 years, GERAC (a Thales subsidiary) has developed and manufactured a number of high power RF and microwave product lines specializing in HIRF pulsed amplifiers and direct lightning generators.

Products and engineering solutions include—

Solid State Amplifiers

- High Intensity Radiated Fields (HIRF) 1 to 4 GHz, narrow and wide band, 1 kW to 80 kW, 1 to 100µs pulse
- High power scientific amplifiers 30 MHz to 4 GHz, 5 kW to 2 MW CW/pulsed

Tube Amplifiers

- High Power Microwaves (HPM) 1 to 18 GHz, 0.1 to 10 MW, 1 to 100µs pulse
- Nuclear Electromagnetic Pulse (NEMP) 1 to 200 MHz, up to 300 kW



Generators

- Nuclear Electromagnetic Pulse (NEMP) 10 to 300 kV
- Indirect and Direct Lightning Electromagnetic (LEMP) 10 to 200 kA, WF1-WF4-WF5A-WF5B, up to level 5, DO160, ABD100, EUROCAE-ED-84, MIL-STD-464

Our Present Partners Include The Following Renowned Companies:



Noisecom is a leader of RF and microwave noise sources for signal jamming and impairment, reference level comparison and calibration, receiver robustness testing, and jitter injection. Electronic noise generation devices from Noisecom come in a variety of product types, including, noise diodes, built-in-test modules (BITE), calibrated noise sources, jitter sources, cryogenic noise standards, and programmable instruments. Calibrated noise sources are available from audio to millimeter wavelengths in coaxial or waveguide modules. Programmable instruments are highly configurable and able to generate precise Carrier-to-Noise, Signal-to-Noise, and broadband white noise. Noisecom products are customizable to meet the unique needs of challenging applications and can be designed for high power, high crest factor, and specific filter responses with a wide selection of input and output options.

- CNG-EBNO Signal to Noise Generator
- UFX7000A Series Remote Control
- J7000 Jitter Noise Generator
- DNG7500 Diaital Noise Generator
- NC6000A/8000A Series Noise Generators
- GPS7500 Noise and Interference Generator
- PNG7000 Analog AWGN Noise Generator
- JV9000 Series: Adjustable Vcc Noise Generator
- NC1000 Series Amplified Noise Modules
- NC346 Broadband Coaxial
- NC3000 Coaxial
- NC3200K Coaxial Noise Sources
- NC3400 High ENR Coaxial
- NC3600 Series



TEGAM designs, manufactures, and calibrates instrumentation that impacts life in surprising ways. Our goal is to make your measurement task easier, faster, and more accurate. We continuously invest in R&D of products and calibration techniques that allow you to make your critical measurements with unparalleled uncertainty. Our electrical measuring capabilities include temperature, RF power, and micro-Ohms.

- High and Low RF Power Calibration Instruments
- Data-Logging Industrial
- Thermometers Bond Meters
- Micro-Ohmmeters
- Ratio Transformers
- Waveform and
- Instrumentation Amplifiers

Phase Sequence Indicators

Humidity

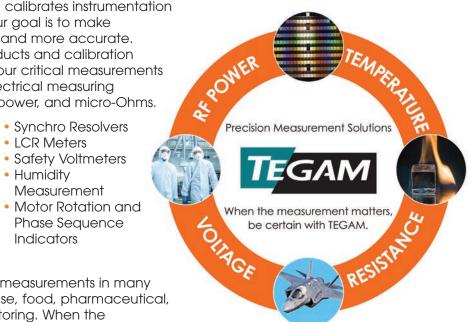
TEGAM instruments perform critical measurements in many industries including aerospace, defense, food, pharmaceutical, oil and gas, and environmental monitoring. When the measurement matters, be certain with TEGAM.



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