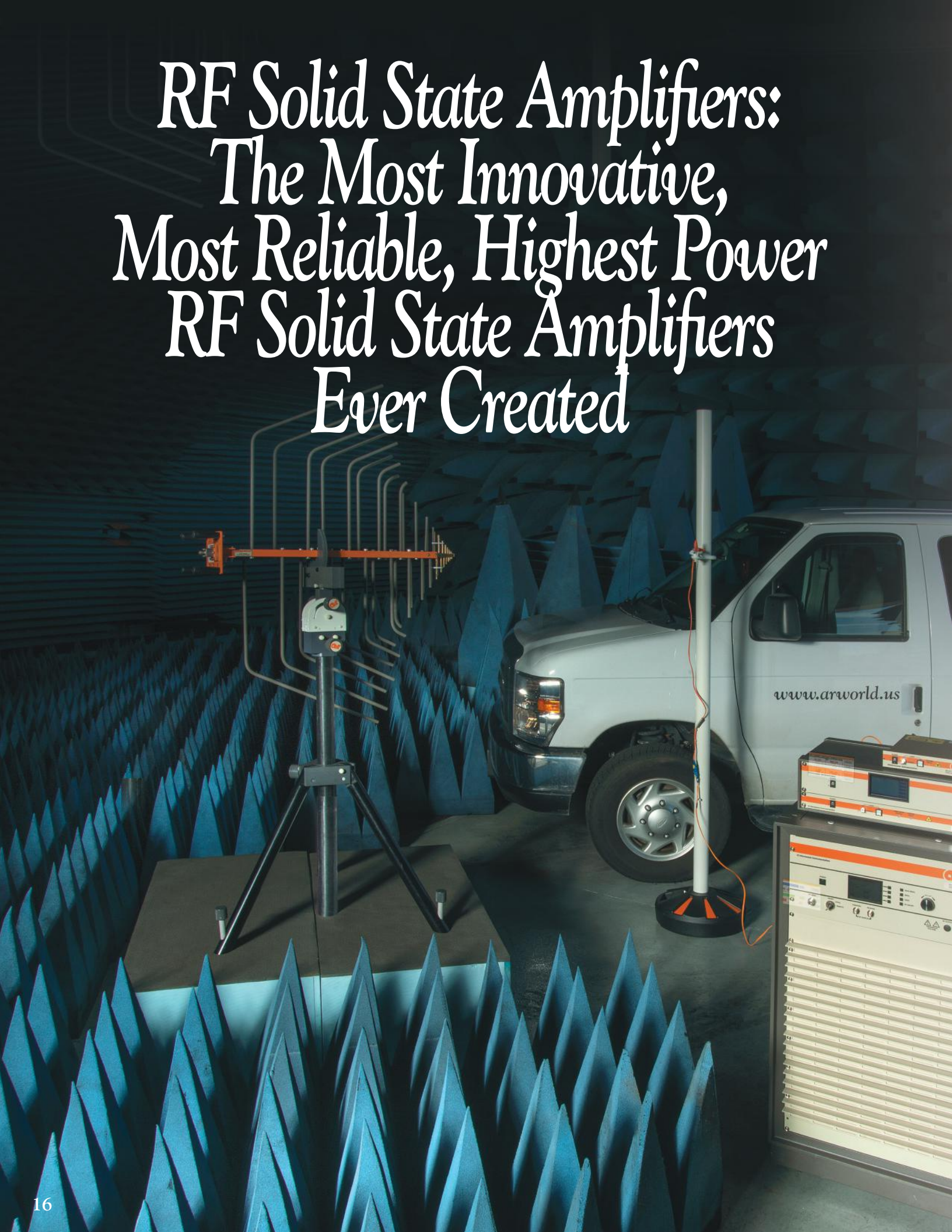
RF Solid State Amplifiers: The Most Innovative, Most Reliable, Highest Power RF Solid State Amplifiers Ever Created



All The Power You Need…With Legendary Performance & Reliability

"A" Series: Up to 400 MHz / 25 to 50,000 watts CW depending upon frequency range
"W" Series: Up to 1,000 MHz / 1 to 10,000 watts CW

Our "A" and "W" Series amplifiers have the power to deliver all the field strength you need. With unsurpassed mismatch capabilities and excellent flatness, they provide all the power promised over the entire operating band.

We subject our amplifiers to the harshest conditions just to make sure they give you reliable service and performance over the long haul. We test them under various output VSWR loads to stress them to the limit. The only problem we ran into was that there were no available loads to handle the enormous power, up to 80,000 watts, that our amplifiers deliver. Whereas this would stop most manufacturers, it presented another challenge to our talented designers, and we designed our own as shown in Figures 1 & 2. All our RF solid-state amplifiers have modulation capability that will faithfully reproduce AM, FM or Pulse Modulation appearing on the input signal for use in the most demanding EMC applications.

These technologically advanced amplifiers perform beyond the norm, beyond expectations, and way beyond the abilities of other test amplifiers.

These self-contained, broadband, completely solid-state amplifiers are designed for applications requiring the ultimate in output power over a wide instantaneous bandwidth with high gain. Extensive control and status reporting capabilities are available both locally and remotely. Most models feature air-cooled designs while some higher power units feature liquid cooled designs. The touch-screen panels are intuitive, convenient, and easy to use.

Figure 1
Mismatch Load Standards for 0.5 – 4.5 GHz

Figure 2 –
Mismatch Standards for DC – 700 MHz

"AR RF/Microwave makes the toughest EMC Compliance Class A amplifiers with the highest power densities and widest bandwidths. However, it is reliability that drives this 50-year-old brand; and customer service you can depend on."

Randall Bloom
CEO, W5 Engineering
Portland Oregon

AR Ultra High Power Amplifier Capabilities

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 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.

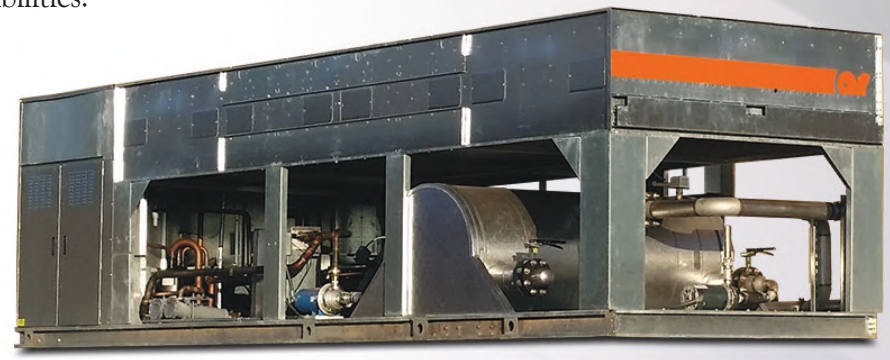
Fourth, it allows for fewer fans. This makes the amplifier audibly quieter. By reducing the noise, operators can work in a safer, more pleasant environment without fatigue.

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.

Informative Touch Panel

AR's high power amplifiers incorporate our latest Touch Panel amplifier control system*. This new system makes it easier to monitor and control important amplifier functions. On the right are some example screen shots unique to one of AR's newest ultra high power amplifiers. See page 45 for more details on AR's intuitive touch panel capabilities.



* Touch Panel amplifier control system

"A" and "W" Series Amplifiers Provide A Wide Range Of Features & Benefits

- Highest Output Power In Its Class - Enough Margin To Obtain The Necessary Field Strength You Require
- Unsurpassed Service, Support & Warranty - Reduce Downtime To Save Money And Provide Your Customers With Testing Continuity
- Durability & Longevity - Provides Lower Life Cycle Costs
- Best Efficiency In Its Class - Reduces Operating Costs and Helps The Environment
- Great Mismatch Capability - Gives You The Power You Need For Driving Poor Loads, Allowing You To Select Lower Power Amplifiers And Saving You Money
- Multiple Control Interfaces That Some Of Our Competitors Lack – More Value For Your Money
- Unsurpassed Harmonic Rejection - Provides More Accurate Measurements
- Lower Acoustical Noise - Enhances The Work Environment
- Compact, Lightweight, Modular Designs - Ability To Fit In Small Areas/Chambers And Easily Transportable
- Intuitive Operation - Saves You Time And Money

10000W1000A
10000 Watts CW, 80 MHz - 1000 MHz

Liquid Cooling For Large High-Power RF Amplifiers

Temperature is a major factor in determining the reliability of solid state devices used in high-power RF amplifiers. Reducing the temperature that the semiconductor devices see can greatly improve both reliability and performance.

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

- ***Liquid cooling 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 airflow, they can be built closer together.
- ***Liquid Cooling Reduces The Heat Load On The Amplifier Room***
  Since most of the heat generated is carried away by the cooling liquid, HVAC requirements are reduced, which results in more comfortable surroundings and reduced utility bills.
- ***Liquid Cooling Allows For Fewer Fans***
  This makes the amplifier significantly quieter. By reducing the noise, operators can work in a safer, more pleasant environment without fatigue.
- ***Liquid Cooling Provides The Option Of Using Your Existing Cooling Infrastructure***
  Liquid 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 can be greatly reduced.

Like everything we do at AR, liquid cooling has been carefully considered, tested and researched before being chosen as the preferred method for controlling temperatures in large high-power amplifiers. We utilize proprietary techniques to implement the most reliable and robust mechanical designs possible.

CoolAR Chillers

AR, the world leader in supplying high power, broadband amplifiers, can now supply chillers for any of its standard liquid-to-liquid cooled amplifiers such as the models 12500A225A-L and 20000A225A-L. This capability ensures amplifier performance in any operating condition, reduces the risk of inappropriately sized equipment, and eases the procurement process by working with only one vendor. Each chiller is sized for the amplifier model, taking into consideration the user's operating requirements and environment. We can also supply chillers for custom amplifiers designed to user specifications and provide a true turnkey solution.

The chillers are provisioned to handle the unique requirements of test amplifiers and to interface with the amplifier controller for monitoring of faults. Consultation for proper sizing and installation and training are included. Service is provided through a well-established, worldwide network of support distributors with over 40 years of experience.

10 Hz to 1 MHz

4 kHz to 400 MHz

10 kHz to 3 MHz

350AH1A

350 watts CW, 10 Hz - 1 MHz

Operation Class AB Linear

Power Output (1.79 Ohm load)
- CW, min. 350 watts, 10 Hz - 300 kHz; 350 - 55 watts, 300 kHz - 1 MHz
- Voltage Output, min. 25 Vrms, 10 Hz - 300 kHz; 25 - 10 Vrms, 300 kHz - 1 MHz
- Current Output, min. 14 Arms, 10 Hz - 300 kHz; 14 - 5.5 Arms, 300 kHz - 1 MHz

Flatness ±1.0 dB, 10 Hz - 300 kHz; ±4.0 dB, 300 kHz - 1 MHz

Frequency Response 10 Hz - 1 MHz instantaneously

Input Signal 0 - 2 Vrms

Gain (Power) 47 dB min., 10 Hz - 300 kHz; 39 dB min., 300 kHz - 1 MHz

Power Gain Control Range 48 dB min.

Input Impedance 600 ohms typ.

Output Impedance <1Ω typ.

Mismatch Tolerance 100% of rated power without fail

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal

Primary Power 90 - 260 VAC; 47 - 63 Hz, single phase, 1200 watts max.

Connectors
- RF Input Type BNC female on front panel
- RF Output 5-way binding posts on front panel

Remote Control
- IEEE-488 24 pin female
- RS-232 9 pin subminiature D female
- USB Type B female
- Ethernet RJ-45

Safety Interlock 15 pin subminiature D

Cooling Forced air (self contained fans)

Weight 25 kg (55 lb)

Size (WxHxD)
50.3 x 19.9 x 37.6 cm / 19.8 x 7.85 x 14.8 in

100A400AM20

100 watts CW, 4 kHz-400 MHz

Rated Output Power Into 50Ω:
4 kHz-100 kHz: 10 watts min. rising to 100 watts min. at 100 kHz
100 kHz-400 MHz: 125 watts, typ.; 100 watts min.

Input For Rated Output 1.0 milliwatt max.

Power Output @ 3dB Compression Into 50Ω:
4 kHz-100 kHz: 10 watts min. rising to 100 watts min. at 100 kHz
100 kHz-400 MHz: 125 watts typ.; 100 watts min.

Power Output @ 1dB Compression Into 50Ω:
4 kHz-100 kHz: 10 watts min. rising to 75 watts at 100 kHz
100 kHz-400 MHz: 85 watts typ.; 75 watts min.

Flatness ±1.0 dB typ. / ±1.5 dB max, 100 kHz-400 MHz

Frequency Response 4 kHz-400 MHz instantaneously

Gain (at max. setting)
50 dB min., 100 kHz-400 MHz; <50 dB below 100 kHz

Gain Adjustment (continuous range) 20 dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

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.

Harmonic Distortion
Minus 20 dBc max. at 75 watts,
Minus 30 dBc typical at 50 watts (.01 - 400MHz)

Spurious Minus 73 dBc typ.

Third Order Intercept Point 55 dBm typ.

Noise Figure 8 dB typ.

Primary Power
100 - 240 VAC, 50 / 60 Hz, 500 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
- USB 2.0 Type B
- Ethernet RJ-45

Safety Interlock 15 Pin Subminiature D

Cooling Forced air (self contained fans)

Weight With cabinet: 18.5 kg (41 lb); Without cabinet: 10.4 kg (23 lb)

Size (WxHxD)
- With cabinet 50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in
- Without cabinet 48.3 x 13.2 x 55.1 cm / 19.8 x 5.2 x 21.7 in

Export classification EAR99

800A3B

800 watts CW, 10 kHz-3 MHz

Rated Output Power 800 watts

Input For Rated Output 1.0 milliwatt max.

Power Output @ 3dB compression
Nominal 800 watts Min. 800 watts, 10 kHz - 2 MHz; Min. 700 watts, 2 - 3 MHz

Power Output @ 1dB compression
Nominal 500 watts / Min. 400 watts

Flatness ± 1.0 dB max.

Frequency Response 10 kHz - 3 MHz instantaneously

Gain (at max. setting) 60 dB min.

Gain Adjustment (continuous range) 23 dB min.

Input Impedance 50 ohms, nominal

Output Impedance (switch select; manual)
12.5, 25, 50, 100, 150, 200, 400 ohms nominal
(10 kHz - 3 MHz) on front panel

Mismatch Tolerance*
Will operate without damage or oscillation with any magnitude and phase of source and load impedance. 100% of rated power without foldback up to 6.0:1 mismatch above which may limit to 400 watts reflected power.

Harmonic Distortion
Minus 20 dBc max. at 400 watts power output

Connectors
- RF Input Type N female on front panel
- RF Output Type N female on front panel
- Remote Control
  IEEE-488/RS-232, USB ability to remote control and power an external impedance transformer.

RF Power Display
0 - 1000 watts full scale. Directional power monitor allows separate display of forward and reflected power.

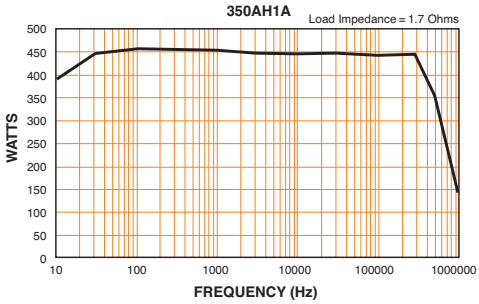
Cooling Forced air (self contained fans)

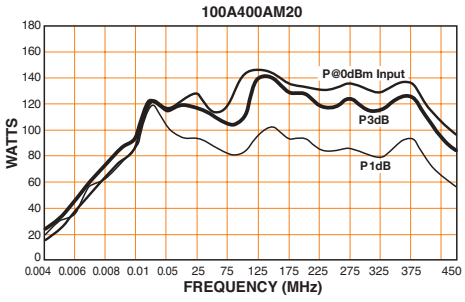
Primary Power
190 - 240 VAC
50 - 60 Hz, 2500 watts max.

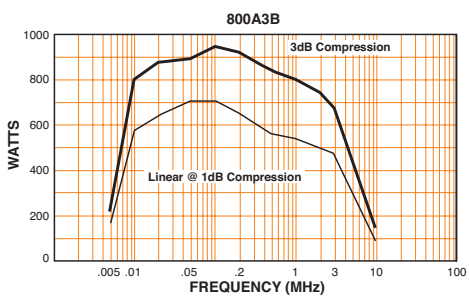
Weight (max.) 36.4 kg (80 lb)

Size (WxHxD)
50.3 x 34 x 55.1 cm / 19.8 x 13.4 x 21.7 in

For external impedance transformer options, see specification sheet for IT2000 Series impedance transformers.







* See Application Note #27A at www.arworld.us/appnote27/

10 kHz to 100 MHz 10 kHz to 225 MHz

150A100D

150 watts CW, 10 kHz-100 MHz

Rated Output Power 180 watts typ., 150 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typical: 165 watts / Min. 140 watts
Power Output @ 1dB compression
Typical: 135 watts / Min. 110 watts
Flatness ±1.0 dB typ., ±1.5 dB max.
Frequency Response 10 kHz - 100 MHz instantaneously
Gain (at max. setting) 51.8 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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.
Noise Figure 9 dB typ.
Harmonic Distortion
Minus 20 dBc max. at 100 watts
Minus 30 dBc typ. at 70 watts
Third Order Intercept Point 55 dBm typ.
Spurious Minus 73 dBc typ.
Primary Power
100 - 240 VAC
50/60Hz
500 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
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15-pin subminiature D
Cooling Forced air (self contained fans)
Weight 18.5 kg (41 lb)
Size (WxHxD)
50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in

1200A225

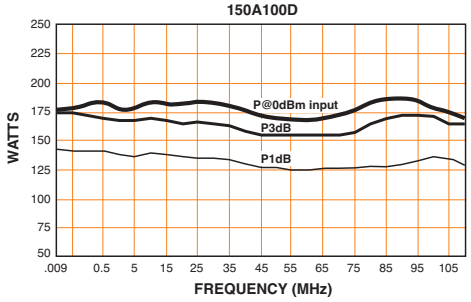
1,200 watts CW, 10 kHz-225 MHz

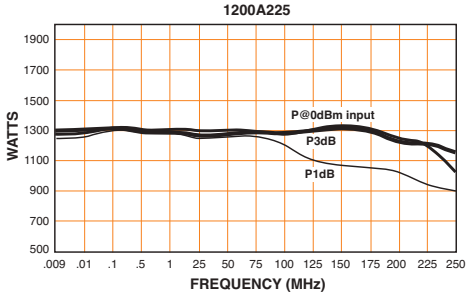
Rated Output Power
Typ.: 1300 watts, min. 1200 watts, .01 - 100MHz
Typ.: 1200 watts, min. 1100 watts, 100 - 225MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typ.: 1300 watts, min. 1200 watts, .01 - 100MHz
Typ.: 1200 watts, min. 1100 watts, 100 - 225MHz
Power Output @ 1dB compression
Typ.: 1250 watts, min. 1100 watts, .01 - 100MHz
Typ.: 1050 watts, min. 800 watts, 100 - 225MHz
Flatness ±2.0 dB typ., ±2.5 dB max.
Frequency Response 10kHz - 225 MHz instantaneously
Gain (at max. setting) 61.8 dB min.
Gain Adjustment (continuous range) 20 dB
Input Impedance 50 ohms, VSWR 1.5:1 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 600W reflected power.
Harmonic Distortion
Minus 30 dBc typical, minus 20 dBc maximum at 750 watts
Third Order Intercept Point 78 dBm typ.
Primary Power
200 - 240 VAC single-phase
50/60Hz
4.6 kWatts
Connectors
RF Input: N female
RF Output: 7/16 DIN female
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 139 kg (305 lb)
Size (WxHxD)
56.1 x 115 x 88.9 cm / 22.1 x 45.25 x 35 in

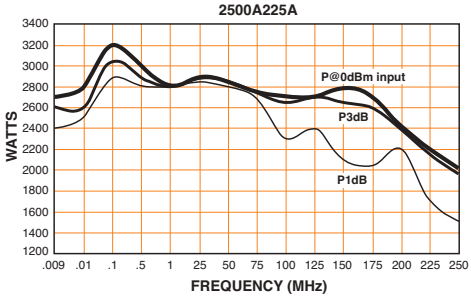
2500A225A

2,500 watts CW, 10 kHz-225 MHz

Rated Output Power
Typ.: 2800 watts, min. 2500 watts, .01 - 100MHz
Typ.: 2300 watts, min. 2000 watts, 100 - 225MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typ.: 2800 watts, min. 2500 watts, .01 - 100MHz
Typ.: 2300 watts, min. 2000 watts, 100 - 225MHz
Power Output @ 1dB compression
Typ.: 2400 watts, min. 2000 watts, .01 - 100MHz
Typ.: 1900 watts, min. 1500 watts, 100 - 225MHz
Flatness ±2.0 dB typ., ±2.5 dB max.
Frequency Response 10kHz - 225 MHz instantaneously
Gain (at max. setting) 64 dB min.
Gain Adjustment (continuous range) 20 dB
Input Impedance 50 ohms, VSWR 1.5:1 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 1250W reflected power.
Harmonic Distortion
Minus 30 dBc typ., minus 20 dBc max. at 1750 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
50/60Hz
9.5 kWatts
Connectors
RF Input: N female
RF Output: 7/16 DIN female
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 159 kg (350 lb)
Size (WxHxD)
56.1 x 115 x 88.9 cm / 22.1 x 45.25 x 35 in



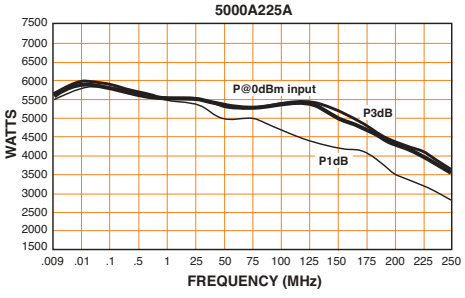




5000A225A

5,000 watts CW, 10 kHz-225 MHz

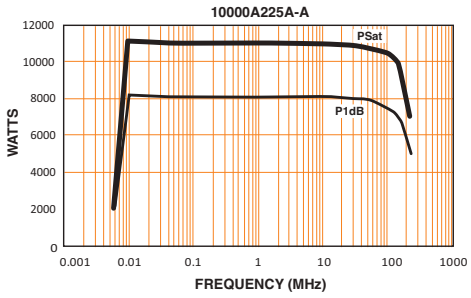
Rated Output Power
Typ.: 5500 watts, min. 5000 watts, .01 - 100MHz
Typ.: 4500 watts, min. 3500 watts, 100 - 225MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typ.: 5500 watts, min. 5000 watts, .01 - 100MHz
Typ.: 4500 watts, min. 3500 watts, 100 - 225MHz
Power Output @ 1dB compression
Typ.: 5000 watts, min. 4000 watts, .01 - 100MHz
Typ.: 4000 watts, min. 3000 watts, 100 - 225MHz
Flatness ±2.0 dB typ., ±2.5 dB max.
Frequency Response 10kHz - 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 2500W reflected power.
Harmonic Distortion
Minus 30 dBc typ., minus 20 dBc max. at 3000 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
50/60Hz
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 x 88.9 cm / 22.1 x 68.15 x 35 in



10000A225A-A

10,000 watts CW, 10 kHz-225 MHz

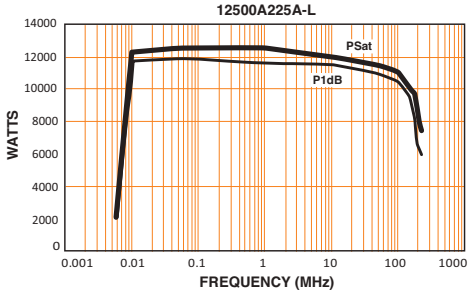
Rated Output Power
Nominal 11,000 watts
Minimum 10,000 watts, .01 - 100 MHz, 6000 watts, 100 - 225 MHz
Input For Rated Output 1.0 milliwatt max.
Power Output for 1dB compression
Nominal 8000 watts
Minimum 7000 watts, .01 - 100 MHz, 4000 watts, 100 - 225 MHz
Flatness ±3.0 dB max.
±1.0 dB with internal leveling
Frequency Response 10 kHz - 225 MHz instantaneously
Gain (at max. setting) 70 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, nominal
Mismatch Tolerance
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 5000 watts reflected power, from 10 kHz to 100 MHz. Limited to 3000 watts reflected power from 100 MHz to 225 MHz.
Harmonic Distortion Minus 20 dBc max. at 6000 watts
Third Order Intercept Point 77 dBm typ.
RF Power Display 0 - 15,000 watts full scale
RF Rise/Fall Time 150 nanoseconds max.
Primary Power (user must specify):
190 - 240 VAC, Delta (4 wire)
380 - 480 VAC, Delta (4 wire)
47 - 63 Hz, 3-phase
40,000 watts max. at .95 P.F. typ.
Connectors
RF Input Type N female on rear panel
RF Output Type EIA 1-5/8 male on rear panel
Forward Sample Type N female on front panel (coupling factor 80dB typ.)
Reverse Sample Type N female on front panel (coupling factor 80dB typ.)
Pulse Modulation Input Type BNC female on rear panel
Safety Interlock 15 pin female Type D on rear panel
Remote Control
IEEE-488 24-pin female on rear panel
RS-232 9-pin female Type D on rear panel
RS-232 (fiber optic): Type ST, rear panel
USB 2.0: Type B female, rear panel
Ethernet: RJ-45
Cooling
Forced air (self contained fans with internal liquid cooling)
Weight 500 kg (1100 lb)
Size (WxHxD)
112.1 x 82.4 x 165.3 cm / 44.12 x 32.43 x 65.1 in



12500A225A-L

12,500 watts CW, 10 kHz-225 MHz

Rated Output Power
Nominal 12,500 watts
Minimum 10,000 watts, .01 - 100 MHz, 6000 watts, 100 - 225 MHz
Input For Rated Output 1.0 milliwatt max.
Power Output for 1dB compression
Nominal 11,000 watts
Minimum 10,000 watts, .01 - 100 MHz, 5000 watts, 100 - 225 MHz
Flatness ±3.0 dB max.
±1.0 dB with internal leveling
Frequency Response 10 kHz - 225 MHz instantaneously
Gain (at max. setting) 71 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, nominal
Mismatch Tolerance
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 5000 watts reflected power, from 10 kHz to 100 MHz. Limited to 3000 watts reflected power from 100 MHz to 225 MHz.
Harmonic Distortion Minus 20 dBc max. at 8000 watts
Third Order Intercept Point 77 dBm typ.
RF Power Display 0 - 15,000 watts full scale
RF Rise/Fall Time 150 nanoseconds max.
Primary Power (user must specify)
190 - 240 VAC Delta (4 wire)
380 - 480 VAC, Delta (4 wire)
47 - 63 Hz, 3-phase
45,000 watts max. at .95 P.F. typ.
Connectors
RF Input Type N female on rear panel
RF Output Type EIA 1-5/8 male on rear panel
Forward Sample Type N female on front panel (coupling factor 80dB typical)
Reverse Sample Type N female on front panel (coupling factor 80dB typical)
Pulse Modulation Input Type BNC female, rear panel
Safety Interlock 15 pin female Type D on rear panel
Remote Control
IEEE-488 24 pin female on rear panel
RS-232 9-pin female Type D on rear panel
USB 2.0 Type B female, rear
Ethernet RJ-45
Cooling
Liquid cooled via external chilled water supply
Weight (max.) 500 kg (1100 lb)
Size (WxHxD)
112.1 x 82.4 x 165.3 cm / 44.12 x 32.43 x 65.1 in
Export classification EAR99



* See Application Note #27A at www.arworld.us/appnote27/

16000A225A-A

16,000 watts CW, 10 kHz-225 MHz

Rated Output Power
- Nominal: 17,000 watts
- Minimum: 16,000 watts, .01 - 100 MHz, 12,000 watts, 100 - 225 MHz

Input For Rated Output: 1.0 milliwatt max.

Power Output for 1dB compression
- Nominal: 15,000 watts
- Minimum: 14,000 watts, .01 - 100 MHz,

Flatness: ±3.0 dB max. ±1.0 dB with internal leveling

Frequency Response: 10 kHz - 225 MHz instantaneously

Gain (at max. setting): 72.05 dB min.

Gain Adjustment (continuous range): 20 dB min.

Input Impedance: 50 ohms, VSWR 2.0:1 max.

Output Impedance: 50 ohms, nominal

Mismatch Tolerance*
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 8000 watts reflected power from 10kHz - 100MHz. Limited to 7000 watts reflected power from 100MHz - 225MHz.

Modulation Capability
Will faithfully reproduce AM, FM or Pulse modulation appearing on the input signal.

Harmonic Distortion: Minus 20 dBc max. at 10,000 watts

Third Order Intercept Point: 77 dBm typ.

RF Power Display: 0 - 20,000 watts full scale

RF Rise/Fall Time: 150 nanoseconds max.

Primary Power (user must specify)
- 190 - 240 VAC, Delta (4 wire)
- 380 - 480 VAC, Delta (4 wire)
- 47 - 63 Hz, 3-phase
- 75,000 watts max. at .95 P.F. typ.

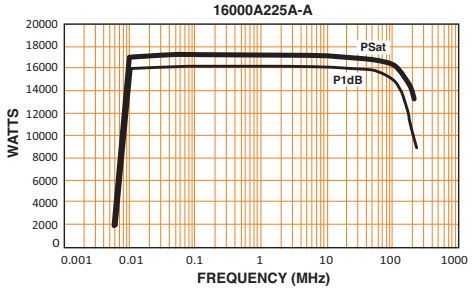
Connectors
- RF Input: Type N female on rear panel
- RF Output: Type EIA 3-1/8 male on rear panel
- Forward Sample: N female, front (coupling factor 84dB typ.)
- Reverse Sample: N female, front (coupling factor 84dB typ.)
- Pulse Modulation Input: BNC female on rear panel
- Safety Interlock: 15 pin female Type D on rear panel
- Remote Control
  - IEEE-488: 24 pin female, rear
  - RS-232: 9 pin female D, rear
  - RS-232 (fiber optic): Type ST, rear
  - USB 2.0: Type B female, rear
  - Ethernet: RJ-45

Cooling
Forced air (self contained fans with internal liquid cooling)

Weight: 997 kg (2200 lb)

Size (WxHxD)
226.7 x 99.1 x 177.8 cm / 89.25 x 39 x 70 in

Export classification: EAR99



20000A225A-L

20,000 watts CW, 10 kHz-225 MHz

Rated Output Power
- Nominal: 20,000 watts
- Minimum: 18,000 watts, .01 - 100 MHz, 13,000 watts, 100 - 225 MHz

Input For Rated Output: 1.0 milliwatt max.

Power Output for 1dB compression
- Nominal: 17,000 watts
- Minimum: 16,000 watts, .01 - 100 MHz, 10,000 watts, 100 - 225 MHz

Flatness: ±3.0 dB max. ±1.0 dB with internal leveling

Frequency Response: 10 kHz - 225 MHz instantaneously

Gain (at max. setting): 72.5 dB min.

Gain Adjustment (continuous range): 20 dB min.

Input Impedance: 50 ohms, VSWR 2.0:1 max.

Output Impedance: 50 ohms, nominal

Mismatch Tolerance*
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 9000 watts reflected power from 10kHz - 100MHz. Limited to 7000 watts reflected power from 100MHz - 225MHz.

Modulation Capability
Will faithfully reproduce AM, FM or Pulse modulation appearing on the input signal.

Harmonic Distortion: Minus 20 dBc max. at 12,000 watts

Third Order Intercept Point: 77 dBm typ.

RF Power Display: 0 - 25,000 watts full scale

RF Rise/Fall Time: 150 nanoseconds max.

Primary Power (user must specify)
- 380 - 480 VAC, Delta (4 wire)
- 47 - 63 Hz, 3-phase
- 85,000 watts max. at .95 P.F. typ.

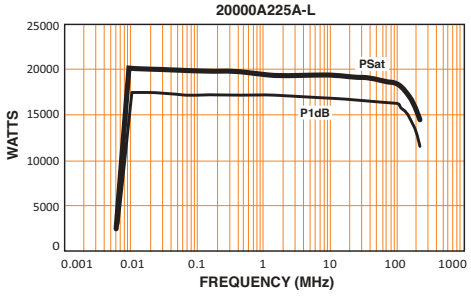
Connectors
- RF Input: Type N female on rear panel
- RF Output: Type EIA 3-1/8 male on rear panel
- Forward Sample: N female, front (coupling factor 84dB typ.)
- Reverse Sample: N female, front (coupling factor 84dB typ.)
- Pulse Modulation Input: BNC female on rear panel
- Safety Interlock: 15 pin female Type D on rear panel
- Remote Control
  - IEEE-488: 24 pin female, rear
  - RS-232: 9 pin female D, rear
  - RS-232 (fiber optic): Type ST, rear
  - USB 2.0: Type B female, rear
  - Ethernet: RJ-45

Cooling
Liquid cooled via external chilled water supply

Weight: 997 kg (2200 lb)

Size (WxHxD)
226.7 x 99.1 x 177.8 cm / 89.25 x 39 x 70 in

Export classification: EAR99



25A250B

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 @ 3dB compression
Typ. 35 watts / Min. 25 watts

Power Output @ 1dB compression
Typ. 30 watts / Min. 20 watts

Flatness: ±1.0 dB typ. / ±1.5 dB max.

Frequency Response: 10 kHz - 250 MHz instantaneously

Gain (at max. setting): 44 dB min.

Gain Adjustment (continuous range): 20 dB min.

Input Impedance: 50 ohms, VSWR 2.0:1 max.

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.

Noise Figure: 8 dB typ.

Primary Power
- 100 - 240 VAC
- 50 / 60 Hz, 200 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
- USB 2.0: Type B
- Ethernet: RJ-45

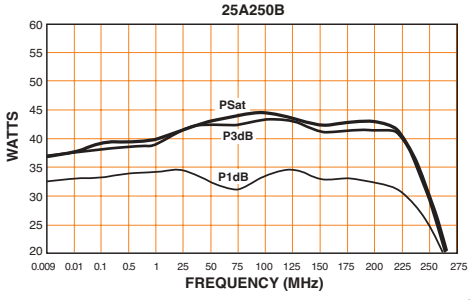
Safety Interlock: 15 Pin Subminiature D

Cooling: Forced air (self contained fans)

Weight
- With cabinet: 16.7 kg (37 lb)
- Without cabinet: 8.6 kg (19 lb)

Size (WxHxD)
- With cabinet: 50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in
- Without cabinet: 48.3 x 13.2 x 55.1 cm / 19.8 x 5.2 x 21.7 in

Export classification: EAR99



50A250

50 watts CW. 10 kHz-250 MHz.

Rated Output Power 70 watts typ., 50 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typ. 70 watts / Min. 50 watts
Power Output @ 1dB compression
Typ. 55 watts / Min. 40 watts
Flatness ±1.0 dB typ. / ±1.5 dB max.
Frequency Response 10 kHz - 250 MHz instantaneously
Gain (at max. setting) 47 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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.
Harmonic Distortion
Minus 20 dBc max. at 40 watts,
Minus 30 dBc typ. at 30 watts
Spurious Minus 73 dBc typ.
Third Order Intercept Point 55 dBm typ.
Noise Figure 8 dB typ.
Primary Power
100 - 240 VAC
50 / 60 Hz, 250 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
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15 Pin Subminiature D
Cooling Forced air (self contained fans)
Weight
With cabinet 16.7 kg (37 lb)
Without cabinet 8.6 kg (19 lb)
Size (WxHxD)
With cabinet 50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in
Without cabinet 48.3 x 13.2 x 55.1 cm / 19.8 x 5.2 x 21.7 in
Export classification EAR99

125A250

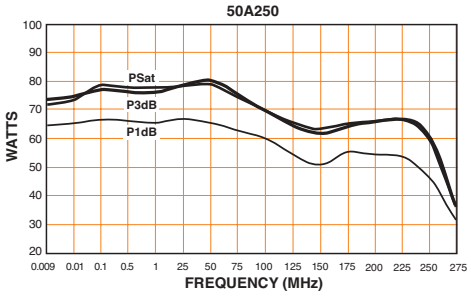
125 watts CW, 10 kHz-250 MHz

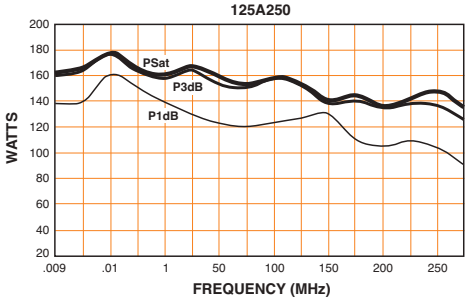
Rated Output Power 150 watts typ., 125 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typical: 145 watts / Min. 125 watts
Power Output @ 1dB compression
Typical: 110 watts / Min. 90 watts
Flatness ±1.0 dB typ., ±1.5 dB max.
Frequency Response 10 kHz - 250 MHz instantaneously
Gain (at max. setting) 50 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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.
Noise Figure 8 dB typ.
Harmonic Distortion
Minus 20 dBc max. at 90 watts
Minus 30 dBc typ. at 70 watts
Third Order Intercept Point 55 dBm typ.
Spurious Minus 73 dBc typ.
Primary Power
100 - 240 VAC
50/60Hz
500 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
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15-pin subminiature D
Cooling Forced air (self contained fans)
Weight 18.5 kg (41 lb)
Size (WxHxD)
50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in
Export classification EAR99

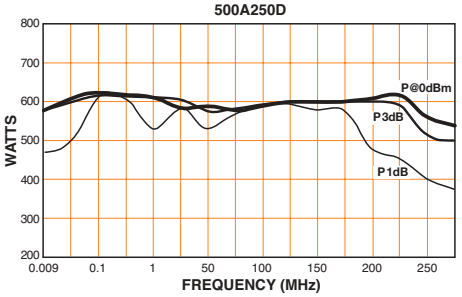
500A250D

500 watts CW, 10 kHz-250 MHz

Rated Output Power
600 watts typ., 500 watts min., .01 - 250 MHz
Power Output @ 3dB compression
600 watts typ., 500 watts min., .01 - 200 MHz
550 watts typ., 475 watts min., 200 MHz - 250 MHz
Power Output @ 1dB compression
525 watts typ., 400 watts min., .01 - 200 MHz
425 watts typ., 375 watts min., 200 MHz - 250 MHz
Flatness ±1.5 dB typ., ±2.0 dB max.
Frequency Response 10 kHz - 250 MHz instantaneously
Gain (at max. setting) 57 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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.
Noise Figure 7 dB typ.
Harmonic Distortion
Minus 20 dBc max. at 400 watts; <-20dBc typ. at 500 watts
Third Order Intercept Point 68 dBm typ.
Spurious Minus 73 dBc typ.
Primary Power
200 - 240 VAC
50 / 60Hz, 2400 watts
Connectors
RF Input Type N female
RF Output Type N female
RF Sample Ports Type N female (optional)
Remote Interfaces
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)
Weight
With Cabinet 78 kg (171 lb)
Without Cabinet 58 kg (128 lb)
Size (WxHxD)
With Cabinet 50.3 x 38.1 x 75.5 cm (19.8 x 15.0 x 29.7 in)
Without Cabinet 48.3 x 35.6 x 75.5 cm (19 x 14.0 x 29.7 in)
Export classification EAR99







* See Application Note #27A at www.arworld.us/appnote27/

10 kHz to 400 MHz

100A400A

100 watts CW, 10 kHz-400 MHz

Rated Output Power	130 watts typ., 100 watts min.
Input For Rated Output	1.0 milliwatt max.
Power Output @ 3dB compression	
Typ. 125 watts / Min. 100 watts	
Power Output @ 1dB compression	
Typ. 85 watts / Min. 75 watts	
Flatness	±1.0 dB typ. / ±1.5 dB max.
Frequency Response	10 kHz - 400 MHz instantaneously
Gain (at max. setting)	50 dB min.
Gain Adjustment (continuous range)	20 dB min.
Input Impedance	50 ohms, VSWR 2.0:1 max.
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.	
Harmonic Distortion	
Minus 20 dBc max. at 75 watts, Minus 30 dBc typical at 50 watts	
Spurious	Minus 73 dBc typ.
Third Order Intercept Point	55 dBm typ.
Noise Figure	8 dB typ.
Primary Power	
100 - 240 VAC	
50 / 60 Hz, 500 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
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 Pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	
With cabinet	18.5 kg (41 lb)
Without cabinet	10.4 kg (23 lb)
Size (WxHxD)	
With cabinet	50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in
Without cabinet	48.3 x 13.2 x 55.1 cm / 19.8 x 5.2 x 21.7 in
Export classification	EAR99

175A400

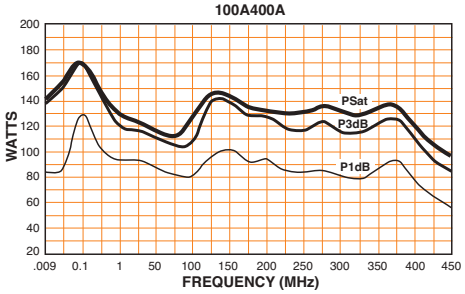
175 watts CW, 10 kHz-400 MHz

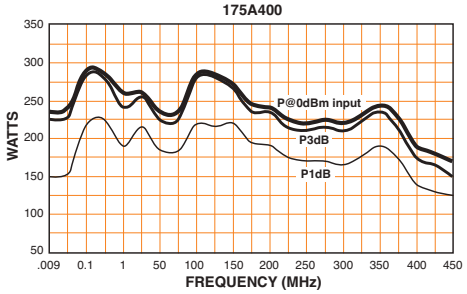
Rated Output Power	225 watts typ., 175 watts min.
Input For Rated Output	1.0 milliwatt max.
Power Output @ 3dB compression	
Typ. 210 watts / Min. 165 watts	
Power Output @ 1dB compression	
Typ. 165 watts / Min. 125 watts	
Flatness	±0.9 dB typ. / ±1.5 dB max.
Frequency Response	10 kHz - 400 MHz instantaneously
Gain (at max. setting)	52.5 dB min.
Gain Adjustment (continuous range)	20 dB min.
Input Impedance	50 ohms, VSWR 2.0:1 max.
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.	
Harmonic Distortion	
Minus 20 dBc max. at 150 watts	
Spurious	Minus 73 dBc typ.
Third Order Intercept Point	60 dBm typ.
Noise Figure	8.5 dB typ.
Primary Power	
100 - 240 VAC	
50 / 60 Hz, 770 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
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 Pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	
With cabinet	33 kg (73 lb)
Without cabinet	22 kg (48 lb)
Size (WxHxD)	
With cabinet	50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in
Without cabinet	48.3 x 17.7 x 74.9 cm / 19 x 7 x 29.5 in
Export Classification	EAR99

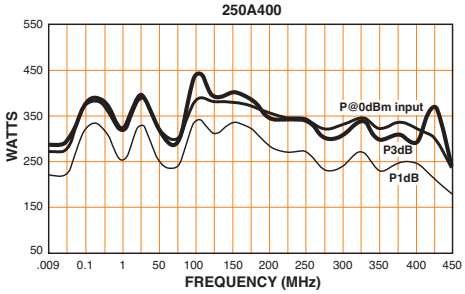
250A400

250 watts CW, 10 kHz-400 MHz

Rated Output Power	325 watts typ., 250 watts min.
Input For Rated Output	1.0 milliwatt max.
Power Output @ 3dB compression	
Typ. 325 watts / Min. 250 watts	
Power Output @ 1dB compression	
Typ. 250 watts / Min. 200 watts	
Flatness	±1.5 dB typ. / ±2.0 dB max.
Frequency Response	10 kHz - 400 MHz instantaneously
Gain (at max. setting)	54 dB min.
Gain Adjustment (continuous range)	20 dB min.
Input Impedance	50 ohms, VSWR 2.0:1 max.
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.	
Harmonic Distortion	
Minus 20 dBc max. at 200 watts	
Spurious	Minus 73 dBc typ.
Third Order Intercept Point	65 dBm typ.
Noise Figure	8.5 dB typ.
Primary Power	
100 - 240 VAC	
50 / 60 Hz, 1350 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
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 Pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	
With cabinet	45 kg (98 lb)
Without cabinet	33 kg (73 lb)
Size (WxHxD)	
With cabinet	50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in
Without cabinet	48.3 x 17.7 x 74.9 cm / 19 x 7 x 29.5 in
Export Classification	EAR99



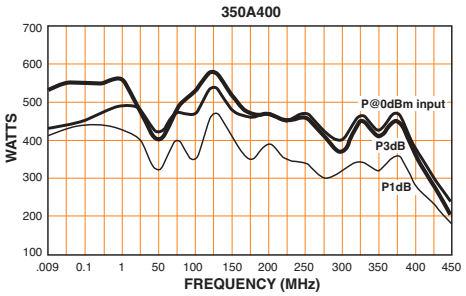




350A400

350 watts CW, 10 kHz-400 MHz

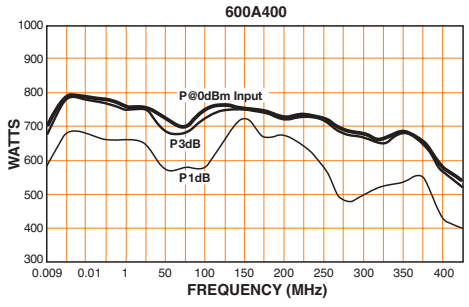
Rated Output Power 425 watts typ., 350 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typ. 400 watts / Min. 325 watts
Power Output @ 1dB compression
Typ. 325 watts / Min. 225 watts
Flatness ±1.5 dB typ. / ±2.0 dB max.
Frequency Response 10 kHz - 400 MHz instantaneously
Gain (at max. setting) 55.5 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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.
Harmonic Distortion
Minus 20 dBc max. at 300 watts
Spurious Minus 73 dBc typ.
Third Order Intercept Point 65 dBm typ.
Noise Figure 8.5 dB typ.
Primary Power
100 - 240 VAC
50 / 60 Hz, 1750 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
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15 Pin Subminiature D
Cooling Forced air (self contained fans)
Weight
With cabinet 48 kg (104 lb)
Without cabinet 35 kg (78 lb)
Size (WxHxD)
With cabinet 50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in
Without cabinet 48.3 x 17.7 x 74.9 cm / 19 x 7 x 29.5 in
Export Classification EAR99



600A400

600 watts CW, 10 kHz-400 MHz

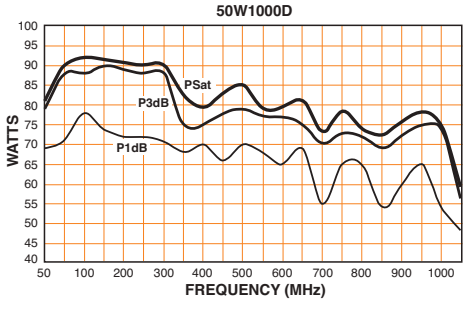
Rated Output Power
700 watts typ., 600 watts min.; .01 - 250MHz
600 watts typ., 500 watts min., 250MHz - 400MHz
Power Output @ 3dB compression
650 watts typ., 600 watts min.; .01 - 250MHz
600 watts typ., 500 watts min., 250MHz - 400MHz
Power Output @ 1dB compression
575 watts typ., 500 watts min.; .01 - 250MHz
500 watts typ., 400 watts min., 250MHz - 400MHz
Flatness ±1.5 dB typ. / ±2.0 dB max.
Frequency Response 10 kHz - 400 MHz instantaneously
Gain (at max. setting) 57.8 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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.
Harmonic Distortion
Minus 20 dBc max. at 500 watts
Spurious Minus 73 dBc typ.
Third Order Intercept Point 67 dBm typ.
Noise Figure 7.5 dB typ.
Primary Power
200 - 240 VAC
50 / 60 Hz, 2950 watts
Connectors
RF Input Type N female
RF Output Type 7/16 DIN
RF Sample Ports: Type N female (optional)
Remote Interfaces
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)
Weight
With cabinet 87 kg (191 lb)
Without cabinet 68 kg (148 lb)
Size (WxHxD)
With cabinet 50.3 x 38.1 x 75.5 cm / 19.8 x 15.0 x 29.7 in
Without cabinet 48.3 x 35.6 x 75.5 cm / 19 x 14.0 x 29.7 in
Export Classification EAR99



50W1000D

50 watts CW, 50-1000 MHz

Rated Output Power 70 watts typ., 50 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typ. 70 watts / Min. 60 watts
Power Output @ 1dB compression
Typ. 60 watts / Min. 45 watts
Flatness ±1.0 dB typ. / ±1.5 dB max.
Frequency Response 50 MHz - 1000 MHz instantaneously
Gain (at max. setting) 48 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
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 50 watts,
Minus 30 dBc typ. at 50 watts
Spurious Minus 73 dBc typ.
Third Order Intercept Point 55 dBm typ.
Noise Figure 8 dB typ.
Primary Power
100 - 240 VAC
50 / 60 Hz, 250 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
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15 Pin Subminiature D
Cooling Forced air (self contained fans)
Weight
With cabinet 17.7 kg (39 lb)
Without cabinet 9.5 kg (21 lb)
Size (WxHxD)
With cabinet 50.3 x 15.5 x 55.1 cm / 19.8 x 6.1 x 21.7 in
Without cabinet 48.3 x 13.2 x 55.1 cm / 19.8 x 5.2 x 21.7 in
Export classification EAR99



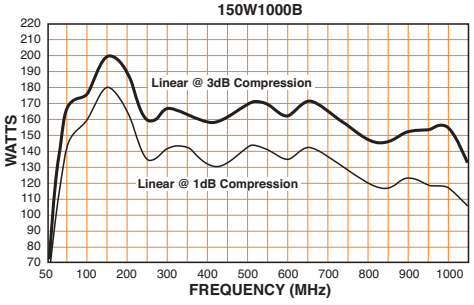
* See Application Note #27A at www.arworld.us/appnote27/

80 to 1000 MHz

150W1000B

150 watts CW, 80-1000 MHz

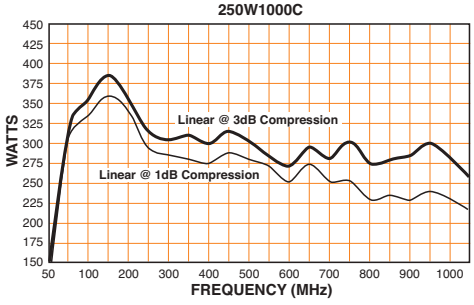
Rated Output Power 160 watts typical, 130 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 150 watts / Min. 125 watts
Power Output @ 1dB compression
Nominal 125 watts / Min. 100 watts
Flatness ±1.5 dB typ. / ±2.0 dB max.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 52 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
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. See Application Note #27.
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 100 watts; minus 30 dBc typical at 100 watts
Third Order Intercept Point 58 dBm typ.
Spurious Minus 73 dBc typ.
Primary Power
100-240 VAC,
50/60Hz, 650 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)
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)
Weight
With cabinet 36.7 kg (81 lbs)
Without cabinet 25.4 kg (56 lbs)
Size (WxHxD)
With cabinet 50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in
Without cabinet 48.3 x 17.7 x 74.9 cm / 19 x 7.0 x 29.5 in
Export Classification EAR99



250W1000C

250 watts CW, 80-1000 MHz

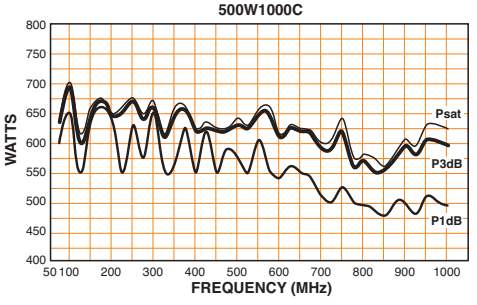
Rated Output Power 250 watts
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typical: 300 watts, Minimum: 275 watts up to 500 MHz;
250 watts 500-1000MHz
Power Output @ 1dB compression
Typical: 250 watts, Minimum: 225 watts up to 500 MHz;
200 watts 500-1000MHz
Flatness
±2.0 dB max. / 1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 59 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
Output Impedance 50 ohms, nominal
Mismatch Tolerance
100% of rated power with-out foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. See Application Note #27.
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.
Spurious Minus 73 dBc typ.
Primary Power
100-240 VAC
50/60Hz, 1000 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)
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)
Weight 42.6 kg (94 lbs)
Size (WxHxD)
50.3 x 20.5 x 74.9 cm / 19.8 x 8.1 x 29.5 in
Export Classification EAR99



500W1000C

500 watts CW, 80-1000 MHz

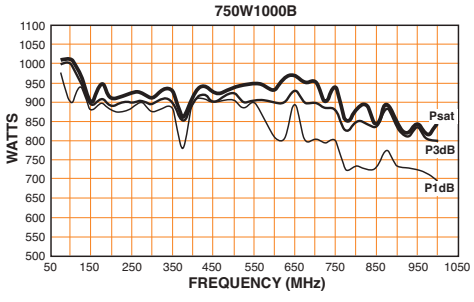
Rated Output Power 600 watts typical, 500 watts Minimum
Input For Rated Output 1.0 mW max.
Power Output @ 3dB compression
Typical: 575 watts, Minimum: 525 watts up to 700 MHz;
475 watts 700-1000MHz
Power Output @ 1dB compression
Typical: 500 watts, Minimum:450 watts up to 700 MHz;
425 watts 700-1000MHz
Flatness
±1.0 dB max. / 1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 57 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
Output Impedance 50 ohms, nominal
Mismatch Tolerance
100% of rated power with-out foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. See Application Note #27.
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 425 watts; minus 30 dBc typical at 425 watts
Third Order Intercept Point 63 dBm typ.
Spurious Minus 73 dBc typ.
Primary Power
100-240 VAC
50/60Hz, 1800 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
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15 pin Subminiature D
Cooling Forced air (self contained fans)
Weight With Cabinet 69.4 kg (153 lbs)
Without Cabinet 50.8 kg (112 lbs)
Size (WxHxD)
With cabinet: 50.3 x 38.1 x 74.9 cm / 19.8 x 15 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 EAR99



750W1000B

750 watts CW, 80-1000 MHz

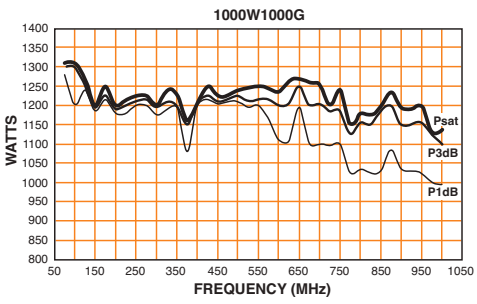
Rated Output Power 850 watts typ., 750 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typical: 900 watts, Minimum: 775 watts up to 700 MHz; 725 watts 700-1000MHz
Power Output @ 1dB compression
Typical: 750 watts, Minimum: 700 watts up to 700 MHz; 650 watts 700-1000MHz
Flatness
±1.5 dB max. / 1.0 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 58.8 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
Output Impedance 50 ohms, nominal
Mismatch Tolerance
100% of rated power with-out foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. See Application Note #27.
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 700 watts; minus 20 dBc typical at 750 watts
Third Order Intercept Point 64 dBm typ.
Spurious Minus 73 dBc typ.
Primary Power
200-240 VAC
50/60Hz, 3300 watts
Connectors
RF Input Type N female on front panel
RF Output Type 7-16 DIN female on rear panel
Remote Interfaces
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)
Weight 113.4 kg (250 lbs)
Size (WxHxD)
56.1 x 97.8 x 82.5 cm / 22.1 x 38.5 x 32.5 in
Export Classification EAR99



1000W1000G

1,000 watts CW, 80-1000 MHz

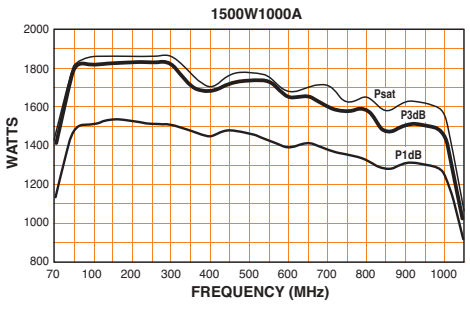
Rated Output Power 1200 watts typ., 1000 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Typical: 1200 watts / 1100 watts min. up to 700 MHz; 950 watts from 700 to 1000 MHz
Power Output @ 1dB compression
Typical: 1000 watts / 975 watts min. up to 700 MHz, 900 watts from 700 to 1000 MHz
Flatness ±1.5 dB max; ±1.0 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 60 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max; 1.5:1 typ.
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.
Harmonic Distortion
Minus 20 dBc max. at 900 watts, -20 dBc typ. @ 1000 watts
Third Order Intercept Point 66 dBm typ.
Spurious Minus 73 dBc typ.
Noise Figure 8 dB max., 6 dB typ.
Primary Power
200 - 240 VAC,
50 / 60 Hz, 4000 watts
Connectors
RF Input Type N female
RF Output Type 7-16 DIN female on rear panel
Remote Interfaces
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
Weight (approximate) 124.8 kg (275 lb)
Size (WxHxD)
56.1 x 97.8 x 82.5 cm / 22.1 x 38.5 x 32.5 in
Export Classification EAR99



1500W1000A

1,500 watts CW, 80-1000 MHz

Rated Output Power 1500 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 1600 watts / 1500 watts min. up to 700 MHz; 1400 watts from 700 to 1000 MHz
Power Output @ 1dB compression
Nominal 1450 watts / 1400 watts min. up to 700 MHz; 1250 watts min. from 700 to 1000 MHz
Flatness ±2.0 dB max. / ±1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 61.8 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
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.
Harmonic Distortion Minus 20 dBc max. at 1350 watts, -20 dBc typ. at 1500 watts
Third Order Intercept Point 68 dBm typ.
Noise Figure 8 dB max., 6 dB typ.
Primary Power (user must specify)
200 - 240 VAC
50 / 60 Hz, 3 phase, 7000 watts
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 (-63 dBc)
Reverse Sample Type N female, front (-63 dBc)
Remote Interfaces:
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 female subminiature D, rear panel
Cooling
Forced air (self contained fans), enters front and bottom
Weight (approximate) 182 kg (400 lb)
Size (WxHxD)
56.1 x 175.3 x 97.6 cm / 22.1 x 69 x 38.4 in



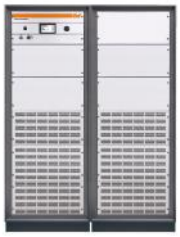
* See Application Note #27A at www.arworld.us/appnote27/

2000W1000D

2,000 watts CW, 80-1000 MHz

Rated Output Power 2000 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 2100 watts / 2000 watts min. up to 500 MHz;
1650 watts from 500 to 1000 MHz
Power Output @ 1dB compression
Nominal 1850 watts / 1750 watts min. up to 500 MHz;
1400 watts min. from 500 to 1000 MHz
Flatness ±2.0 dB max. / ±1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 63 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
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.
Harmonic Distortion Minus 20 dBc max. at 1600 watts, -20 dBc typ. at 2000 watts
Third Order Intercept Point 70 dBm typ.
Primary Power (user must specify)
200 - 240 VAC, Delta-connected (4-wire)
380 - 415 VAC, Wye-connected (5-wire)
50 / 60 Hz, 3 phase, 9000 watts
Connectors
RF Input Type N female on rear panel
RF Output Type 1 5/8 female on rear panel
Forward Sample N female, front (-63 dBc)
Reverse Sample N female, front (-63 dBc)
Remote Interfaces:
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 female subminiature D, rear panel
Cooling Forced air (self contained fans)
Weight (approximate) 218 kg (480 lb)
Size (WxHxD) (3 cabinets)
56.1 x 173 x 82.3 cm / 22.1 x 68 x 32.4 in

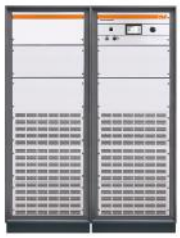
3000W1000B



3,000 watts CW, 80-1000 MHz

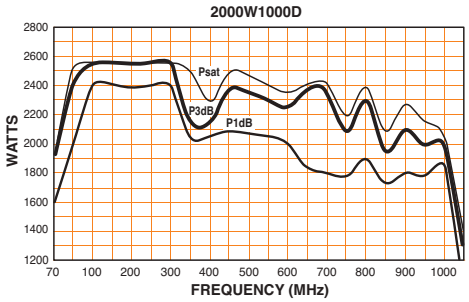
Rated Output Power 2800 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 3000 watts / 2600 watts min. up to 500 MHz;
2400 watts from 500 to 1000 MHz
Power Output @ 1dB compression
Nominal 2500 watts / 2250 watts min. up to 500 MHz;
1850 watts from 500 to 1000 MHz
Flatness ±2.0 dB max. / ±1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 64.8 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Output Impedance 50 ohms, nominal
Mismatch Tolerance*
100% of rated power without foldback up to 6.0:1 mismatch above, which may limit to 1500 watts reflected power.
Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
Harmonic Distortion Minus 20 dBc max. at 2400 watts, -20 dBc typ. at 3000 watts
Third Order Intercept Point 72 dBm typ.
Noise Figure 8 dB max., 6 dB typ.
Primary Power (user must specify)
200 - 240 VAC
360 - 435 VAC Wye connected (5-wire)
50 / 60 Hz, 3 phase, 14kVA
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
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 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 82.3 cm / 44 x 70 x 32.4 in

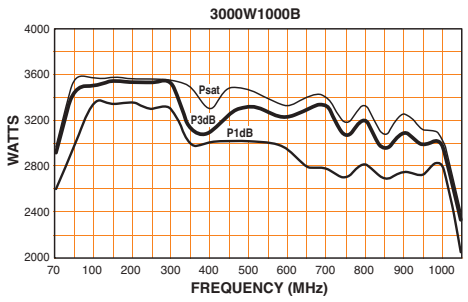
4000W1000B

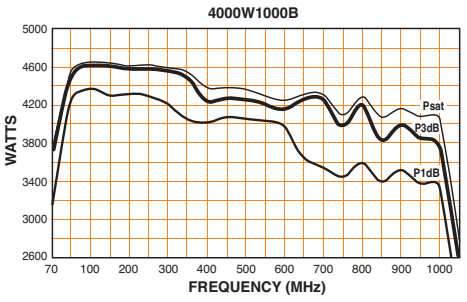


4,000 watts CW, 80-1000 MHz

Rated Output Power 3700 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 4000 watts / 3600 watts min. up to 500 MHz;
3400 watts from 500 to 1000 MHz
Power Output @ 1dB compression
Nominal 3500 watts / 3000 watts min. up to 500 MHz;
2500 watts from 500 to 1000 MHz
Flatness ±2.0 dB max. / ±1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 66 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Output Impedance 50 ohms, nominal
Mismatch Tolerance*
100% of rated power without foldback up to 6.0:1 mismatch above, which may limit to 2000 watts reflected power.
Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
Harmonic Distortion Minus 20 dBc max. at 3400 watts, -20 dBc typ. at 4000 watts
Third Order Intercept Point 73 dBm typ.
Noise Figure 8 dB max., 6 dB typ.
Primary Power (user must specify)
200 - 240 VAC
360 - 435 VAC Wye connected (5-wire)
50 / 60 Hz, 3 phase, 17.5kVA
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
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 female subminiature D, rear panel
Cooling
Forced air (self contained fans), enters front and bottom
Weight (approximate) 432 kg (950 lb)
Size (WxHxD) (2 joined cabinets)
111.8 x 177.8 x 82.3 cm / 44 x 70 x 38.4 in



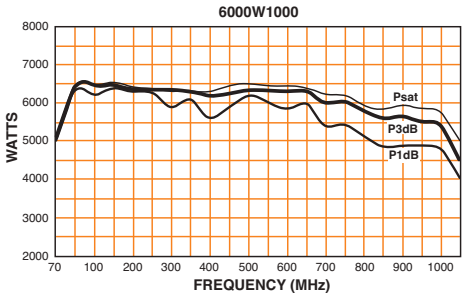




6000W1000

6,000 watts CW, 80-1000 MHz

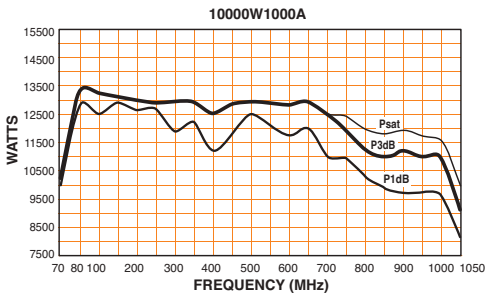
Rated Output Power 6000 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 6000 watts / 5500 watts min. up to 700 MHz;
5100 watts from 700 to 1000 MHz
Power Output @ 1dB compression
Nominal 5500 watts / 5000 watts min. up to 700 MHz;
4500 watts from 700 to 1000 MHz
Flatness ±2.0 dB max. / ±1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 67.8 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Output Impedance 50 ohms, nominal
Mismatch Tolerance*
100% of rated power without foldback up to 6.0:1 mismatch above, which may limit to 3000 watts reflected power.
Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
Harmonic Distortion Minus 20 dBc max. at 5500 watts, -20 dBc typ. at 6000 watts
Third Order Intercept Point 75 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, 24kVA
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
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 female subminiature D, rear panel
Cooling
Forced air (self contained fans), enters front and bottom
Weight (approximate) 703 kg (1550 lb)
Size (WxHxD) (3 joined cabinets)
170 x 183 x 99 cm / 67 x 72 x 39 in
Export classification EAR99



10000W1000A

10,000 watts CW, 80-1000 MHz

Rated Output Power Nominal, 12500 watts
12000 watts min. up to 700 MHz
10500 watts min., 700 to 1000 MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 12500 watts / 12000 watts min. up to 700 MHz;
10000 watts from 700 to 1000 MHz
Power Output @ 1dB compression
Nominal 11000 watts / 10500 watts min. up to 700 MHz;
9500 watts from 700 to 1000 MHz
Flatness ±2.0 dB max. / ±1.5 dB typ.
Frequency Response 80 - 1000 MHz instantaneously
Gain (at max. setting) 70 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Output Impedance 50 ohms, nominal
Mismatch Tolerance*
100% of rated power without foldback, up to 6.0:1. Mismatch above which may limit to 6000 watts reflected power.
Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
Modulation Capability
Faithfully reproduces AM, FM, or Pulse modulation appearing on input signal.
Harmonic Distortion Minus 20 dBc max. at 10000 watts, -25 dBc typ. at 10000 watts
Third Order Intercept Point 78 dBm typ.
Noise Figure 8 dB max., 6 dB typ.
Primary Power (specify voltage)
200 - 240 VAC Delta connected (4-wire),
360 - 435 VAC Wye connected (5-wire)
50 / 60 Hz, three phase, 48000W
Connectors
RF Input Type N female on rear panel
RF Output Type 4-1/16 EIA, rear panel
Forward Sample N female, front (-70 dBc)
Reverse Sample N female, front (-70 dBc)
Remote Interfaces:
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 female subminiature D, rear panel
Cooling
Forced air (self contained fans), enters front and bottom
Weight (approximate) 1407 kg (3100 lbs)
Size (WxHxD)
340 x 183 x 99 cm / 134 x 72 x 39 in
Export classification EAR99



* See Application Note #27A at www.arworld.us/appnote27/