September 2007

# RF Power Amplifiers

## for EMC and General RF Testing

Model 800A
800 watts
10 kHz - 3 MHz

*"A" Series.*
*DC to 250 MHz.*
*25 to 10,000 watts.*

*"W" Series.*
*DC to 1,000 MHz.*
*1 to 4,000 watts.*

*"L" Series.*
*Distributed Tube Amplifiers*
*10 kHz to 220 MHz.*
*1,000 to 10,000 watts.*

rf/microwave instrumentation

# *"We started the company in my basement. Because the only place we could go from there was up."*

*Don Shepherd, Founder*

*AR began in 1969 with just two men in a cellar, moonlighting from their regular jobs. Don ("Shep") Shepherd and his partner, Dan Roth, worked for AEL (American Electronics Laboratories), producing radio frequency design for military applications. They saw a market for their skills in designing amplifiers for test applications, but AEL was not set up for such jobs. So they decided to try and make it on their own, working out of a makeshift laboratory in Shep's cellar.*

*1969 – We sold our first amplifier for a total of $600 (including $60 for special connectors).*

*1970 – Moved out of Shep's cellar and up to small rented storefront.*

*1972 – Distribution expands into Europe.*

*1973 – Amplifier Research (AR) moves to new headquarters at 160 School House Rd. in Souderton, PA.*

*1976 – AR introduces first 10,000 watt tube amplifier (10 kHz – 100 MHz). It's still available, and there's still no equal.*

*1979 – Company passes $1 million in sales.*

*1987 – 75 employees now work for AR.*

*1988 – First 100 watt solid-state, 100-1000 MHz instantaneous bandwidth amplifier built.It weighed 215 lbs. and was 29.3" high.*

*1990 – Second building completed at headquarters. Sales exceed $10 million.*

*1992 – AR unveils first 500 watt solid-state amplifier (100 – 1000 MHz).*

*1994 – A third building is erected at 160 School House Rd.*

*1996 – AR reaches $25 million in sales with 100 employees.*

*2001 – The company expands it capabilities into amplifier modules and customized systems with the acquisition of Kalmus in Bothell, WA, now AR Modular RF. Back in Souderton, a fourth building is completed. Sales exceed $35 million.*

*2002 – Carmel Labs in Canoga Park, CA joins the AR family, becoming AR Receiver Systems.*

*2003 – First 10,000 watt / 100 kHz – 250 MHz solid-state amplifier for automotive/military/avionics testing created. Still the only 10,000 watt solid state available.*

*2004 – The little company that started in a cellar now has 125 employees.*

*2005 – New engineering department and microelectronics lab (clean room) open. Sales pass the $45 million mark.*

*2006 – New 15,000 sq. ft. building is completed at corporate headquarters with expanded production facilities to meet the ever-growing demand for AR products. 150 employees now work for AR.*

*2007– AR introduces first 10-20 GHz / 5 watt instantaneous bandwidth test amplifier.*

*AR, which now encompasses AR RF/Microwave Instrumentation, AR Modular RF, AR Receiver Systems and AR Europe, employs over 200 people and continues to lead the industry with innovative, superior quality, technologically-advanced products and a global support system that's second to none. We definitely have risen far from Shep's cellar.*

# "We're constantly trying to make our own products obsolete."

*Donald "Shep" Shepherd*
*President, AR*

AR has become the global leader in EMC, Wireless and beyond by consistently pushing the envelope, trying to outdo our own innovations; and by providing strategic solutions that include the most advanced products, the highest level of technical service, and an incomparable worldwide support system. The cornerstone of our success is our line of high-power amplifiers.

## *The Best-Performing, Most Reliable RF Test Amplifiers. Period.*

Our amplifiers perform beyond the norm, beyond expectations, and way beyond the abilities of other test amplifiers. The performance, mismatch capabilities, power, reliability, and the value of AR amplifiers have become legendary.

## *Infinite VSWR Tolerance Means More Power To You.*

Approximately 80% of the amplifiers in this brochure are completely immune to load VSWR. That means 100% of the power is available and delivered to the load 100% of the time. Our highest power amplifiers refuse to limit until VSWR exceeds 6.0:1 or 50% (of rated output) reflected power.

Competitive Class AB amplifiers respond to reflected power from high VSWR by limiting output power. Some actually shut down. We find that completely unacceptable.



# All "Class A" Is Not The Same.

Folding back is typical of Class AB and lesser-grade Class A designs. AR's Class A circuitry is built to higher standards; and that's why our amplifiers have such incredible load tolerance. Our Class A is better because:

- AR uses tandem push-pull transistor pairs. This arrangement is more rugged than the single output devices found in lesser grade Class A amplifiers.
- AR amplifiers use internal power combiners that can withstand high reflected power.
- AR amplifiers use only top quality, high-power internal directional couplers
- AR amplifiers use switching power supplies to increase efficiency and reduce internal heat load.

It's no wonder that only AR claims and delivers 100% rated power to the load!

## *There Are No Tradeoffs and No Compromises With Our "L" Series Tube Amplifiers.*

Power that ranges from 1000 watts to 10,000 watts, at frequencies from 10 kHz to 220 MHz. We created our own "hybrid" circuit design to deliver instant bandwidth and quick, high power in a single unit.

Solid-state intial stages drive vacuum-tube outputs and act as pre-amplifiers. Distributed amplifier tube configurations help keep output linear.

Occasionally, tube amplifiers become prone to the effects of plasma conducting or "arching" in the final stages of high-power applications. That's never a problem with AR's "L" series amplifiers. Fast-acting, solid-state crowbar circuits act as plasma arc or "short" sensors that warn SCRs (silicon controlled rectifiers). They pull voltage down 1/1000 the time required by other circuit designs. Plasma arching is rare, but protection from it is essential.

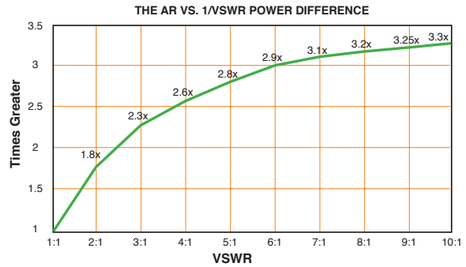
Most "L" series amplifiers are cooled by forced-air fans that maintain even airflow inside the cabinet. The cooling systems in the "L" series higher power amplifiers (models 2500L, 10,000L and 10,000LP) circulate oil through jackets surrounding tubes to remove heat; bringing temperatures down quickly to extend tube life.

# Good Enough Isn't Good Enough. So We Keep Tweaking.

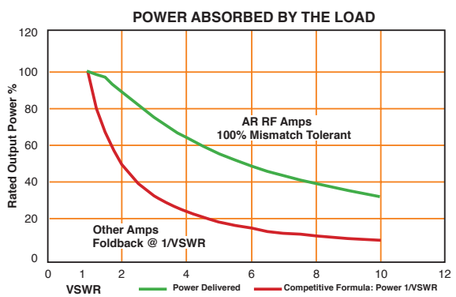
## *Solid State, Low Frequency Amplifiers.*

We're constantly under the cover of our amplifiers tweaking the major components and making improvements. After years of R&D, AR has perfected the technology of optimal module performance. The result is increased bandwidth and more power, especially at the high end of the frequency range.

Two modules, one from 100 kHz to 250 MHz and one from 100 kHz to 400 MHz, offer this new technology. These modules serve as basic building blocks for the 10,000A250A and 5,000A250A amplifiers, as well as for the 100A400 and 150A400 amplifiers for BCI applications.




*The Difference Is Several Times Greater.* Most AR amplifiers do not fold back or limit. The power absorbed by the load is many times greater than with competitive amplifiers that fold back at 1/VSWR.




*The Difference Is Power Delivered To The Load.* Since the output power of AR amplifiers does not fold back with VSWR, more power is absorbed in the load.



# Ready For The Future.

## *Expandable Power*

AR high-power "W" Series amplifiers allow you to add power to existing amps as needed. There's no need to toss out a perfectly good amp and start all over again. Our "Subampability" concept also enables you to add incremental power using existing amps.

See Application Note #40 Expandable Power for further details.

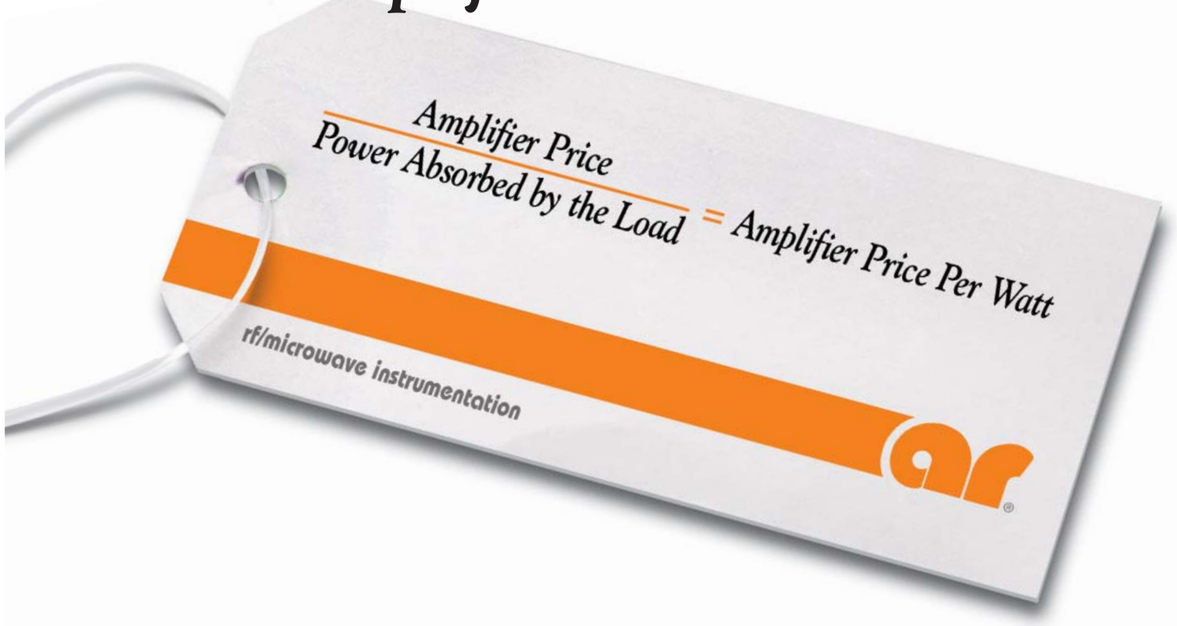
We design our amplifiers not just for today, but for tomorrow. Most models include:

- Digital Control Panels (DCP) in one of two formats: graphical vacuum fluorescent or two-line vacuum fluorescent
- Built-in IEEE - 488 Interface and RS-232 interface (Fiberoptic RS-232 on Graphical DCPs)
- Local and Remote Control (on DCP amplifiers)
- Forward and Reflected Power Readout (on graphical DCPs)
- Control Status and Internal Amplifier Status Reports
- USB and Ethernet – coming on selected new models

See individual amplifier spec sheets to verify the features on any amplifier.

***Subampability™: (sub-amp-ability). noun: The ability to use an amplifier individually, or as a building block, upon which power can be added incrementally.***

# A Better Amplifier And A Better Value. Watt For Watt, Our Amplifiers Cost Less!




Lower cost doesn't necessarily equal a better value. Not when you're paying for power that you never get.

The following equation will help you calculate the per-watt cost of your amplifier and the dollar-for-dollar value:

$$\frac{\text{Amplifier Price}}{\text{Power Absorbed by the Load}} = \text{Amplifier Price Per Watt}$$

You can get an idea of the true cost – and the real value – of AR amplifiers versus competitive amplifiers by applying this equation.

Consider a typical 100 watt AR Class A amplifier driving a high VSWR (100 watt output, 50% or 50 watts reflected at 6.0:1 and 50 watts absorbed by the load) at a cost of $20,000–

$$\frac{\$20{,}000}{50W} = \$400/watt$$

Compare this with a competitive 100 watt Class AB amplifier also driving a high VSWR (34 watts output, 50% or 17 watts reflected at 6.0:1 and 17 watts absorbed by the load) at a cost of $15,000–

$$\frac{\$15{,}000}{17W} = \$882/watt$$

These numbers clearly demonstrate that while the initial cost of AR amplifiers may be higher, the net result based on superior performance is greater value. In other words, our amplifiers provide more bang for the buck!



# The Most Comprehensive And Most Meaningful Warranty In The Industry.

AR Competitive Edge products supply a multitude of unique RF solutions to companies around the world. The company's limitless support network reaches the far corners of the globe. AR products are backed by the company's "Competitive Edge" warranty, the best and most comprehensive warranty in the industry. When companies purchase from any AR company they have the peace of mind that comes from knowing the global leader will be there to help with any problems today, tomorrow and always.

## *A Global Support Network That's Second To None.*

A warranty is only as good as the company and the people behind it. AR's highly-trained, experienced support staff is the best in the business. And they are right where you need them, in all the far corners of the globe. Help is just a phone call away… today, tomorrow and always.

See "Sales Associates" at www.ar-worldwide.com for a complete listing or call Customer Service at 215-723-0275. By the way, when you call, you'll talk to a real receptionist who will connect you to the help you need. You can also call our hotline at 800-933-8181 and talk to directly an applications engineer whose job is to help one person at a time.

## *Value Right From The Start… a 10% Bonus.*

AR's quality makes our products a good value. But we also help you save right up front. When you visit the AR booth at a trade show, you'll receive a bonus coupon that's worth 10% of the purchase price of your AR amplifier toward the purchase of any AR accessory. That's anything other than amplifiers–and it's good for up to $20,000!

Quality, Value, Service and Innovation That No Other Company Can Match.With the combined resources of our three companies, AR offers the most advanced and the widest array of products and services, the highest level of strategic problem-solving and a level of quality and value that no other company can match.

In addition to ***AR RF/Microwave Instrumentation,*** the AR Organization consists of:

***AR Modular RF*** – The Modular RF division of AR manufactures and distributes RF amplifier modules, broadband and subband solid state RF amplifiers that play a critical role in military communications, electronic warfare, and have a variety of medical, scientific and industrial applications. The company is well known for producing booster amplifiers and modules that are compact, flexible and tough enough to withstand most battle conditions; and for its ability to produce cost-effective semi-customized amplifiers.

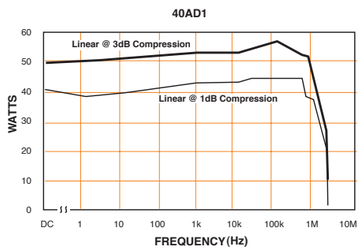
***AR Receiver Systems*** – Formerly known as Carnel Labs, a pioneer in computer-controlled conducted and radiated susceptibility field generator and measurement systems, the company offers a complete line of products for EMC testing. From true EMI Receivers to leak detectors, AR Receiver Systems will provide additional offerings for a wide variety of EMC testing needs.

# DC to 1 MHz.

## 40AD1

### 40 watts CW. dc - 1 MHz.

| | |
|---|---|
| Rated Output Power | 40 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Typ. 50 watts / Min. 40 watts | |
| Power Output @ 1dB compression<br>Typ. 40 watts / Min. 25 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>dc - 1 MHz instantaneously | |
| Gain (at max. setting) | 45 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 25 dBc max. at 25 watts | |
| Third Order Intercept Point | 54 dBm typ. |
| Primary Power (user must specify)<br>90 - 135 / 180 - 270 VAC<br>50 / 60 Hz, single phase, autoranging 400 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| Cooling | Forced air (self contained fans) |
| Weight | 16 kg (35 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 30 cm / 19.8 x 6.1 x 11.8 in | |
| Rack Mountable | |




## 350AH1

### 350 watts CW. 10 Hz - 1 MHz.

| | |
|---|---|
| Operation | Class B Linear |
| Power Output, CW, Max. | 350 watts<br>(load impedance dependent) |
| Voltage Output | 0 – 25Vrms |
| Current Output | 0 – 14Arms |
| Flatness | ± 1.0 dB max. |
| Frequency Response | 10 Hz–1 MHz instantaneously |
| Input Signal | 0 – 2 Vrms |
| Gain | 47 dB minimum |
| Input Impedance | 600 ohms |
| Output Impedance | 0 ohms |
| Mismatch Tolerance | 100% of rated power without fail. |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal | |
| Primary Power | 90 – 260 VAC<br>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) |
| Remote Interlock | 15 pin subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 20.5 kg (45 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in | |
| Rack Mountable | |



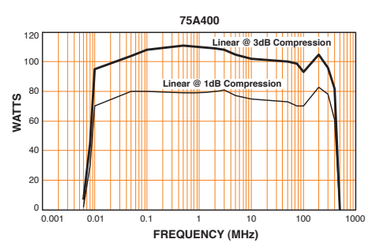
* See Application Note #27A at www.arww-rfmicro.com/appnote27/

# 10 kHz to 400 MHz

## 75A400

### 75 watts CW. 10 kHz - 400 MHz.

| | |
|---|---|
| Rated Output Power | 75 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 100 watts / Min. 75 watts | |
| Power Output @ 1dB compression<br>Nominal 75 watts / Min. 50 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>10 kHz - 400 MHz instantaneously | |
| Gain (at max. setting) | 49 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Noise Figure (above 1.0 MHz) | 6 dB typ. |
| Harmonic Distortion<br>Minus 20 dBc max. at 50 watts | |
| Third Order Intercept Point | 57 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC<br>47 - 63 Hz, single phase, 400 watts max. | |
| 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 |
| Remote Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 23.4 kg (51.5 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in | |
| Rack Mountable | |

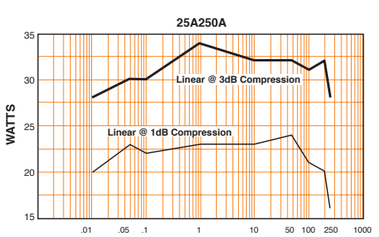



# 10 kHz to 250 MHz.

## 25A250A

### 25 watts CW. 10 kHz - 250 MHz.

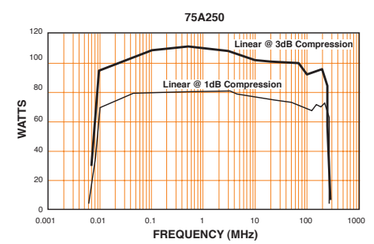
| | |
|---|---|
| Rated Output Power | 25 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 32 watts / Min. 25 watts | |
| Power Output @ 1dB compression<br>Nominal 20 watts / Min.15 watts | |
| Flatness | ±1.0 dB max. |
| Frequency Response<br>10 kHz - 250 MHz instantaneously | |
| Gain (at max. setting) | 44 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Noise Figure (above 1.0 MHz) | 16 dB typ. |
| Harmonic Distortion<br>Minus 20 dBc max. at 15 watts | |
| Third Order Intercept Point | 54 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC<br>47 - 63 Hz, single phase, 200 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| Cooling | Forced air (self contained fans) |
| Weight | 15.9 kg (35 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 30 cm / 19.8 x 6.1 x 11.8 in | |
| Rack Mountable | |




## 75A250

### 75 watts CW. 10 kHz - 250 MHz.

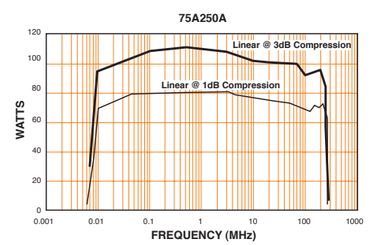
| | |
|---|---|
| Rated Output Power | 75 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 100 watts / Min. 75 watts | |
| Power Output @ 1dB compression<br>Nominal 70 watts / Min. 50 watts | |
| Flatness | ±1.0 dB max. |
| Frequency Response<br>10 kHz - 250 MHz instantaneously | |
| Gain (at max. setting) | 49 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Noise Figure (above 1.0 MHz) | 16 dB typ. |
| Harmonic Distortion<br>Minus 20 dBc max. at 50 watts | |
| Third Order Intercept Point | 57 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC<br>47 - 63 Hz, single phase, 400 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| Cooling | Forced air (self contained fans) |
| Weight | 15.9 kg (35 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 30 cm / 19.8 x 6.1 x 11.8 in | |
| Rack Mountable | |




## 75A250A

### 75 watts CW. 10 kHz - 250 MHz.

| | |
|---|---|
| Rated Output Power | 75 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 100 watts / Min. 75 watts | |
| Power Output @ 1dB compression<br>Nominal 70 watts / Min. 50 watts | |
| Flatness | ±1.0 dB max. |
| Frequency Response<br>10 kHz - 250 MHz instantaneously | |
| Gain (at max. setting) | 49 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Noise Figure (above 1.0 MHz) | 16 dB typ. |
| Harmonic Distortion<br>Minus 20 dBc max. at 50 watts | |
| Third Order Intercept Point | 57 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC<br>47 - 63 Hz, single phase, 400 watts max. | |
| 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 |
| Cooling | Forced air (self contained fans) |
| Weight | 20.5 kg (45 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in | |
| Rack Mountable | |

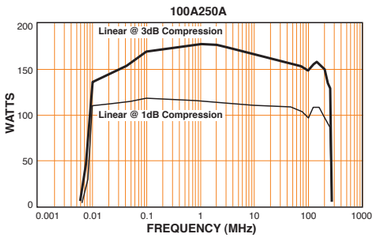


# 10 kHz to 250 MHz.

## 100A250A

### 100 watts CW. 10 kHz - 250 MHz.

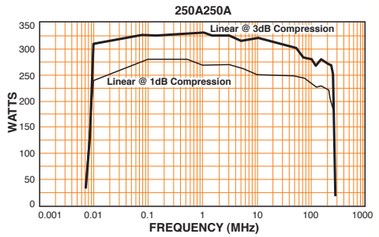
| | |
|---|---|
| Rated Output Power | 100 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 157 watts / Min. 125 watts | |
| Power Output @ 1dB compression<br>Nominal 107 watts / Min. 75 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>10 kHz - 250 MHz instantaneously | |
| Gain (at max. setting) | 50 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Noise Figure (above 1.0 MHz) | 10 dB typ. |
| Harmonic Distortion<br>Minus 20 dBc max. at 75 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC autoranging<br>47 - 63 Hz, single phase, 1000 watts max. | |
| 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 |
| Remote Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 31.75 kg (70 lb) |
| Size (WxHxD)<br>50.3 x 25.2 x 46 a19.8 x 9.9 x 18.1 in | |
| Rack Mountable | |




## 250A250A

### 250 watts CW. 10 kHz - 250 MHz.

| | |
|---|---|
| Rated Output Power | 250 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 300 watts / Min. 225 watts | |
| Power Output @ 1dB compression<br>Nominal 245 watts / Min. 150 watts | |
| Flatness | ±1.5 dB max. / ±0.5 dB with internal leveling |
| Frequency Response<br>10 kHz - 250 MHz instantaneously | |
| Gain (at max. setting) | 54 dB min. |
| Gain Adjustment (continuous range) | 25 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.5:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage, or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion | Minus 20 dBc max. at 150 watts |
| Third Order Intercept Point | 60 dBm typ. |
| RF Power Display | 0 - 350 watts full scale |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | +2.0 to 6.0 VDC |
| Rise Time | 0.5 microseconds max. |
| Fall Time | 0.5 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power<br>180 - 264 VAC<br>47 - 440 Hz, 1400 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Safety Interlock | 15 pin female Type D on rear panel |
| Remote Interfaces | |
| IEEE - 488 | 24 pin female on rear panel |
| RS-232 | 9 pin female Type D on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight | 68 kg (150 lb) |
| Size (WxHxD)<br>50.3 x 42.7 x 55.1 cm / 19.8 x 16.8 x 21.7 in | |
| Rack Mountable | |




* See Application Note #27A at www.arww-rfmicro.com/appnote27/

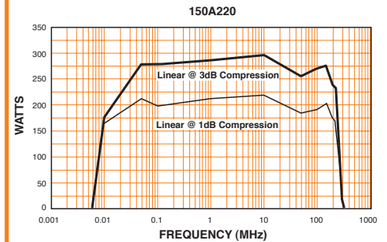


# 10 kHz to 220 MHz.

## 150A220

### 150 watts CW. 10 kHz - 220 MHz.

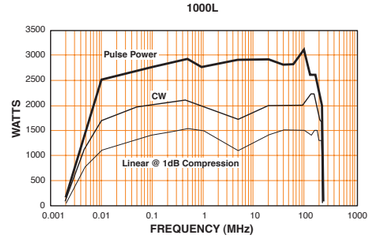
| | |
|---|---|
| Rated Output Power | 150 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 250 watts / Min. 150 watts | |
| Power Output @ 1dB compression<br>Nominal 200 watts / Min. 150 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>10 kHz - 220 MHz instantaneously | |
| Gain (at max. setting) | 53 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without damage, foldback, shutdown or oscillation with any magnitude and phase of source and load impedance at rated output power. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc, 10 kHz - 125 MHz, max. at 150 watts<br>Minus 30 dBc, 125 MHz - 220MHz, max. at 150 watts | |
| Third Order Intercept Point | 60 dBm typ. |
| RF Rise Time (10% to 90%) | 3 nanoseconds max. |
| Primary Power<br>115 - 230 VAC<br>50 / 60 Hz, single phase, 1500 watts max. | |
| Connectors | |
| RF Input | Type BNC female on front panel |
| RF Output | Type N female on front panel |
| Remote Control | 25 Pin subminiature D |
| Cooling | Forced Air (self-contained fans) |
| Weight (approximate) | 47 kg (105 lb) |
| Size (WxHxD)<br>50.7 x 34 x 55 cm / 19.8 x 13.3 x 21.5 in | |
| Rack Mountable | |




## 1000L

### 1200 watts CW./2500 watts Pulse. 10 kHz - 220 MHz.

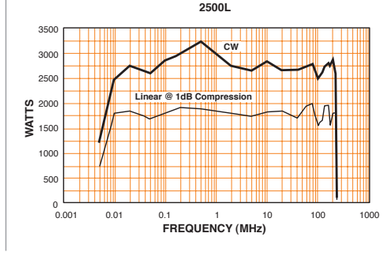
| | |
|---|---|
| Rated Output Power - High Range | |
| Pulse | 2500 watts, min., 10 kHz - 150 MHz<br>1750 watts, min., 150 MHz - 220 MHz |
| Duty Cycle 15%, Pulse Width 8 milliseconds | |
| CW | 1200 watts min. |
| Rated Output Power - Low Range | 100 watts nominal |
| Flatness | ±1.5 dB max. |
| Frequency Response | 10 kHz - 220 MHz instantaneously |
| Gain (at max. setting) | |
| High Range | 61 dB min. |
| Low Range | 47 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without damage, foldback, shutdown or oscillation with any magnitude and phase of source and load impedance at rated output power. | |
| Modulation Capability<br>Linear amplitude and phase response to over 80 MHz allows faithful reproduction of AM, FM, Pulse, or phase modulation appearing on the input signal | |
| Harmonic Distortion | |
| Minus 15 dBc max. at 750 watts, 10 kHz - 120 MHz | |
| Minus 30 dBc max. at 750 watts, 120 MHz - 220 MHz | |
| Above 120 MHz | Minus 30 dBc max. |
| Below 120 MHz | Minus 15 dBc max. |
| | Minus 18 dBc nominal |
| Third Order Intercept Point | 66 dBm typ. |
| RF Rise Time (10% to 90%) | 3 nanoseconds max. |
| Gating Characteristics (Pulse Mode Pedestal/CW Mode Blanking) | |
| Signal (into 180 ohms) | Plus or minus 2.5 to 6.0 VDC |
| Rise time | 20 microseconds max. |
| Fall time | 4 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| RF Pulse Droop | 1.0% max. at 8 milliseconds |
| Primary Power (user must specify) | 200/208 ± 5% VAC, 3 phase, 50/60 Hz<br>380/415 ± 5% VAC, 3 phase, 50/60 Hz<br>400/415 ±5% VAC, 3 phase, 50/60Hz<br>15.2 kVA nominal |
| Connectors | |
| RF Input | Type BNC female |
| RF Output, high range | Type C female |
| RF Output, low range | Type N female |
| Gating/Blanking | Type BNC female |
| Remote Control | 25 pin female subminiature D |
| Cooling | Forced Air (self-contained fans) |
| Weight (approximate) | 239 kg (525 lb) |
| Size (WxHxD)<br>56.1 x 149.9 x 58.4 cm / 22.1 x 59 x 23 in | |




## 2500L

### 2500 watts CW./3500 watts Pulse. 10 kHz - 220 MHz.

| | |
|---|---|
| Rated Output Power - High Range | |
| Pulse | 4000 watts, min., 10 kHz - 150 MHz<br>3000 watts, min., 150 MHz - 220 MHz |
| Duty Cycle 15%, Pulse Width 8 milliseconds | |
| CW | 2500 watts min. |
| Linear @ 1dB Compression | 1750 watts, nominal/1250 watts max. |
| Rated Output Power - Low Range | 100 watts nominal |
| Flatness | ±1.5 dB max. |
| Frequency Response | 10 kHz - 220 MHz instantaneously |
| Gain (at max. setting) | |
| High Range | 64 dB min. |
| Low Range | 50 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without damage, foldback, shutdown or oscillation with any magnitude and phase of source and load impedance at rated output power. | |
| Modulation Capability<br>Linear amplitude response allows faithful reproduction of AM, FM, or Pulse modulation appearing on the input signal. | |
| Harmonic Distortion | |
| Minus 17 dBc max. at 1800 watts, 10 kHz - 120 MHz | |
| Minus 30 dBc max. at 1800 watts, 120 MHz - 220 MHz | |
| Third Order Intercept Point | |
| CW: 70dBm typ. / Pulse: 73dBm typ. | |
| RF Rise Time (10% to 90%) | 3 nanoseconds max. |
| Gating Characteristics (Pulse mode pedestal/CW mode blanking) | |
| Signal (into 180 ohms) | ± 2.5 to 6.0 VDC |
| Rise Time | 25 microseconds max. |
| Fall Time | 5 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds |
| Primary Power (user must specify) | 200/208 VAC, 3 phase, 50/60 Hz<br>380/415 VAC, 3 phase, 50/60 Hz<br>17 KVA nominal |
| Connectors | |
| RF Input | Type BNC female |
| RF Output, high range | Type C female |
| RF Output, low range | Type N female |
| Gating/Blanking | Type BNC female |
| Remote Control | 25 pin female subminiature D |
| Cooling (tap water recommended) | Self contained forced air; tap water, 19 LPM (5 GPM) @ 20° C max. |
| Weight (approximate) | 363 kg (800 lb) |
| Size (WxHxD)<br>56.1 x 149.9 x 58.4 cm / 22.1 x 59 x 23 in | |



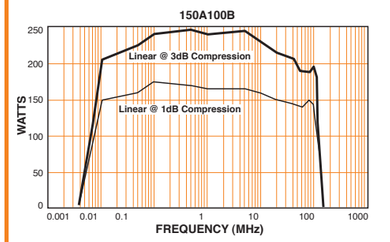



# 10 kHz to 100 MHz.

## 150A100B

### 150 watts CW. 10 kHz - 100 MHz.

| | |
|---|---|
| Rated Output Power | 150 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 220 watts / Min. 180 watts | |
| Power Output @ 1dB compression<br>Nominal 155 watts / Min. 125 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>10 kHz - 100 MHz instantaneously | |
| Gain (at max. setting) | 52 dB min. |
| Gain Adjustment Range | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Noise Figure (above 1.0 MHz) | 6 dB typ. |
| Harmonic Distortion<br>Minus 20 dBc max. at 125 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC auto ranging<br>47 - 63Hz, single phase, 1000 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| Remote Interfaces | |
| IEEE - 488 | 24 pin male |
| RS-232 | 9 pin Subminiature D male |
| Remote Interlock | 15 Pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 31.75 kg (70 lb) |
| Size (WxHxD)<br>50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in | |
| Rack Mountable | |

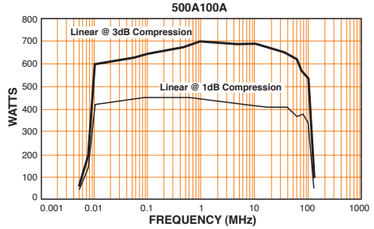


# 10 kHz to 100 MHz.

## 500A100A

### 500 watts CW. 10 kHz - 100 MHz.

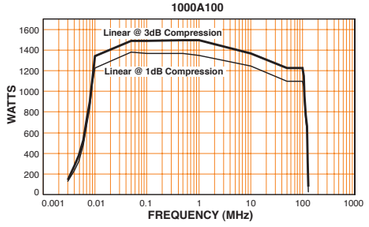
| | |
|---|---|
| Rated Output Power | 500 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 617 watts / Min. 500 watts | |
| Power Output @ 1dB compression<br>Nominal 400 watts / Min. 300 watts | |
| Flatness<br>± 1.5 dB max./± 0.5 dB with internal leveling | |
| Frequency Response<br>10 kHz - 100 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, VSWR 2.5:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 300 watts | |
| Third Order Intercept Point | 61 dBm typ. |
| RF Power Display | 0 - 750 watts full scale |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | +2.0 to 6.0 VDC |
| Rise Time | 0.5 microseconds max. |
| Fall Time | 0.5 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power<br>180 - 264 VAC<br>47 - 440 Hz, 2000 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Safety Interlock | 15 pin female Type D on rear panel |
| Remote Interfaces | |
| IEEE - 488 | 24 pin female on rear panel |
| RS-232 | 9 pin female Type D on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight | 68 kg (150 lb) |
| Size (WxHxD)<br>50.3 x 42.7 x 55.1 cm / 19.8 x 16.8 x 21.7 in | |
| Rack Mountable | |




## 1000A100

### 1000 watts CW. 10 kHz - 100 MHz.

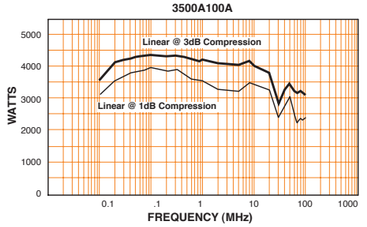
| | |
|---|---|
| Rated Output Power | 1000 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 1250 watts / Min. 1100 watts | |
| Power Output @ 1dB compression<br>Nominal 1100 watts / Min. 1000 watts | |
| Flatness ± 1.5 dB max. / ± 0.5 dB with internal leveling | |
| Frequency Response<br>10 kHz - 100 MHz instantaneously | |
| Gain (at max. setting) | 60 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.5:1 max. |
| Mismatch Tolerance*<br>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 500 watts reflected power. May limit at rated output. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 1000 watts. | |
| Third Order Intercept Point | 68 dBm typ. |
| RF Power Display | 0 - 1200 watts full scale |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | + 2.0 to 6.0 VDC |
| Rise Time | 0.5 microseconds max. |
| Fall Time | 0.5 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power<br>180 - 240 VAC<br>50 / 60 Hz, single phase, 6500 watts max. | |
| Connectors | |
| RF Input | Type BNC female on front panel |
| RF Output | Type C female on front panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Remote Control | 25 pin female subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight (max.) | 150 kg (330 lb) |
| Size (WxHxD)<br>56.1 x 149.9 x 58.4 cm / 22.1 x 59 x 23 in | |




## 3500A100A

### 3500 watts CW. 10 kHz - 100 MHz.

| | |
|---|---|
| Rated Output Power | 3500 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 3000 watts / Min. 2700 watts | |
| Power Output @ 1dB compression<br>Nominal 2500 watts / Min. 2000 watts | |
| Flatness ± 1.5 dB max./± 0.5 dB with internal leveling | |
| Frequency Response<br>10 kHz - 100 MHz instantaneously | |
| Gain (at max. setting) | 66 dB min. |
| Gain Adjustment (continuous range) | 20 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.5:1 max. |
| Mismatch Tolerance*<br>Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May limit to 1750 watts reflected power. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 2000 watts | |
| Third Order Intercept Point | 73 dBm typ. |
| RF Power Display | 0 - 5000 watts full scale |
| Pulse Mode Characteristics | |
| Signal (into 50 ohms) | +2.0 to 6.0 VDC |
| Rise Time | 0.5 microseconds max. |
| Fall Time | 0.5 microseconds |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power (user must specify)<br>180 - 267 VAC Delta (4 wire)<br>360 - 435 VAC, Wye (5 wire)<br>47 - 63Hz, 3 phase, 15,000 watts max. | |
| RF Connectors | |
| RF Input | Type N female on rear panel |
| RF Output | Type 7/16 female on rear panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Remote Control | 24 pin female GPIB/IEEE - 488 connector on rear panel |
| Safety Interlock | 15 pin female Type D on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight | 317.5 kg (900 lb) |
| Size (WxHxD)<br>56.2 x 152 x 100 cm / 22.1 x 60 x 39.4 in | |




* See Application Note #27A at www.arww-rfmicro.com/appnote27/

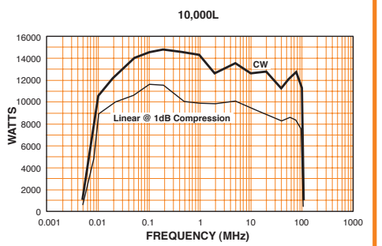


# 10 kHz to 3 MHz.

## 10,000L

### 10,000 watts CW. 10 kHz - 100 MHz.

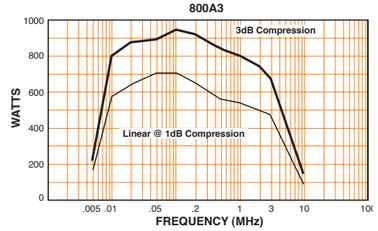
| | |
|---|---|
| Rated Output Power | |
| Nominal | 12,600 watts |
| Min. | 10,000 watts |
| Linear @ 1dB compression | 7500 watts min. |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>10 kHz - 100 MHz instantaneously | |
| Gain (at max. setting) | 70 dB min. |
| Gain Adjustment Range | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. | |
| Harmonic Distortion<br>Minus 15 dBc max. at 7500 watts | |
| Blanking Characteristics | |
| Signal (into 50 ohms) | Plus 4.0 to 6.0 VDC |
| Delay time | |
| Signal on to RF off | 5 microseconds max. |
| Signal off to RF on | 25 microseconds max. |
| RF rise/fall time | 10 nanoseconds max. |
| Primary Power (user must specify) | 200/208 ±5% VAC, 3 phase, 60 Hz<br>380/415 ±5% VAC, 3 phase, 50/60 Hz<br>75 kVA max. |
| Connectors | |
| RF input | Type BNC female on front panel |
| RF output | Type EIA 1 5/8 male on rear panel |
| Blanking | Type BNC female on front panel |
| Remote control | 25 pin female subminiature D on rear panel |
| Cooling | Tap water, 20-30 LPM (6-8 GPM) at 20° C max. Air-cooled option available. |
| Weight | 1134 kg (2500 lb) |
| Size (WxHxD)<br>68.8 x 149.9 x 82.6 cm / 27.1 x 59 x 32.5 in | |




## 800A3

### 800 watts CW. 10 kHz - 3 MHz.

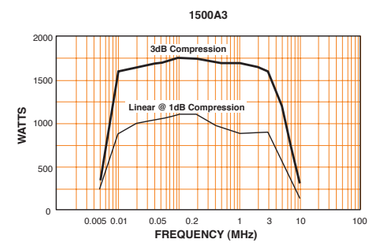
| | |
|---|---|
| Rated Output Power | 800 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 800 watts | Min. 700 watts, 10 kHz - 2 MHz<br>Min. 600 watts, 2 - 3 MHz |
| Power Output @ 1dB compression<br>Nominal 500 watts / Min. 400 watts | |
| Flatness | ± 1.0 dB max. |
| Frequency Response<br>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)<br>12.5, 25, 50, 100, 150, 200, 400 ohms nominal (10 kHz - 3 MHz) on front panel | |
| Mismatch Tolerance*<br>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. May limit at rated output. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>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<br>0–1000 Watts full scale. Directional power monitor allows separate display of forward and reflected power. | |
| Power Monitor<br>BNC: 0 - 10V forward and reverse power | |
| Cooling | Forced air (self contained fans) |
| Primary Power | Universal, 85–137/180–300 VAC, 47–63 Hz, 2500 watts max. |
| Weight (max.) | 31.7 kg (70 lb) |
| Size (WxHxD)<br>50.3 x 34 x 51.1 cm / 19.8 x 13.4 x 21.7 in | |
| For external impedance transformer options. See specifications sheet for IT2000 Series impedance transformers. | |




## 1500A3

### 1500 watts CW. 10 kHz - 3 MHz.

| | |
|---|---|
| Rated Output Power | 1500 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 1500 watts / Min. 1400 watts | |
| Power Output @ 1dB compression<br>Nominal 1000 watts / Min. 800 watts | |
| Flatness | ± 1.0 dB max. |
| Frequency Response<br>10 kHz - 3 MHz instantaneously | |
| Gain (at max. setting) | 63 dB min. |
| Gain Adjustment (continuous range) | 23 dB min. |
| Input Impedance | 50 ohms, nominal |
| Output Impedance | 50 ohms, nominal (10kHz - 3MHz) |
| Mismatch Tolerance*<br>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 800 watts reflected power. May limit at rated output. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| 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<br>0–2000 Watts full scale. Directional power monitor allows separate display of forward and reflected power. | |
| Power Monitor<br>BNC: 0 - 10V forward and reverse power | |
| Cooling | Forced air (self contained fans) |
| Primary Power | Universal, 180–275 VAC, 47–63HZ, 5000 watts max. |
| Weight (max.) | 136 kg (300 lb) |
| Size (WxHxD)<br>56.1 x 109.2 x 88.9 cm / 22.1 x 43 x 35 in | |
| For external impedance transformer options. See specifications sheet for IT2000 Series impedance transformers. | |

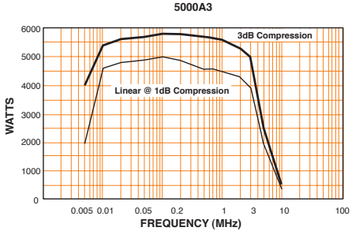


# 10 kHz to 3 MHz.

## 5000A3

### 5000 watts CW. 10 kHz - 3 MHz.

| | |
|---|---|
| Rated Output Power | 5000 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 1dB compression | 2500 watts min. |
| Frequency Response<br>10 kHz - 3 MHz instantaneously | |
| Flatness | ±1.0 dB max. |
| Gain (at max. setting) | 67 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*<br>100% rated power without foldback up to 6.0:1 mismatch above which may limit to 2500 watts reflected power. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 2500 watts power output. | |
| Third Order Intercept Point | 74 dBm typ. |
| RF Power Display | Forward and Reverse |
| Primary Power (user must specify)<br>200 - 240 VAC Delta (4 wire), Wye compatible<br>346 - 416 VAC, Wye (5 wire)<br>400 - 480 VAC Delta (4 wire), Wye compatible<br>47 - 63 Hz, 3 phase<br>20,000 watts max. | |
| Connectors | |
| RF Input | Type N female on rear panel |
| RF Output | Type EIA 1 5/8 male on rear panel |
| Detected RF | Type BNC female on front panel, Forward/Reverse, 0 - 10Vdc |
| Remote Control | 24 pin female GPIB/IEEE - 488 connector on rear panel, RS-232, USB, Ethernet |
| Safety Interlock | 15 pin female Type D on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight (approximate) | 567 kg (1250 lb) |
| Size (WxHxD)<br>168 x 112.42 x 67.15 cm / 66.18 x 44.26 x 26.44 in | |



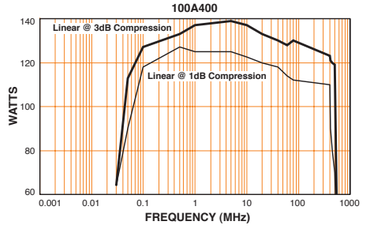

* See Application Note #27A at www.arww-rfmicro.com/appnote27/

# 100 kHz to 400 MHz.

## 100A400

### 100 watts CW. 100 kHz - 400 MHz.

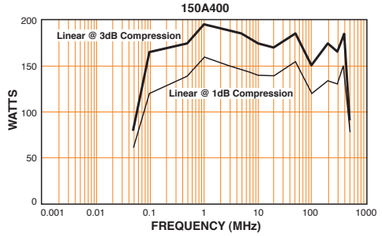
| | |
|---|---|
| Rated Output Power | 100 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 130 watts / Min. 100 watts | |
| Power Output @ 1dB compression<br>Nominal 100 watts / Min. 75 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>100 kHz - 400 MHz instantaneously | |
| Gain (at max. setting) | 50 dB min. |
| Gain Adjustment (continuous range) | 20 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 typ. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 75 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC auto ranging<br>47 - 63Hz, single phase, 1000 watts max. | |
| 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 |
| Remote Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 36 kg (80 lb) |
| Size (WxHxD)<br>50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in | |
| Rack Mountable | |




## 150A400

### 150 watts CW. 100 kHz - 400 MHz.

| | |
|---|---|
| Rated Output Power | 150 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 155 watts / Min. 130 watts | |
| Power Output @ 1dB compression<br>Nominal 125 watts / Min. 100 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>100 kHz - 400 MHz instantaneously | |
| Gain (at max. setting) | 52 dB min. |
| Gain Adjustment Range | 20 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 100 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC auto ranging<br>47 - 63Hz, single phase, 1000 watts max. | |
| 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 |
| Remote Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 36 kg (80 lb) |
| Size (WxHxD)<br>50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in | |
| Rack Mountable | |



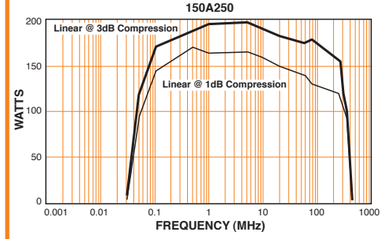



# 100 kHz to 250 MHz.

## 150A250

### 150 watts CW. 100 kHz - 250 MHz.

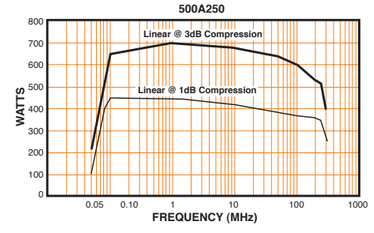
| | |
|---|---|
| Rated Output Power | 150 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 180 watts / Min. 155 watts | |
| Power Output @ 1dB compression<br>Nominal 150 watts / Min. 120 watts | |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>100 kHz - 250 MHz instantaneously | |
| Gain (at max. setting) | 52 dB min. |
| Gain Adjustment Range | 20 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.0:1 max. |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 120 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| Primary Power<br>90 - 135 / 180 - 270 VAC auto ranging<br>47 - 63Hz, single phase, 1000 watts max. | |
| 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 |
| Remote Interlock | 15 pin subminiature D |
| Cooling | Forced air (self-contained fans) |
| Weight | 31.75 kg (70 lb) |
| Size (WxHxD)<br>50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in | |
| Rack Mountable | |




## 500A250

### 500 watts CW. 100 kHz - 250 MHz.

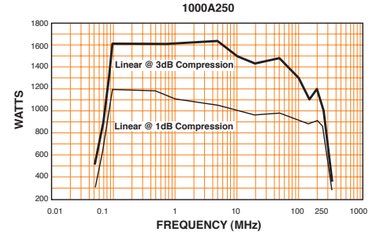
| | |
|---|---|
| Rated Output Power | 500 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 500 watts / Min. 450 watts | |
| Power Output @ 1dB compression<br>Nominal 350 watts / Min. 300 watts | |
| Flatness | ± 2.0 dB max./± 0.5 dB with internal leveling |
| Frequency Response<br>100 kHz - 250 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. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% rated power without foldback up to 6.0:1 mismatch, above which may limit to 250 watts. Will operate without damage, or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 300 watts | |
| Third Order Intercept Point | 61 dBm typ. |
| RF Power Display | 0 - 750 watts full scale |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | +2.0 to 6.0 VDC |
| Rise Time | 0.5 microseconds max. |
| Fall Time | 0.5 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power<br>180 - 264 VAC/47 - 63 Hz, 3000 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Safety Interlock | 15 pin female Type D on rear panel |
| Remote Interfaces | |
| IEEE - 488 | 24 pin female on rear panel |
| RS-232 | 9 pin female Type D on rear panel |
| RS-232 (fiber optic) | ST female Conn Tx and Rx on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight | 79.5 kg (175 lb) |
| Size (WxHxD)<br>50.3 x 55.9 x 61 cm / 19.8 x 22 x 24 in | |




## 1000A250

### 1200 watts CW. 100 kHz – 250 MHz

| | |
|---|---|
| Rated Output Power | 1200 watts, 100 kHz - 100 MHz<br>1200 - 700 watts, 100 MHz - 250 MHz |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 1dB compression | 900 watts, 100 kHz - 100 MHz<br>900 - 400 watts, 100 MHz - 250 MHz |
| Frequency Response<br>100 kHz - 250 MHz instantaneously | |
| Flatness | ± 3.5 dB max./± 0.8 dB with internal leveling |
| Gain (at max. setting) | 61 dB min. |
| Gain Adjustment (continuous range) | 20 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 2.5:1 max. |
| Mismatch Tolerance*<br>100% rated power without foldback up to 6.0:1 mismatch above which may limit to 600 watts reflected power, from 100 kHz to 100 MHz. Limited to 250 watts reflected power from 100 MHz to 250 MHz. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 750 watts | |
| Third Order Intercept Point | 68 dBm typ. |
| RF Power Display | 0 - 2000 watts full scale |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | + 2.0 to 6.0 VDC |
| Rise Time | 0.5 microseconds max. |
| Fall Time | 0.5 microseconds |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power (user must specify)<br>187 - 264 VAC<br>47 - 63 Hz, single phase, 5,000 watts max. | |
| Connectors | |
| RF Input | Type N female on rear panel |
| RF Output | Type 7 - 16 DIN female on rear panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF output | Type BNC female on front panel |
| Remote Control | 24 pin female GPIB/IEEE - 488 and 9-pin RS-232 connectors on rear panel |
| Safety Interlock | 15 pin female Type D on rear panel |
| Remote Control (Fiber Optic) ST connector, Tx and Rx RS-232. | |
| Remote Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 136 kg (300 lb) |
| Size (WxHxD)<br>56.1 x 109.2 x 88.9 cm / 22.1 x 43 x 35 in | |

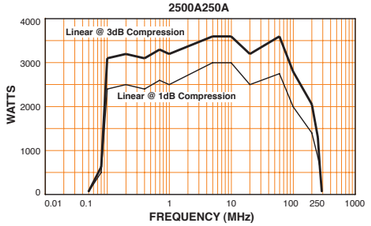


# 100 kHz to 250 MHz.

## 2500A250A

### 2500 watts CW. 100 kHz - 250 MHz.

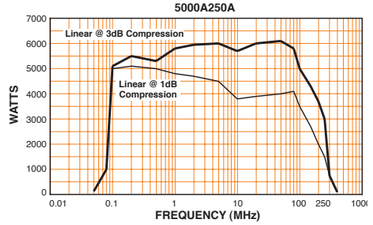
Rated Output Power 2500 watts, 100 kHz - 100 MHz
2500 - 1500 watts, 100 MHz - 250 MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 1dB compression
1800 watts, 100 kHz - 100 MHz
1800 - 800 watts, 100 MHz - 250 MHz
Frequency Response
100 kHz - 250 MHz instantaneously
Flatness ± 3.5 dB max./± 0.8 dB with internal leveling
Gain (at max. setting) 64 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 max.
Mismatch Tolerance*
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 1250 watts reflected power, from 100 kHz to 100 MHz. Limited to 500 watts reflected power from 100 MHz to 250 MHz.
Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 1500 watts
Third Order Intercept Point 71 dBm typ.
RF Power Display 0 - 4000 watts full scale
Pulse Mode Gating Characteristics
Signal (into 50 ohms) + 2.0 to 6.0 VDC
Rise Time 0.5 microseconds max.
Fall Time 0.5 microseconds
RF Rise/Fall Time 10 nanoseconds max.
Primary Power (user must specify)
200 - 240 VAC Delta (4 wire), Wye compatible
346 - 416 VAC, Wye (5 wire)
400 - 480 VAC, Delta (4 wire), Wye compatible
47 - 63Hz, 3 phase 10,000 watts max.
Connectors
RF Input Type N female on rear panel
RF Output Type 7 - 16 DIN female on rear panel
External Leveling Inputs Type BNC female on front panel
Pulse Modulation Inputs Type BNC female on front panel
Detected RF output Type BNC female on front panel
Remote Control 24 pin female GPIB/IEEE - 488 and 9-pin RS-232 connectors on rear panel
Remote Control (Fiber Optic) ST connector, Tx and Rx RS-232.
Safety Interlock 15 pin female Type D on rear panel
Remote Interlock 15 pin Subminiature D
Forward and Reverse Sample Ports Type N female on rear panel
Cooling Forced air (self contained fans)
Weight 227 kg (500 lb)
Size (WxHxD)
68.6 x 132 x 88.9 cm / 27 x 52 x 35 in




## 5000A250A

### 5000 watts CW. 100 kHz - 250 MHz.

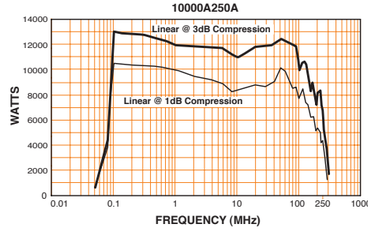
Rated Output Power 5000 watts, 100 kHz - 100 MHz
5000 - 3000 watts, 100 MHz - 250 MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 1dB compression
3500 watts, 100 kHz - 100 MHz
3500 - 1500 watts, 100 MHz - 250 MHz
Frequency Response
100 kHz - 250 MHz instantaneously
Flatness ± 1.5 dB max./± 0.8 dB with internal leveling
Gain (at max. setting) 67 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 max.
Mismatch Tolerance*
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 2500 watts reflected power, from 100 kHz to 100 MHz. Limited to 1000 watts reflected power from 100 MHz to 250 MHz.
Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 3000 watts
Third Order Intercept Point 74 dBm typ.
RF Power Display 0 - 7500 watts full scale
Pulse Mode Gating Characteristics
Signal (into 50 ohms) + 2.0 to 6.0 VDC
Rise Time 0.5 microseconds max.
Fall Time 0.5 microseconds
RF Rise/Fall Time 10 nanoseconds max.
Primary Power (user must specify)
200 - 240 VAC Delta (4 wire), Wye compatible
346 - 416 VAC, Wye (5 wire)
400 - 480 VAC Delta (4 wire) Wye compatible
47 - 63 Hz, 3 phase, 20,000 watts max.
Connectors
RF Input Type N female on rear panel
RF Output Type EIA 1 5/8 male on rear panel
External Leveling Inputs Type BNC female on front panel
Pulse Modulation Inputs Type BNC female on front panel
Detected RF Output Type BNC female on front panel
Remote Control 24 pin female GPIB/IEEE - 488 and 9-pin RS-232 connectors on rear panel
Safety Interlock 15 pin female Type D on rear panel
Remote Control (Fiber Optic) ST connector, Tx and Rx RS-232.
Remote Interlock 15 pin Subminiature D
Cooling Forced air (self contained fans)
Weight 408 kg (900 lb)
Size (WxHxD)
68.8 x 182.9 x 106.7 cm / 27.1 x 72 x 35 in




## 10000A250A

### 10,000 watts CW. 100 kHz - 250 MHz.

Rated Output Power 10,000 watts, 100 kHz - 100 MHz
10,000 - 6,000 watts, 100 MHz - 250 MHz
Input For Rated Output 1.0 milliwatt max.
Power Output @ 1dB compression
7,000 watts, 100 kHz - 100 MHz
7,000 - 3,000 watts, 100 MHz - 250 MHz
Frequency Response
100 kHz - 250 MHz instantaneously
Flatness ±1.5 dB max./±0.8 dB with internal leveling
Gain (at max. setting) 70 dB min.
Gain Adjustment (continuous range) 20 dB min.
Input Impedance 50 ohms, VSWR 1.5:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 max.
Mismatch Tolerance*
100% rated power without foldback up to 6.0:1 mismatch above which may limit to 5,000 watts reflected power, from 100 kHz to 100 MHz. Limited to 2,000 watts reflected power from 100 MHz to 250 MHz.
Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
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
Pulse Mode Gating Characteristics
Signal (into 50 ohms) +2.0 to 6.0 VDC
Rise Time 0.5 microseconds max.
Fall Time 0.5 microseconds
RF Rise/Fall Time 10 nanoseconds max.
Primary Power (user must specify)
200 - 240 VAC Delta (4 wire), Wye compatible
346 - 416 VAC, Wye (5 wire)
400 - 480 VAC Delta (4 wire), Wye compatible
47 - 63 Hz, 3 phase, 40,000 watts max.
Connectors
RF Input Type N female on rear panel
RF Output Type EIA 1 5/8 male on rear panel
External Leveling Inputs Type BNC female on front panel
Pulse Modulation Inputs Type BNC female on front panel
Detected RF Output Type BNC female on front panel
Remote Control 24 pin female GPIB/IEEE - 488 and 9-pin RS-232 connectors on rear panel
Safety Interlock 15 pin female Type D on rear panel
Remote Control (Fiber Optic) ST connector, Tx and Rx RS-232.
Cooling Forced air (self contained fans)
Weight 816 kg (1800 lb)
Size (WxHxD)
142.3 x 182.9 x 88.9 cm / 56 x 72 x 35 in




* See Application Note #27A at www.arww-rfmicro.com/appnote27/

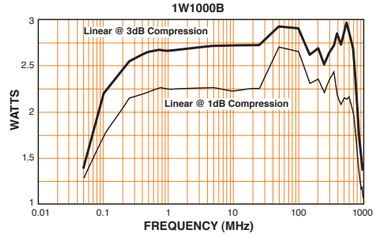


# 100 kHz to 1000 MHz.

## 1W1000B

### 1 watt CW. 100 kHz - 1000 MHz.

Rated Output Power 1.0 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 2.5 watts / Min. 1.0 watts
Power Output @ 1dB compression
Nominal 2 watts / Min.1.0 watts
Flatness ±0.5 dB typ. / ±1.0 dB max.
Frequency Response
100 kHz - 1000 MHz instantaneously
Gain (at max. setting) 30 dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 max.
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. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 1.0 watts
Third Order Intercept Point 42 dBm typ.
Primary Power
90 - 264 VAC
47 - 440 Hz, single phase, 60 watts max.
Connectors
RF Input Type N female on front panel
RF Output Type N female on front panel
Cooling Forced air (self-contained fan)
Weight 4.5 kg (10 lb)
Size (WxHxD)
26 x 11.7 x 21.6 cm / 10.3 x 4.6 x 8.5 in
Rack Mountable

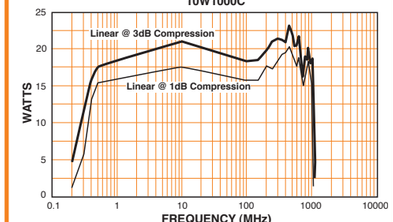



# 500 kHz to 1000 MHz.

## 10W1000C

### 10 watts CW. 500 kHz - 1000 MHz.

Rated Output Power 10 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 20 watts / Min. 10 watts
Power Output @ 1dB compression
Nominal 17 watts / Min. 10 watts
Flatness ±1.0 dB typ. / ±1.5 dB max.
Frequency Response
500 kHz - 1000 MHz instantaneously
Gain (at max. setting) 40 dB min.
Gain Adjustment (continuous range)
20 dB min. (4096 steps remote)
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. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 10 watts
Third Order Intercept Point 50 dBm typ.
Primary Power
90 - 132, 180 - 264 VAC
50 / 60 Hz, single phase, 300 watts max.
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
Remote Interlock 15 Pin Subminiature D
Cooling Forced air (self contained fans)
Weight 20.5 kg (45 lb)
Size (WxHxD)
50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in.
Rack Mountable

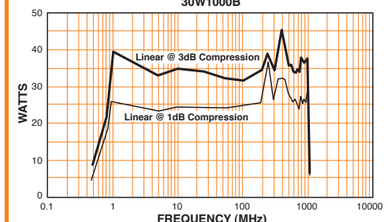



# 1 to 1000 MHz.

## 30W1000B

### 30 watts CW. 1 - 1000 MHz.

Rated Output Power 30 watts min.
Input For Rated Output 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 36 watts / Min. 30 watts
Power Output @ 1dB compression
Nominal 27 watts / Min. 20 watts
Flatness ±1.0 dB typ. / ±1.5 dB max.
Frequency Response
1 - 1000 MHz instantaneously
Gain (at max. setting) 45 dB min.
Gain Adjustment (continuous range)
20 dB min. (4096 steps remote)
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. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 25 watts
Third Order Intercept Point 52 dBm typ.
Primary Power
90 - 132, 180 - 264 VAC
50 / 60 Hz, single phase, 325 watts max.
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
Remote Interlock 15 Pin Subminiature D
Cooling Forced air (self contained fans)
Weight 20.5 kg (45 lb)
Size (WxHxD)
50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in
Rack Mountable

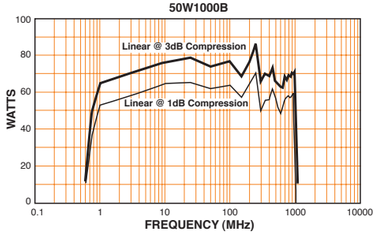


# 1 to 1000 MHz.

## 50W1000B

### 50 watts CW. 1 - 1000 MHz.

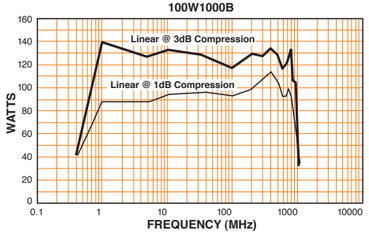
| | |
|---|---|
| Rated Output Power | 50 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 70 watts / Min. 50 watts | |
| Power Output @ 1dB compression<br>Nominal 55 watts / Min. 40 watts | |
| Flatness | ±1.0 dB typ. / ±1.5 dB max. |
| Frequency Response<br>1 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 47 dB min. |
| Gain Adjustment (continuous range)<br>20 dB min. (4096 steps remote) | |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 50 watts | |
| Third Order Intercept Point | 57 dBm typ. |
| Primary Power<br>90 - 132, 180 - 264 VAC<br>50 / 60 Hz, single phase, 600 watts max. | |
| 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 |
| Remote Interlock | 15 Pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 25.9 kg (57 lb) |
| Size (WxHxD)<br>50.3 x 20.3 x 45.7 cm / 19.8 x 8 x 18.1 in | |
| Rack Mountable | |




## 100W1000B

### 100 watts CW. 1 - 1000 MHz.

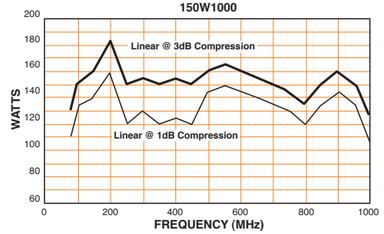
| | |
|---|---|
| Rated Output Power | 100 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 123 watts / Min. 100 watts | |
| Power Output @ 1dB compression<br>Nominal 95 watts / Min. 75 watts | |
| Flatness<br>±2.0 dB max. / 1.5 dB typ.<br>±0.8 dB with internal leveling | |
| Frequency Response<br>1 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 50 dB min. |
| Gain Adjustment (continuous range)<br>18 dB min. (4096 steps remote) | |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 80 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| RF Power Display | 0 - 200 watts |
| Primary Power (user must specify)<br>90 - 264 VAC<br>47 / 400 Hz, single phase, 1200 watts max. | |
| 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 |
| ALC & Pulse | Type BNC on front panel |
| Safety Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 40 kg (88 lb) |
| Size (WxHxD)<br>50.3 x 24.9 x 53 cm / 19.8 x 9.8 x 21.1 in | |
| Rack Mountable | |




## 150W1000

### 150 watts CW. 80 - 1000 MHz.

| | |
|---|---|
| Rated Output Power | 150 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 140 watts / Min. 120 watts | |
| Power Output @ 1dB compression<br>Nominal 120 watts / Min. 100 watts | |
| Flatness<br>±2.0 dB max. / 1.5 dB typ.<br>±0.8 dB with internal leveling | |
| Frequency Response<br>80 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 52 dB min. |
| Gain Adjustment (continuous range)<br>18 dB min. (4096 steps remote) | |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>Will operate without damage or oscillation with any magnitude and phase of source and load impedance. Will limit reflected power to 100 watts. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 100 watts | |
| Third Order Intercept Point | 58 dBm typ. |
| RF Power Display | 0 - 200 watts |
| Primary Power (user must specify)<br>90 - 264 VAC<br>40 / 400 Hz, single phase, 1200 watts max. | |
| 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 |
| ALC & Pulse | Type BNC on front panel |
| Safety Interlock | 15 pin Subminiature D |
| Cooling | Forced air (self contained fans) |
| Weight | 40 kg (88 lb) |
| Size (WxHxD)<br>50.3 x 24.9 x 53 cm / 19.8 x 9.8 x 21.1 in | |
| Rack Mountable | |




* See Application Note #27A at www.arww-rfmicro.com/appnote27/

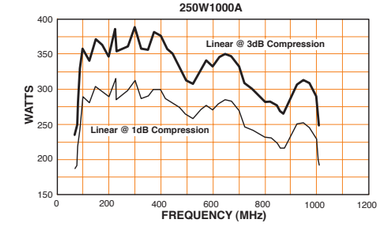


# 80 to 1000 MHz.

## 250W1000A

### 250 watts CW. 80 - 1000 MHz.

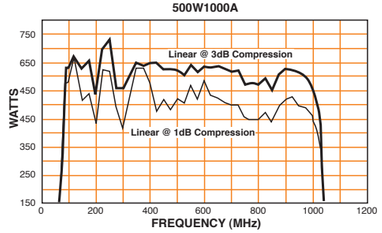
| | |
|---|---|
| Rated Output Power | 250 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 310 watts / Min. 250 watts | |
| Power Output @ 1dB compression<br>Nominal 255 watts / Min. 200 watts | |
| Flatness | ±2.0 dB max. / ±1.5 dB typ. |
| Frequency Response<br>80 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 54 dB min. |
| Gain Adjustment (continuous range)<br>18 dB min. (4096 steps remote) | |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 200 watts | |
| Third Order Intercept Point | 62 dBm typ. |
| Primary Power (user must specify)<br>120 - 240 VAC<br>40 / 400 Hz, single phase, 2200 watts max. | |
| 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 |
| ALC & Pulse | Type BNC on front panel |
| Safety Interlock | 15 pin subminiature D on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight | 86.2 kg (190 lb) |
| Size (WxHxD)<br>50.3 x 47 x 61 cm / 19.8 x 18.5 x 24 in | |




## 500W1000A

### 500 watts CW. 80 - 1000 MHz.

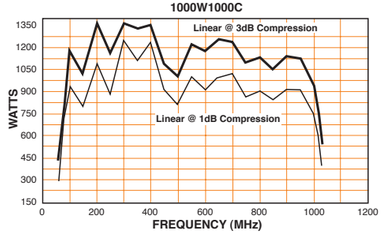
| | |
|---|---|
| Rated Output Power | 525 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 612 watts / Min. 450 watts | |
| Power Output @ 1dB compression<br>Nominal 515 watts / Min. 350 watts | |
| Flatness | ±2.0 dB max. / ±0.8 dB with internal leveling |
| Frequency Response<br>80 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 57 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>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. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 400 watts | |
| Third Order Intercept Point | 63 dBm typ. |
| RF Power Display | 600 watts full scale |
| Primary Power (user must specify)<br>200 - 250 VAC,<br>50 / 60 Hz, single phase, 6500 VA max. | |
| Connectors | |
| RF Input | Type N female on rear panel |
| RF Output | Type N female on rear panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Input | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Safety Interlock | 15 pin subminiature D on rear panel |
| Remote Computer Interface | 24 pin IEEE - 488 (GPIB) connector and RS-232 connector on rear panel |
| Remote Computer Interface (fiber optic) | ST Conn Tx and Rx RS-232 |
| Cooling | Forced air (self contained fans) |
| Weight | 174 kg (383 lb) |
| Size (WxHxD)<br>56.1 x 149.9 x 58.4 cm / 22.1 x 59 x 23 in | |




## 1000W1000C

### 1000 watts CW. 80 - 1000 MHz.

| | |
|---|---|
| Rated Output Power | 1000 watts min. |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 1150 watts / Min. 850 watts | |
| Power Output @ 1dB compression<br>Nominal 920 watts / Min.700 watts | |
| Flatness | ±2.0 dB max. / ±0.8 dB with internal leveling |
| Frequency Response<br>80 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 60 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback up to 6.0:1 mismatch above, which may limit to 500 watts reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 800 watts | |
| Third Order Intercept Point | 66 dBm typ. |
| RF Power Display | 0 - 1200 watts full scale |
| Primary Power (user must specify)<br>200 - 240 VAC, Delta Connected (4 wire)<br>360 - 435 VAC, Wye Connected (5 wire)<br>50 / 60 Hz, 3 phase, 12 kVA max. | |
| Connectors | |
| RF Input | Type N female on rear panel |
| RF Output | Type 7/16 female on rear panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Input | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Remote Computer Interface | 24 pin female IEEE - 488 (GPIB) and RS-232 connectors on rear panel |
| Remote Computer Interface (fiber optic) | ST Conn Tx and Rx RS-232 |
| Safety Interlock | 15 pin subminiature D on rear panel |
| Operate Interface | 27 pin subminiature D on rear panel |
| Cooling | Forced air (self contained fans) |
| Weight (approximate) | 340 kg (750 lb) |
| Size (WxHxD)<br>68.8 x 152.5 x 82.5 cm / 27.1 x 60 x 32.5 in | |

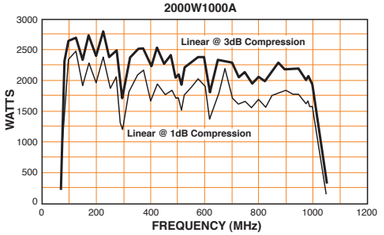


# 80 to 1000 MHz.

## 2000W1000A

### 2000 watts CW. 80 - 1000 MHz.

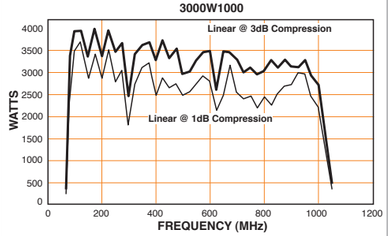
| | |
|---|---|
| Rated Output Power | 1900 watts min. |
| Input For Rated Output | 1.0 milliwatts max. |
| Power Output @ 3dB compression<br>Nominal 2100 watts / Min. 1650 watts | |
| Power Output @ 1dB compression<br>Nominal 1750 watts / Min. 1200 watts | |
| Flatness | ±2.5 dB max. / ±0.8 dB with internal leveling |
| Frequency Response | 80 - 1000 MHz instantaneously |
| Gain (at max. setting) | 63 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback up to 6.0:1 mismatch above, which may limit to 950 watts reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 1500 watts | |
| Third Order Intercept Point | 70 dBm typ. |
| RF Power Display | 0 - 2500 watts |
| Primary Power (user must specify)<br>200 - 250 VAC, Delta Connected (4 wire)<br>360 - 435 VAC, Wye Connected (5 wire)<br>50 / 60 Hz, 3 phase, 24 kVA max. | |
| Connectors | |
| RF Input | Type N female on rear panel |
| RF Output | Type 1 5/8 EIA on rear panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Input | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Safety Interlock | 15 pin female subminiature D on rear panel |
| Remote Computer Interface | 24 pin female IEEE - 488.2 (GPIB) connector on rear panel |
| Remote Computer Interface (fiber optic) | ST Conn Tx and Rx RS-232 |
| Cooling | Forced air (self contained fans) |
| Weight (approximate) | 839 kg (1850 lb) |
| Size (WxHxD) (3 cabinets)<br>201 x 158 x 160 cm / 79 x 62 x 63 in | |




## 3000W1000

### 3000 watts CW. 80 - 1000 MHz.

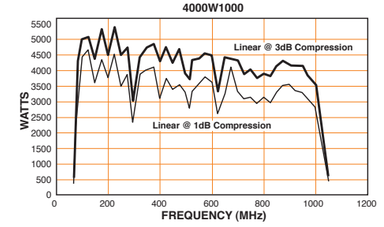
| | |
|---|---|
| Rated Output Power | 2800 watts min. |
| Input For Rated Output | 1.0 milliwatts max. |
| Power Output @ 3dB compression<br>Nominal 3000 watts / Min. 2200 watts | |
| Power Output @ 1dB compression<br>Nominal 2500 watts / Min. 1750 watts | |
| Flatness | ±2.5 dB max. / ±0.8 dB with internal leveling |
| Frequency Response<br>80 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 65 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>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. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 2150 watts | |
| Third Order Intercept Point | 72 dBm typ. |
| RF Power Display | 0 - 4500 watts |
| Primary Power (user must specify)<br>200 - 250 VAC, Delta Connected (4 wire)<br>360 - 435 VAC, Wye Connected (5 wire)<br>50 / 60 Hz, 3 phase, 37 kVA max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type 1 5/8 EIA on rear panel |
| External leveling inputs | Type BNC female on front panel |
| Pulse modulation input | Type BNC female on front panel |
| Detected RF output | Type BNC female on front panel |
| Safety interlock | 15 pin female subminiature D on rear panel |
| Remote Computer Interface | 24 pin female GPIB/IEEE - 488 and 9 pin RS - 232 connectors on rear panel |
| Remote Computer Interface (fiber optic) | ST Conn Tx and Rx RS-232 |
| Cooling | Forced air (self contained fans) |
| Weight (approximate) | 1453 kg (2625 lb) |
| Size (WxHxD) (4 cabinets)<br>272 x 158 x 160 cm / 107 x 62 x 63 in | |




## 4000W1000

### 4000 watts CW. 80 - 1000 MHz.

| | |
|---|---|
| Rated Output Power | 3600 watts min. |
| Input For Rated Output | 1.0 milliwatts max. |
| Power Output @ 3dB compression<br>Nominal 4400 watts / Min. 2800 watts | |
| Power Output @ 1dB compression<br>Nominal 3400 watts / Min. 2200 watts | |
| Flatness | ±2.5 dB max. / ±0.8 dB with internal leveling |
| Frequency Response<br>80 - 1000 MHz instantaneously | |
| Gain (at max. setting) | 66 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 2.0:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>50% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 2800 watts | |
| Third Order Intercept Point | 73 dBm typ. |
| RF Power Display | 0 - 6000 watts |
| Primary Power (user must specify)<br>200 - 250 VAC, Delta Connected (4 wire)<br>360 - 435 VAC, Wye Connected (5 wire)<br>50 / 60 Hz, 3 phase, 48 kVA max. | |
| Connectors | |
| RF input | Type N female on front panel |
| RF output | Type 1 5/8 EIA on rear panel |
| External leveling inputs | Type BNC female on front panel |
| Pulse modulation input | Type BNC female on front panel |
| Detected RF output | Type BNC female on front panel |
| Safety interlock | 15 pin female subminiature D on rear panel |
| Remote Computer Interface | 24 pin female GPIB/IEEE - 488 and 9 pin RS - 232 connectors on rear panel |
| Remote Computer Interface (fiber optic) | ST Conn Tx and Rx RS-232 |
| Cooling | Forced air (self contained fans) |
| Weight (approximate) | 1542 kg (3400 lb) |
| Size (WxHxD) (5 cabinets)<br>340 x 158 x 163 cm / 134 x 62 x 64 in | |




* See Application Note #27A at www.arww-rfmicro.com/appnote27/

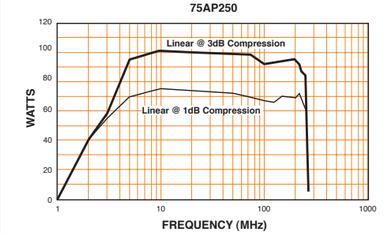


# 5 to 250 MHz.

## 75AP250

### 75 watts CW & Pulse. 5 - 250 MHz.

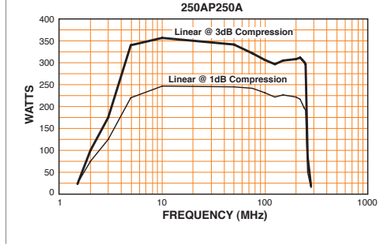
| | |
|---|---|
| Rated Output Power | 75 watts |
| Input For Rated Output | 1.0 milliwatt max. |
| Power Output @ 3dB compression<br>Nominal 94 watts / Min. 75 watts | |
| Linear @ 1dB compression | 50 watts Min. |
| Flatness | ±1.0 dB max. |
| Frequency Response<br>5 - 250 MHz instantaneously | |
| Gain (at max. setting) | 49 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Noise Floor Level (Blanked) | Minus 130 dBm/Hz typ. |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 50 watts | |
| Third Order Intercept Point | 57 dBm typ. |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | +2.5 to 6.0 VDC |
| Rise Time | 1.0 microseconds max. |
| Fall Time | 1.0 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power<br>90 - 135 / 18 - 270 VRMS Autoranging<br>47 - 63 Hz, 440 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| Pulse Input Connector | Type BNC female on front panel |
| Cooling | Forced air (self contained fans) |
| Weight | 13.6 kg (30 lb) |
| Size (WxHxD)<br>50.3 x 15.5 x 30 cm / 19.8 x 6.1 x 11.8 in | |
| Rack Mountable | |




## 250AP250A

### 250 watts CW & Pulse. 5 - 250 MHz.

| | |
|---|---|
| Rated Output Power | 250 watts min. |
| Input For Rated Output | 1.0 milliwatt min. |
| Power Output @ 3dB compression<br>Nominal 316 watts / Min. 250 watts | |
| Power Output @ 1dB compression<br>Nominal 240 watts / Min.150 watts | |
| Flatness<br>± 1.5 dB max./± 0.5 dB with internal leveling | |
| Frequency Response<br>5 - 250 MHz instantaneously | |
| Gain (at max. setting) | 54 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, nominal |
| Mismatch Tolerance*<br>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. | |
| Noise Floor Level (Blanked) | Minus 130 dBm/Hz typ. |
| Modulation Capability<br>Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power. | |
| Harmonic Distortion<br>Minus 20 dBc max. at 150 watts | |
| Third Order Intercept Point | 60 dBm typ. |
| RF Power Display | 0 - 350 watts full scale |
| Pulse Mode Gating Characteristics | |
| Signal (into 50 ohms) | +2.0 to 6.0 VDC |
| Rise Time | 1.0 microseconds max. |
| Fall Time | 1.0 microseconds max. |
| RF Rise/Fall Time | 10 nanoseconds max. |
| Primary Power<br>180 - 264 VAC<br>47 - 440 Hz, 1400 watts max. | |
| Connectors | |
| RF Input | Type N female on front panel |
| RF Output | Type N female on front panel |
| External Leveling Inputs | Type BNC female on front panel |
| Pulse Modulation Inputs | Type BNC female on front panel |
| Detected RF Output | Type BNC female on front panel |
| Cooling | Forced air (self contained fans) |
| Weight | 68 kg (150 lb) |
| Size (WxHxD)<br>50.3 x 42.7 x 55.1 cm / 19.8 x 16.8 x 21.7 in | |
| Rack Mountable | |



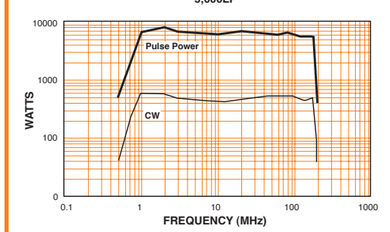



# 1 to 180 MHz.

## 5000LP

### 400 watts CW / 5000 watts Pulse. 1 - 175 MHz.

| | |
|---|---|
| Rated Output Power | |
| Pulse | 5000 watts min. |
| Duty Cycle | 5% |
| Pulse Width | 8.0 milliseconds max. |
| CW | 400 watts min. |
| Flatness | ±1.5 dB max. |
| Frequency Response<br>1 - 175 MHz instantaneously | |
| Gain (at max. setting)<br>High Range | 67 dB min. |
| Gain Adjustment (continuous range) | 18 dB min. |
| Input Impedance | 50 ohms, VSWR 1.5:1 max. |
| Output Impedance | 50 ohms, VSWR 1.5:1 max. |
| Mismatch Tolerance*<br>100% of rated power without damage, foldback, shutdown or oscillation with any magnitude and phase of source and load impedance at rated output power. | |
| Modulation Capability<br>Linear amplitude and phase response to over 80 MHz allows faithful reproduction of AM, FM, pulse, or phase modulation appearing on the input signal | |
| Harmonic Distortion | Minus 15 dBc max. at 4000 watts |
| Gating Characteristics<br>Pulse mode pedestal / CW mode blanking | |
| Signal (into 180 ohms) | ± 2.5 - 6.0 VDC |
| Rise time | 15 microseconds max. |
| Fall time | 4 microseconds max. |
| RF rise/fall time | 10 nanoseconds max. |
| RF pulse droop | 2% max. @ 4 milliseconds<br>4% @ 8 milliseconds |
| Primary Power (user must specify) | 200/208 ±5% VAC, 3 phase, 50/60 Hz<br>390/415 ±5% VAC, 3 phase, 50/60 Hz<br>11 kVA nominal |
| Connectors | |
| RF input | Type BNC female |
| RF output | Type C female |
| Blanking | Type BNC female |
| Remote control | 25 pin female subminiature D |
| Cooling | Forced Air (self-contained fans) |
| Weight (approximate) | 250 kg (550 lb) |
| Size (WxHxD)<br>56.1 x 149.9 x 58.4 cm / 22.1 x 59 x 23 in | |



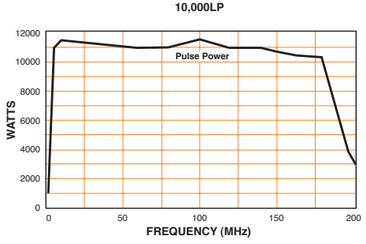
# 1 to 180 MHz.

## 10000LP

### 10,000 watts Pulse. 9 MHz - 180 MHz.

Rated Output Power
High range, CW — 2000 watts min.
RMS pulse — 10,000 watts at <3 dB gain compression
8,000 watts at <1 dB gain compression
1 to 1000 watts ± .25 dB linearity
Pulse Limits — 5% max. duty cycle
10 milliseconds max. pulse length gating 1000 Hz per second max.
Pulse droop less than 4% at 10 milliseconds
Low Range — 100 watts CW
Flatness — ±1.5 dB max.
Frequency Response — 9 MHz - 180 MHz
Gain (at max. setting) — 70 dB min.High Range Pulse Mode; 47 dB nominal Low Range
Gain Adjustment (continuous range) — 18 dB min.
Input Impedance — 50 ohms, VSWR 1.5:1 max.
Output Impedance — 50 ohms, nominal
Mismatch Tolerance*
100% of rated power without damage, foldback, shutdown or oscillation with any magnitude and phase of source and load impedance at rated output power.
Modulation Capability
Will faithfully reproduce AM, FM or pulse modulation appearing on the input signal
Harmonic Distortion
Minus 14 dBc, 9 - 110 MHz
Minus 25 dBc,110 - 180 MHz
Gating Characteristics - Pulse mode gating
Signal (into 180 ohms) — ± 2.5 - 6.0 VDC
Rise time — 25 microseconds nominal
Fall time — 5 microseconds nominal
RF rise/fall time — 10 nanoseconds max.
Primary Power (user must specify) — 200/208 ±5% VAC, 3 phase, 60 Hz; 380/415 ±5% VAC, 3 phase, 50/60 Hz 18.2 kVA max.
Connectors
RF input — Type BNC female
RF output — Type C female
Gating/Blanking — Type BNC female
Remote control — 25 pin female subminiature D
Cooling — Tap water, 19 - 23 LPM (5 - 6 GPM) at 20° C max.; Self contained forced air
Weight (approximate) — 455 kg (1000 lb)
Size (WxHxD)
56.1 x 173 x 67 cm / 22.1 x 68 x 26.4 in

10,000LP



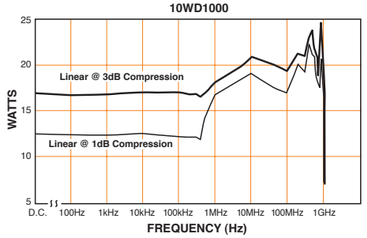

* See Application Note #27A at www.arww-rfmicro.com/appnote27/

## 10WD1000

### 10 watts CW. dc - 1000 MHz.

Rated Output Power — 15 watts min.
Input For Rated Output — 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 19 watts / Min. 12.5 watts
Power Output @ 1dB compression
Nominal 17 watts / Min. 10 watts
Flatness — ±1.0 dB typ. / ±1.5 dB max.
Frequency Response
DC - 1000 MHz (In two bands selected automatically, manually or buss)
Gain — 40 dB min.
Input Impedance — 50 ohms, VSWR 2.0:1 max.
Output Impedance — 50 ohms, nominal
Mismatch Tolerance*
100% of rated output power. Will operate without damage or oscillation or foldback 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. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 10 watts
Third Order Intercept Point — 50 dBm typ.
Primary Power
85 - 264 VAC
47 - 440 Hz, 500 watts max.
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
Safety Interlock — 15 Pin Subminiature D
Cooling — Forced air (self contained fans)
Weight — 20.5 kg (45 lb)
Size (WxHxD)
50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in
Rack Mountable

10WD1000

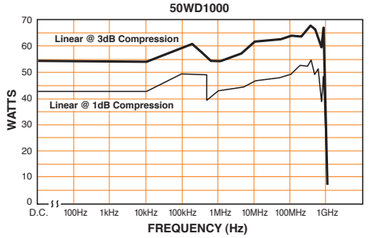



## 50WD1000

### 50 watts CW. dc - 1000 MHz.

Rated Output Power — 50 watts min.
Input For Rated Output — 1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 60 watts / Min. 40 watts
Power Output @ 1dB compression
Nominal 50 watts / Min.30 watts
Flatness — ±1.0 dB typ. / ±1.5 dB max.
Frequency Response
dc - 1000 MHz (in two bands selected automatically or manually)
Gain — 46 dB min.
Input Impedance — 50 ohms, VSWR 2.0:1 max.
Output Impedance — 50 ohms, nominal
Mismatch Tolerance*
100% of rated output power. 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. AM peak envelope power limited to specified power.
Harmonic Distortion
Minus 20 dBc max. at 35 watts
Third Order Intercept Point — 56 dBm typ.
Primary Power
90 - 132; 180 - 264 VAC
50 / 60 Hz, single phase, 700 watts max.
Connectors
RF Input — Type N female on front panel
RF Output — Type N female on front panel
Remote Control
25 Pin Subminiature D on rear panel
Cooling — Forced air (self contained fans)
Weight — 29 kg (64 lb)
Size (WxHxD)
50.3 cm x 24.9 cm x 45.7 cm / 19.8 in x 9.8 in x 18 in
Rack Mountable

50WD1000






# AR Accessories. Enhance Your Competitive Edge.

AR accessories are power and frequency matched to our amplifiers and specially designed to make testing more efficient and more accurate. For a full list of accessories, please visit www.ar-worldwide.com.

### 1. *Antennas*

Radiant Arrow® – Illumination at the fierce 80 MHz to 5.0 GHz frequency range. Breakthrough technology for applications requiring a directive antenna to illuminate large test objects at high field levels. The patented Radiant Arrow® 80 offers broader bandwidth, greater power handling, and it's 60% more compact than existing periodics. Designed for EMC radiated immunity testing, it can also be calibrated for emissions. The larger Radiant Arrow® 26 spans the 26 MHz to 5.0 GHz range. The AT2526 log-periodic antenna, covers the 26 to 250 MHz frequency band and accepts up to 15k W input, for high field generation and EUT testing.

Our broadband microwave horn antennas are specially designed to compensate for the losses that typically occur in test systems as frequency increases. They exhibit increasing gain and increasing frequency, up to 50 GHz. For use in shielded rooms or in free space.

1.

### 2. *Three Starprobe® Laser-Powered Probes*

Starprobe 1, Starprobe 2 and Starprobe 3 offer three frequency ranges, up to 18 GHz. These laser-powered E-field probes are incredibly small; and adapts to their environment. Patented detectors and the unique antenna design provide better performance in the presence of harmonic distortion and better isotropic response, free of spikes and glitches. Extremely accurate low field readings – down to 0.5 V/m or better.

2.

### 3. *Starmonitor® Field Monitor*

E- and H- field control center offers monitoring, display, and alarm capabilities for immunity test environments. Exceptionally precise, adapts to laser or battery-powered probes. Measures field-strength at up to four probe locations simultaneously. Choose from eight field probes with sensitivity from 0.4 to 1000 V/m, 0.012 – 17A/m, and frequency response from 10 kHz to 60 GHz.

3.

### 4. *Six Battery-Powered, Rechargeable E&H Field Probes*

Probes cover the range from 100 kHz – 60 GHz, 0.4 – 1000 V/m, 0.012 – 17 A/m. Each probe covers a wider frequency range than most ordinary probes. They feature user-replaceable, rechargeable batteries, quicker calibration turnaround, more complete data and excellent isotropy and linearity for unmatched precision and accuracy.

4.

### 5. *AR Systems*

Custom AR test systems are available from 10 kHz to 45 GHz. Specifications for systems can be found on our website, www.ar-worldwide.com. For additional requirements, call an applications engineer at 800-933-8181.

5.

### 6. *System Controllers and EMC Test Software*

The SC1000s are versatile RF test system controllers that allow multiple pieces of equipment to be used in a single test set-up – up to three signal generators, four power amplifiers, four directional couplers and four different RF loads for broadband RF testing. With our SW1006 software, it acts as a master "Brain" in an AR Brainlink® System.

Frequency range from dc to 40 GHz via RS-232, IEEE - 488 or by manual control. System interlock capability is provided by sensing a switch closure. A switchable positive 12 VDC signal and four open collector outputs are supplied to allow the use of external switches.

SW1006 Software for Conducted Immunity Testing, Radiated Susceptibility Testing, and Pre-Compliance Conducted & Radiated Emissions Testing. One software package automatically performs both calibration and immunity testing in full compliance with EN61000-4-3, 4-6, MIL-STD 461/462 RS103, CS114, RTCA/D0160 Section 20 specifications. Aso enables the user to collect data and generate reports.

SW888A Leveling Software. Provides automated power or E-field leveling control for constant level testing. It controls the signal generator, field monitor, power meter, and other equipment for field power generation and level maintenance.

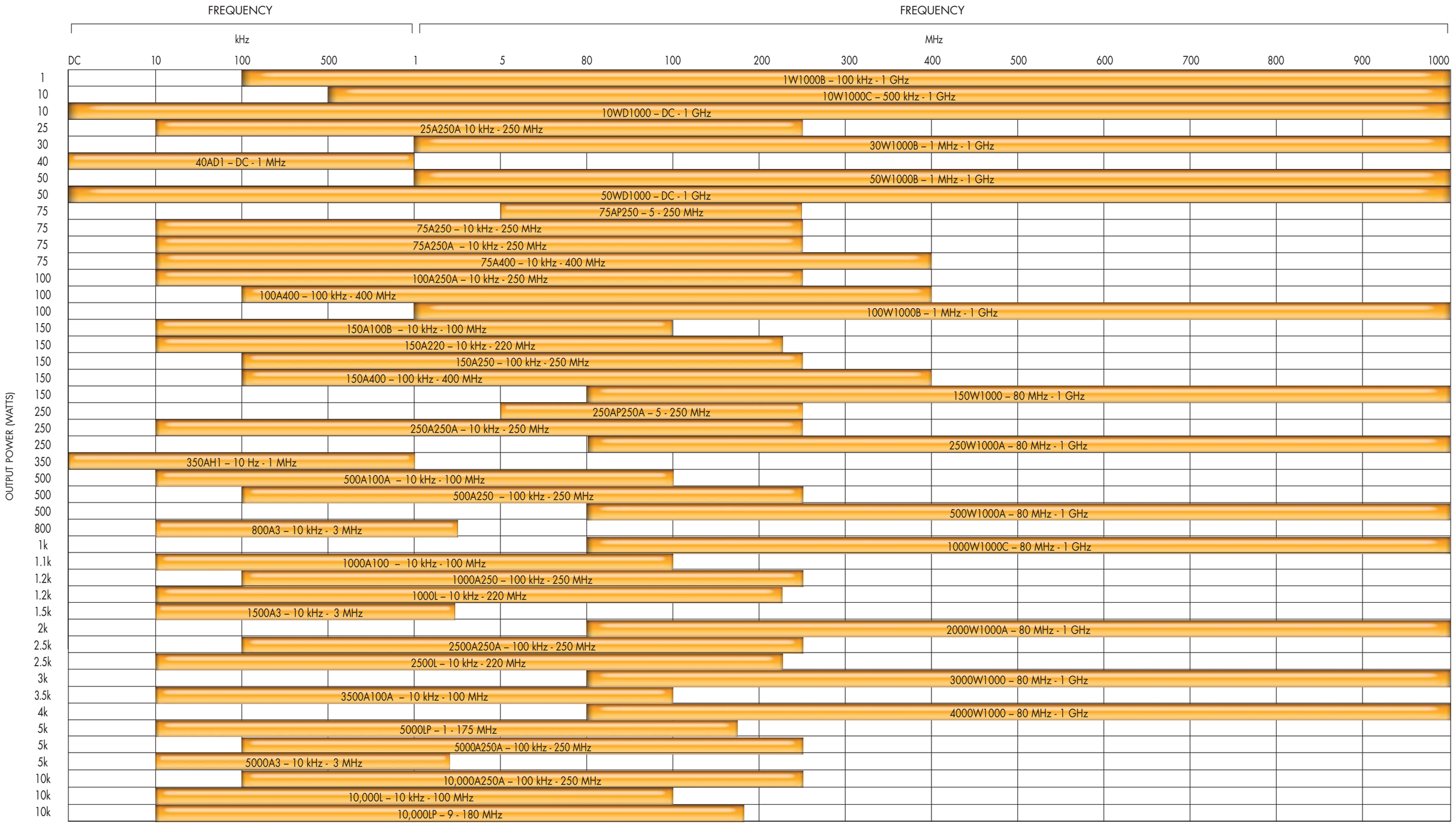
6.

### 7. *Signal Generators*

Two new, lightweight 2U (3.5") high signal generators with a frequency bandwidth of 9 kHz to 6 GHz. They provide comprehensive modulation capability, reverse power protection up to 50 watts, front panel control and remote communications using either GPIB or RS-232.

7.

# Find It Fast.


FREQUENCY
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FREQUENCY
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OUTPUT POWER (WATTS)
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10k
1W1000B – 100 kHz - 1 GHz
10W1000C – 500 kHz - 1 GHz
10WD1000 – DC - 1 GHz
25A250A 10 kHz - 250 MHz
30W1000B – 1 MHz - 1 GHz
40AD1 – DC - 1 MHz
50W1000B – 1 MHz - 1 GHz
50WD1000 – DC - 1 GHz
75AP250 – 5 - 250 MHz
75A250 – 10 kHz - 250 MHz
75A250A – 10 kHz - 250 MHz
75A400 – 10 kHz - 400 MHz
100A250A – 10 kHz - 250 MHz
100A400 – 100 kHz - 400 MHz
100W1000B – 1 MHz - 1 GHz
150A100B – 10 kHz - 100 MHz
150A220 – 10 kHz - 220 MHz
150A250 – 100 kHz - 250 MHz
150A400 – 100 kHz - 400 MHz
150W1000 – 80 MHz - 1 GHz
250AP250A – 5 - 250 MHz
250A250A – 10 kHz - 250 MHz
250W1000A – 80 MHz - 1 GHz
350AH1 – 10 Hz - 1 MHz
500A100A – 10 kHz - 100 MHz
500A250 – 100 kHz - 250 MHz
500W1000A – 80 MHz - 1 GHz
800A3 – 10 kHz - 3 MHz
1000W1000C – 80 MHz - 1 GHz
1000A100 – 10 kHz - 100 MHz
1000A250 – 100 kHz - 250 MHz
1000L – 10 kHz - 220 MHz
1500A3 – 10 kHz - 3 MHz
2000W1000A – 80 MHz - 1 GHz
2500A250A – 100 kHz - 250 MHz
2500L – 10 kHz - 220 MHz
3000W1000 – 80 MHz - 1 GHz
3500A100A – 10 kHz - 100 MHz
4000W1000 – 80 MHz - 1 GHz
5000LP – 1 - 175 MHz
5000A250A – 100 kHz - 250 MHz
5000A3 – 10 kHz - 3 MHz
10,000A250A – 100 kHz - 250 MHz
10,000L – 10 kHz - 100 MHz
10,000LP – 9 - 180 MHz

# AR Competitive Edge.

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- Transient Generators
- Precompliance Test Systems
- Accessories and Software

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- RF Amplifiers and Modules
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The AR warranty is more than just a warranty, it's a promise, backed by a knowledgeable support team that's always there for you to help solve any problems and answer any questions, today and tomorrow. AR warrants its amplifiers, antennas, pre-compliance test systems, transient generators, power meters, field monitoring equipment, conducted immunity generators, signal generators, couplers and tripods to be free of defects in materials and workmanship for a period of three years from date of shipment. Other products including 200T1G3A, 200T2G8A, 200T8G18A, 250T1G3, 250T8G18 TWT carry a two-year warranty. Vacuum and other traveling-wave tubes as well as powerheads carry a one-year warranty.

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