All The Power You Need… With Legendary Performance & Reliability

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

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

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

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

These self-contained, broadband, completely solid-state amplifiers are designed for applications requiring the ultimate in output power over a wide instantaneous bandwidth with high gain. Extensive control and status reporting capabilities are available both locally and remotely. Most models feature air-cooled designs while some higher power units feature liquid cooled designs. The touch-screen panels are intuitive, convenient, and easy to use.
AR's history of providing broadband, high power amplifiers has remained constant through the years. Applying the latest technology has enabled us to break new ground in very high power, solid state amplifier design.

**Facility**

We made an investment two years ago to create a Large Amplifier Integration and Test Area. Not only did this open up floor space to support the building of multiple systems but it brought added HVAC capabilities for the amplifiers and primary AC power to properly conduct factory testing. Engineers now have the freedom to create designs to accommodate multiple configurations and optimize performance. The area also supports customer factory acceptance testing as required.

**Air vs. Liquid Cooling**

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

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

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

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

Fifth, it gives customers the option of using existing cooling infrastructure to save costs. Liquid cooling options include an external chiller or the use of chilled water supplied by the customer’s facility. By utilizing existing infrastructure, operating costs can be reduced.

AR’s high power amplifiers incorporate our latest Touch Panel amplifier control system*. This new system makes it easier to monitor and control important amplifier functions. On the right are some example screen shots unique to one of AR’s newest ultra high power amplifiers. See page 69 for more details on the AR’s intuitive touch panel capabilities.
*Touch Panel amplifier control system*
“A” and “W” Series Amplifiers Provide A Wide Range Of Features & Benefits

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

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

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

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

- **Liquid Cooling Reduces The Heat Load On The Amplifier Room**
  Since most of the heat generated is carried away by the cooling liquid, HVAC requirements are reduced, which results in more comfortable surroundings and reduced utility bills.

- **Liquid Cooling Allows For Fewer Fans**
  This makes the amplifier significantly quieter. By reducing the noise, operators can work in a safer, more pleasant environment without fatigue.

- **Liquid Cooling Provides The Option Of Using Your Existing Cooling Infrastructure**
  Liquid cooling options include an external chiller or the use of chilled water supplied by the customer’s facility. By utilizing one’s existing infrastructure, operating costs can be greatly reduced.

Like everything we do at AR, liquid cooling has been carefully considered, tested and researched before being chosen as the preferred method for controlling temperatures in large high-power amplifiers. We utilize proprietary techniques to implement the most reliable and robust mechanical designs possible.
RF Solid State Amplifiers
DC to 1 MHz

350AH1

350 watts CW. 10 Hz - 1 MHz.

Operation

Class AB Linear

Power Output (1.79 Ohm load)

- CW, min. 350 watts, 10 Hz - 300 kHz
- 350 - 55 watts, 300 kHz - 1 MHz
- 25 Vrms, 10 Hz - 300 kHz
- 25 - 10 Vrms, 300 kHz - 1 MHz
- 14 Arms, 10 Hz - 300 kHz
- 14 - 5.5 Arms, 300 kHz - 1 MHz
- ±1.0 dB, 10 Hz - 300 kHz
- ±4.0 dB, 300 kHz - 1 MHz

Flatness

Frequency Response

Input Signal

Gain (Power)

- 47 dB min., 10 Hz - 300 kHz
- 39 dB min., 300 kHz - 1 MHz

Gain Control Range

Input Impedance

Output Impedance

Mismatch Tolerance

Primary Power

Connectors

RF Input Type N female on front panel

RF Output 5-way binding posts on front panel

Remote Control IEEE-488 RS-232 USB Ethernet

Safety Interlock 15 pin subminiature D

Cooling Forced air (self contained fans)

Weight 25 kg (55 lb)

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

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

RF Solid State Amplifiers
DC to 1000 MHz

10WD1000

10 watts CW. dc-1000 MHz.

Rated Output Power

Input For Rated Output

Power Output @ 3dB compression

Nominal 19 watts / Min. 12.5 watts

Power Output @ 1dB compression

Nominal 17 watts / Min. 10 watts

Flatness

Frequency Response

DC - 1000 MHz (In two bands selected automatically, manually or bass)

Gain

Input Impedance

Output Impedance

Mismatch Tolerance

Primary Power

Connectors

RF Input Type N female on front panel

RF Output Type N female on front panel

Remote Control 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) 50.3 x 19.9 x 37.6 cm / 19.8 x 6.1 x 14.8 in

50WD1000

50 watts CW. dc-1000 MHz.

Rated Output Power

Input For Rated Output

Power Output @ 3dB compression

Nominal 60 watts / Min. 40 watts

Power Output @ 1dB compression

Nominal 50 watts / Min. 30 watts

Flatness

Frequency Response

DC - 1000 MHz (in two bands selected automatically or manually)

Gain

Input Impedance

Output Impedance

Mismatch Tolerance

Primary Power

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
RF Solid State Amplifiers
10 kHz to 225 MHz

1000 watts CW. 10 kHz - 225 MHz.

1000A225

- **Rated Output Power**: 1000 watts
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output @ 1dB compression**: Nominal 900 watts / Min. 700 watts
- **Flatness**: ±3.0 dB max.
- **Frequency Response**: 10 kHz - 225 MHz instantaneously
- **Gain (at max. setting)**: 60 dB min.
- **Gain Adjustment (continuous range)**: 20 dB min.
- **Input Impedance**: 50 ohms, nominal
- **Output Impedance**: 50 ohms, nominal
- **Mismatch Tolerance*: 100% rated power without foldback up to 6.0:1 mismatch, above which may limit to 500 watts reflective power.

**Harmonic Distortion**: Minus 20 dBc max. at 750 watts

**Third Order Intercept Point**: 187 - 264 VAC Delta (4-wire), 3-phase

**RF Rise/Fall Time**: 10 nanoseconds max.

**Primary Power**:
- **Primary Voltage**: 365 - 460 VAC, Wye (5-wire)
- **Primary Frequency**: 47 - 63 Hz

**Connectors**:
- **RF Input**: Type N female on rear panel
- **RF Output**: Type 7-16 DIN Female on rear panel
- **Forward RF Sample**: Type BNC female on front panel
- **Reverse RF Sample**: Type BNC female on front panel
- **Remote Control**: IEEE-488, 24 pin female on rear panel
- **Remote Control (Fiber Optic)**: ST connector, Tx and Rx RS-232
- **Safety Interlock**: 15 pin female Type D on rear panel

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

**Weight**: 127 kg (280 lb)

**Size (WxHxD)**: 56.1 x 109.2 x 88.9 cm / 22.1 x 43 x 35 in

2500 watts CW. 10 kHz - 225 MHz.

2500A225

- **Rated Output Power**: 2500 watts, 10 kHz - 100 MHz; 2520 - 1900 watts, 100 MHz - 225 MHz (derating slope of 4.8 watts/MHz)
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output for 1dB compression**: Nominal 900 watts / Min. 700 watts
- **Flatness**: ±3.0 dB max.
- **Frequency Response**: 10 kHz - 225 MHz instantaneously
- **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, nominal
- **Mismatch Tolerance*: 100% rated power without foldback up to 6.0:1 mismatch, above which may limit to 1250 watts reflected power.

**Harmonic Distortion**: Minus 20 dBc max. at 1800 watts

**Third Order Intercept Point**: 187 - 264 VAC Delta (4-wire), 3-phase

**RF Rise/Fall Time**: 10 nanoseconds max.

**Primary Power**:
- **Primary Voltage**: 365 - 460 VAC, Wye (5-wire)
- **Primary Frequency**: 47 - 63 Hz

**Connectors**:
- **RF Input**: Type N female on rear panel
- **RF Output**: Type 7-16 DIN Female on rear panel
- **Forward RF Sample**: Type BNC female on front panel
- **Reverse RF Sample**: Type BNC female on front panel
- **Remote Control**: IEEE-488, 24 pin female on rear panel
- **Remote Control (Fiber Optic)**: ST connector, Tx and Rx RS-232

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

**Weight**: 159 kg (350 lb)

**Size (WxHxD)**: 56.1 x 108 x 88.9 cm / 22.1 x 42.5 x 35 in

5000 watts CW. 10 kHz - 225 MHz.

5000A225

- **Rated Output Power**: 5000 watts, 10 kHz - 50 MHz
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output for 1dB compression**: 5000 - 4000 watts, 50 MHz - 200 MHz (derating slope of 4.8 watts/MHz)

**Third Order Intercept Point**: 187 - 264 VAC Delta (4-wire), 3-phase

**RF Rise/Fall Time**: 10 nanoseconds max.

**Primary Power**:
- **Primary Voltage**: 365 - 460 VAC, Wye (5-wire)
- **Primary Frequency**: 47 - 63 Hz

**Connectors**:
- **RF Input**: Type N female on rear panel
- **RF Output**: Type 7-16 DIN Female on rear panel
- **Forward RF Sample**: Type BNC female on front panel
- **Reverse RF Sample**: Type BNC female on front panel
- **Remote Control**: IEEE-488, 24 pin female on rear panel
- **Remote Control (Fiber Optic)**: ST connector, Tx and Rx RS-232

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

**Weight**: 250 kg (550 lb)

**Size (WxHxD)**: 56.1 x 88.9 x 160 cm / 22.1 x 35 x 63 in

* See Application Note #27A at www.arworld.us/appnote27/
10,000 watts CW. 10 kHz-225 MHz.

- **Rated Output Power**: 10,000 watts min., 10 kHz - 100 MHz
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output for 1dB compression**: 7000 watts, 10 kHz - 100 MHz

**Connectors**
- ST Connector, Tx and Rx RS-232
- RS-232 9-pin female Type D on rear panel
- IEEE-488 24 pin female on rear panel
- Remote Control (fiber optic)
- Safety Interlock 15 pin female Type D on rear panel
- Reverse Sample Type BNC female on front panel
- Forward Sample Type BNC female on front panel
- RF Input Type N female on rear panel
- RF Output Type EIA 3-1/8 male on rear panel
- Reverse Sample Type EIA 3-1/8 male on front panel
- Safety Interlock 15 pin female Type D on rear panel
- Remote Control IEEE-488
- Remote Control (fiber optic)
- ST Connector, Tx and Rx RS-232
- Ethernet RJ-45

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

**Weight**
- 502 kg (1100 lb)

**Size (WxHxD)**
- 112.1 x 82.4 x 165.3 cm / 44.12 x 32.43 x 65.1 in

---

12,500 watts CW. 10 kHz-225 MHz.

- **Rated Output Power**: 12,500 watts min., 10 kHz - 100 MHz
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output for 1dB compression**: 11,000 watts, 10 kHz - 100 MHz

**Connectors**
- ST Connector, Tx and Rx RS-232
- RS-232 9-pin female Type D on rear panel
- IEEE-488 24 pin female on rear panel
- Remote Control (fiber optic)
- Safety Interlock 15 pin female Type D on rear panel
- Reverse Sample Type BNC female on front panel
- Forward Sample Type BNC female on front panel
- RF Input Type N female on rear panel
- RF Output Type EIA 3-1/8 male on rear panel
- Reverse Sample Type EIA 3-1/8 male on front panel
- Safety Interlock 15 pin female Type D on rear panel
- Remote Control IEEE-488
- Remote Control (fiber optic)
- ST Connector, Tx and Rx RS-232
- Ethernet RJ-45

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

**Weight**
- 682 kg (1500 lb)

**Size (WxHxD)**
- 170.2 x 88.9 x 182.8 cm / 67 x 35 x 72 in

---

12,500 watts CW. 10 kHz-225 MHz.

- **Rated Output Power**: 12,500 watts min., 10 kHz - 100 MHz
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output for 1dB compression**: 12,500 watts, 10 kHz - 100 MHz

**Connectors**
- ST Connector, Tx and Rx RS-232
- RS-232 9-pin female Type D on rear panel
- IEEE-488 24 pin female on rear panel
- Remote Control (fiber optic)
- Safety Interlock 15 pin female Type D on rear panel
- Reverse Sample Type BNC female on front panel
- Forward Sample Type BNC female on front panel
- RF Input Type N female on rear panel
- RF Output Type EIA 3-1/8 male on rear panel
- Reverse Sample Type EIA 3-1/8 male on front panel
- Safety Interlock 15 pin female Type D on rear panel
- Remote Control IEEE-488
- Remote Control (fiber optic)
- ST Connector, Tx and Rx RS-232
- Ethernet RJ-45

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

**Weight**
- 502 kg (1100 lb)

**Size (WxHxD)**
- 112.1 x 82.4 x 165.3 cm / 44.12 x 32.43 x 65.1 in

**Export classification**: EAR99
16,000 watts CW. 10 kHz - 225 MHz.

<table>
<thead>
<tr>
<th>WATTS</th>
<th>10000</th>
<th>15000</th>
<th>20000</th>
<th>25000</th>
</tr>
</thead>
<tbody>
<tr>
<td>(WxHxD)</td>
<td>5000</td>
<td>997</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16,000A225A-L

<table>
<thead>
<tr>
<th>Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Input</td>
</tr>
<tr>
<td>RF Output</td>
</tr>
<tr>
<td>Forward Sample N female, front (coupling factor 84dB typical)</td>
</tr>
<tr>
<td>Reverse Sample N female, front (coupling factor 84dB typical)</td>
</tr>
<tr>
<td>Pulse Modulation Input BNC, female on rear panel</td>
</tr>
<tr>
<td>Safety Interlock 15 pin female Type D on rear panel</td>
</tr>
<tr>
<td>Remote Control IEEE-488:</td>
</tr>
<tr>
<td>RS-232, RS-232 (fiber optic):</td>
</tr>
<tr>
<td>USB 2.0:</td>
</tr>
<tr>
<td>Ethernet RJ-45</td>
</tr>
</tbody>
</table>

Cooling Liquid cooled via external chilled water supply

Weight 997 kg (2200 lb)

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

Export classification EAR99

16000A225A-L

<table>
<thead>
<tr>
<th>Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Input</td>
</tr>
<tr>
<td>RF Output</td>
</tr>
<tr>
<td>Forward Sample N female, front (coupling factor 84dB typical)</td>
</tr>
<tr>
<td>Reverse Sample N female, front (coupling factor 84dB typical)</td>
</tr>
<tr>
<td>Pulse Modulation Input BNC, female on rear panel</td>
</tr>
<tr>
<td>Safety Interlock 15 pin female Type D on rear panel</td>
</tr>
<tr>
<td>Remote Control IEEE-488:</td>
</tr>
<tr>
<td>RS-232, RS-232 (fiber optic):</td>
</tr>
<tr>
<td>USB 2.0:</td>
</tr>
<tr>
<td>Ethernet RJ-45</td>
</tr>
</tbody>
</table>

Cooling Liquid cooled via external chilled water supply

Weight 997 kg (2200 lb)

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

Export classification EAR99

20000A225A-L

<table>
<thead>
<tr>
<th>Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Input</td>
</tr>
<tr>
<td>RF Output</td>
</tr>
<tr>
<td>Forward Sample N female, front (coupling factor 84dB typical)</td>
</tr>
<tr>
<td>Reverse Sample N female, front (coupling factor 84dB typical)</td>
</tr>
<tr>
<td>Pulse Modulation Input BNC, female on rear panel</td>
</tr>
<tr>
<td>Safety Interlock 15 pin female Type D on rear panel</td>
</tr>
<tr>
<td>Remote Control IEEE-488:</td>
</tr>
<tr>
<td>RS-232, RS-232 (fiber optic):</td>
</tr>
<tr>
<td>USB 2.0:</td>
</tr>
<tr>
<td>Ethernet RJ-45</td>
</tr>
</tbody>
</table>

Cooling Liquid cooled via external chilled water supply

Weight 997 kg (2200 lb)

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

Export classification EAR99

* See Application Note #27A at www.arworld.us/appnote27/
### 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**: Nominal 32 watts / Min. 25 watts
- **Power Output @ 1dB compression**: Nominal 20 watts / Min. 15 watts
- **Flatness**: ±1.0 dB max.
- **Frequency Response**: 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**: 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- **Noise Figure (above 1.0 MHz)**: 16 dB typ.
- **Harmonic Distortion**: Minus 20 dBc max. at 50 watts
- **Third Order Intercept Point**: 54 dBm typ.
- **Primary Power**: 90 - 135 / 180 - 270 VAC, 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)**: 50.3 x 15.9 x 30 cm / 19.8 x 6.1 x 11.8 in

### 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**: Nominal 100 watts / Min. 75 watts
- **Power Output @ 1dB compression**: Nominal 50 watts / Min. 30 watts
- **Flatness**: ±1.0 dB max.
- **Frequency Response**: 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**: 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- **Noise Figure (above 1.0 MHz)**: 16 dB typ.
- **Harmonic Distortion**: Minus 20 dBc max. at 75 watts
- **Third Order Intercept Point**: 57 dBm typ.
- **Primary Power**: 90 - 135 / 180 - 270 VAC autoranging, 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 RS-232
- **Safety Interlock**: 15 pin Subminiature D
- **Cooling**: Forced air (self contained fans)
- **Weight**: 31.75 kg (70 lb)
- **Size (WxHxD)**: 50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in

### 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**: Nominal 157 watts / Min. 125 watts
- **Power Output @ 1dB compression**: Nominal 107 watts / Min. 75 watts
- **Flatness**: ±1.5 dB max.
- **Frequency Response**: 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**: 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- **Noise Figure (above 1.0 MHz)**: 10 dB typ.
- **Harmonic Distortion**: Minus 20 dBc max. at 75 watts
- **Third Order Intercept Point**: 58 dBm typ.
- **Primary Power**: 90 - 135 / 180 - 270 VAC autoranging, 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 RS-232
- **Safety Interlock**: 15 pin Subminiature D
- **Cooling**: Forced air (self contained fans)
- **Weight**: 31.75 kg (70 lb)
- **Size (WxHxD)**: 50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in
RF Solid State Amplifiers

10 kHz to 250 MHz

500A250C

500 watts CW. 10 kHz-250 MHz.

- Rated Output Power: 500 watts
- Input For Rated Output: 1.0 milliwatt max.
- Power Output: 600 watts / Min. 500 watts
- Power Output @ 1dB compression: 500 watts / Min. 350 watts
- Flatness: ±2.5 dB max.
- Frequency Response: 10 kHz - 250 MHz instantaneously
- Gain (at max. setting): 57 dB min.
- Gain Adjustment (continuous range): 20 dB min.
- Input Impedance: 50 ohms, VSWR 1.5:1 max.
- Output Impedance: 50 ohms, nominal
- Mismatch Tolerance*: 100% rated power without foldback up to 6.0:1 mismatch, above which may limit to 250 watts reflected power.

- 100% 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.

- Noise Figure (above 1.0 MHz): 6 dB typ.
- Harmonic Distortion: Minus 20 dBc max. at 50 watts
- Third Order Intercept Point: 57 dBm typ.

- Primary Power: 47 - 63 Hz, single phase, 400 watts max.
- 85 - 264 VAC

- Connectors:
  - RF Input: Type N female on front panel
  - RF Output: Type N female on front panel
  - Forward Sample: Type BNC female on front panel (coupling factor 60 dB typ.)
  - Reverse Sample: Type BNC female on front panel (coupling factor 60 dB typ.)
  - Pulse Modulation Input: BNC female on rear panel
  - Safety Interlock: 15 pin female Type D on rear panel
  - Remote Control: IEEE-488, 24 pin female on rear panel, RS-232, 9 pin female Type D on rear panel, (Fiber optic) Type ST on rear panel
  - USB: Type B female Ethernet: RJ-45

- Cooling: Forced air (self contained fans)
- Weight: 23.4 kg (51.5 lb)

- Size (WxHxD): 50.3 x 15.5 x 37.6 cm / 19.8 x 6.1 x 14.8 in

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

10 kHz to 400 MHz

75A400

75 watts CW. 10 kHz-400 MHz.

- Rated Output Power: 75 watts
- Input For Rated Output: 1.0 milliwatt max.
- Power Output: 100 watts / Min. 75 watts
- Power Output @ 1dB compression: 75 watts / Min. 50 watts
- Flatness: ±1.5 dB max.
- Frequency Response: 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*: 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.

- Noise Figure (above 1.0 MHz): 6 dB typ.
- Harmonic Distortion: Minus 20 dBc max. at 75 watts
- Third Order Intercept Point: 51 dBm typ.

- Primary Power: 47 - 63 Hz, 600 watts max. @ 0.99 P.F. typ.
- 85 - 264 VAC

- 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: 20.6 kg (45 lb)

- Size (WxHxD): 50.3 x 16.3 x 56.4 cm / 19.8 x 6.4 x 22.2 in

125A400

125 watts CW. 10 kHz-400 MHz.

- Rated Output Power: 125 watts
- Input For Rated Output: 1.0 milliwatt max.
- Power Output: 140 watts / Min. 75 watts
- Power Output @ 1dB compression: 125 watts / Min. 75 watts
- Flatness: ±2.0 dB max.
- Frequency Response: 10 kHz - 400 MHz instantaneously
- Gain (at max. setting): 51 dB min.
- Gain Adjustment (continuous range): 20 dB min.
- Input Impedance: 50 ohms, VSWR 1.5:1 max.
- Output Impedance: 50 ohms, nominal
- Mismatch Tolerance*: 100% rated power without foldback up to 6.0:1 mismatch, above which may limit to 62.5W reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.

- Pulse Mode Gating Characteristics: Signal (into 50 ohms) +3.0 to 6.0 VDC

- Harmonic Distortion: Minus 20 dBc max. at 75 watts
- Third Order Intercept Point: 62 dBm typ.

- Primary Power: 47 - 63 Hz, 600 watts max. @ 0.99 P.F. typ.
- 85 - 264 VAC

- Connectors:
  - RF Input: Type N female on front panel
  - RF Output: Type N female on front panel
  - Forward Sample: Type SMA female on front panel (coupling factor 50 dB typ.)
  - Reverse Sample: Type SMA female on rear panel (coupling factor 50 dB typ.)
  - Pulse Modulation Input: BNC female on rear panel
  - Remote Control: IEEE-488, 24 pin female on rear panel, RS-232, 9 pin female Type D on rear panel, (Fiber optic) Type ST on rear panel
  - USB: Type B female Ethernet: RJ-45
  - Safety Interlock: 15 pin female Type D on rear panel
  - Cooling: Forced air (self contained fans)
  - Weight: 20.6 kg (45 lb)

- Size (WxHxD): 50.3 x 16.3 x 56.4 cm / 19.8 x 6.4 x 22.2 in

* See Application Note #27A at www.arworld.us/appnote27/
**200A400A**

- **Rated Output Power**: 200 watts, 10 kHz - 250 MHz; 200 - 175 watts, 250 MHz - 400 MHz (derated slope of 0.167W/MHz)
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output @ 3dB compression**: Nominal 200 watts, 10 kHz - 250 MHz; 175-150 watts, 250 MHz - 400 MHz (derated slope of 0.167W/MHz)
- **Power Output @ 1dB compression**: Nominal 150 watts, 10 kHz - 250 MHz; 150-125 watts, 250 MHz - 400 MHz (derated slope of 0.167W/MHz)
- **Frequency Response**: 10 kHz - 400 MHz
- **Harmonic Distortion**: At 100 watts
- **Mismatch Tolerance**: 100% rated power without foldback up to 6:1 mismatch, which may limit to 200W reflected power.
- **Pulse Mode Gating Characteristics**: Signal (at max. setting) 53 dB min.
- **Gain**: 0.001 0.01 0.1 1 10 100 1000
- **Gain Adjustment Range**: +3.0 to ±0.5 dB
- **Output Impedance**: 50 ohms, nominal
- **Input Impedance**: 50 ohms, VSWR 1.5:1 max.
- **Gain Adjustment Range**: 20 dB min.
- **RF Output Type N female on front panel**
- **RF Input Type N female on front panel**
- **Connectors**: RF Input Type N female on front panel
- **Remote Control**: IEEE-488 24 pin female on rear panel
- **Primary Power**: 180 - 264 VAC; 47 - 63 Hz, 2500 watts max.
- **Third Order Intercept Point**: 65 dBm typ.
- **Third Order Intercept Point**: 65 dBm typ.
- **Weight**: 45.8 kg (101 lb)
- **Size (WxHxD)**: 50.3 x 34.6 x 56.9 cm / 19.8 x 13.4 x 22 in
- **Cooling**: Forced air (self-contained fans)

---

**400A400B**

- **Rated Output Power**: 400 watts, 10 kHz - 250 MHz; 300 watts minimum from 250MHz-400MHz
- **Input For Rated Output**: 1.0 milliwatt max.
- **Power Output @ 3dB compression**: Nominal 400 watts, 10 kHz - 250 MHz; 375-325 watts, 250 MHz - 400 MHz (derated slope of 0.167W/MHz)
- **Power Output @ 1dB compression**: Nominal 350 watts, 10 kHz - 250 MHz; 300 watts minimum from 200MHz-400MHz
- **Frequency Response**: 10 kHz - 400 MHz
- **Harmonic Distortion**: At 250 watts
- **Mismatch Tolerance**: 100% rated power without foldback up to 6:1 mismatch, which may limit to 200W reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- **Pulse Mode Gating Characteristics**: Signal (at max. setting) 56 dB min.
- **Gain**: 0.001 0.01 0.1 1 10 100 1000
- **Gain Adjustment Range**: +3.0 to ±0.5 dB
- **Output Impedance**: 50 ohms, nominal
- **Input Impedance**: 50 ohms, VSWR 1.5:1 max.
- **Gain Adjustment Range**: 20 dB min.
- **RF Output Type N female on front panel**
- **RF Input Type N female on front panel**
- **Connectors**: RF Input Type N female on front panel
- **Remote Control**: IEEE-488 24 pin female on rear panel
- **Primary Power**: 150 - 350 watts, 100 kHz - 200 MHz
- **Third Order Intercept Point**: 65 dBm typ.
- **Third Order Intercept Point**: 65 dBm typ.
- **Weight**: 36 kg (80 lb)
- **Size (WxHxD)**: 50.3 x 25.2 x 46 cm / 19.8 x 9.9 x 18.1 in
- **Cooling**: Forced air (self-contained fans)

---

**150A400**

- **Rated Output Power**: 150 watts min.
- **Power Output @ 3dB compression**: Nominal 150 watts / Min. 130 watts
- **Power Output @ 1dB compression**: Nominal 125 watts / Min. 100 watts
- **Frequency Response**: 100 kHz - 400 MHz
- **Gain**: 0.001 0.01 0.1 1 10 100 1000
- **Gain Adjustment Range**: +3.0 to ±0.5 dB
- **Output Impedance**: 50 ohms, nominal
- **Input Impedance**: 50 ohms, VSWR 1.5:1 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.
- **Harmonic Distortion**: Minus 20 dBc max. at 100 watts
- **Third Order Intercept Point**: 58 dBm typ.
- **Primary Power**: 90 - 135 / 180 - 270 VAC auto ranging
- **Remote Interfaces**: IEEE-488 9 pin Subminiature D female
- **Cooling**: Forced air (self-contained fans)
- **Weight**: 45.8 kg (101 lb)
- **Size (WxHxD)**: 50.3 x 34.6 x 56.9 cm / 19.8 x 13.4 x 22 in
## 1W1000B

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Power</td>
<td>1.0 watts min.</td>
</tr>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>2.5 watts / Min. 1.0 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>2 watts / Min. 1.0 watts</td>
</tr>
<tr>
<td>Flatness</td>
<td>±0.5 dB typ. / ±1.0 dB max.</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>100 kHz - 1000 MHz instantaneously</td>
</tr>
<tr>
<td>Gain (at max. setting)</td>
<td>30 dB min.</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 ohms, VSWR 2.0:1 max.</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 ohms, nominal</td>
</tr>
<tr>
<td>Mismatch Tolerance*</td>
<td>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.</td>
</tr>
<tr>
<td>Harmonic Distortion</td>
<td>Minus 20 dBc max. at 1.0 watts</td>
</tr>
<tr>
<td>Third Order Intercept Point</td>
<td>42 dBm typ.</td>
</tr>
</tbody>
</table>

### 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

## 10W1000C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Power</td>
<td>10 watts min.</td>
</tr>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>20 watts / Min. 10 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>17 watts / Min. 10 watts</td>
</tr>
<tr>
<td>Flatness</td>
<td>±1.0 dB typ. / ±1.5 dB max.</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>500 kHz - 1000 MHz instantaneously</td>
</tr>
<tr>
<td>Gain (at max. setting)</td>
<td>40 dB min.</td>
</tr>
<tr>
<td>Gain Adjustment (continuous range)</td>
<td>20 dB min. (4096 steps remote)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 ohms, VSWR 2.0:1 max.</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 ohms, nominal</td>
</tr>
<tr>
<td>Mismatch Tolerance*</td>
<td>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.</td>
</tr>
<tr>
<td>Harmonic Distortion</td>
<td>Minus 20 dBc max. at 10 watts</td>
</tr>
<tr>
<td>Third Order Intercept Point</td>
<td>50 dBm typ.</td>
</tr>
</tbody>
</table>

### 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

### 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

## 30W1000B

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Power</td>
<td>30 watts min.</td>
</tr>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>36 watts / Min. 30 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>27 watts / Min. 20 watts</td>
</tr>
<tr>
<td>Flatness</td>
<td>±1.0 dB typ. / ±1.5 dB max.</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>1 - 1000 MHz instantaneously</td>
</tr>
<tr>
<td>Gain (at max. setting)</td>
<td>45 dB min.</td>
</tr>
<tr>
<td>Gain Adjustment (continuous range)</td>
<td>20 dB min. (4096 steps remote)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 ohms, VSWR 2.0:1 max.</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 ohms, nominal</td>
</tr>
<tr>
<td>Mismatch Tolerance*</td>
<td>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.</td>
</tr>
<tr>
<td>Harmonic Distortion</td>
<td>Minus 20 dBc max. at 25 watts</td>
</tr>
<tr>
<td>Third Order Intercept Point</td>
<td>52 dBm typ.</td>
</tr>
</tbody>
</table>

### 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
- 15 Pin Subminiature D

### Safety Interlock
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
### 100W1000C

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Power</td>
<td>100 watts</td>
</tr>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>Nominal 123 watts / Min. 100 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>Nominal 2 watts / Min. 75 watts</td>
</tr>
</tbody>
</table>

### 2W1000

- **2 watts CW. 20-1000 MHz.**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Power</td>
<td>2 watts min.</td>
</tr>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>Nominal 7 watts / Min. 2.5 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>Nominal 2.5 watts / Min. 2.0 watts</td>
</tr>
</tbody>
</table>

### 50W1000C

- **50 watts CW. 50-1000 MHz.**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Output Power</td>
<td>50 watts min.</td>
</tr>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>Nominal 70 watts / Min. 55 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>Nominal 60 watts / Min. 45 watts</td>
</tr>
</tbody>
</table>

### Remote Interfaces

- **Ethernet** RJ-45
- **USB 2.0** Type B
- **Fiber optic** ST Conn Tx and Rx RS-232

### Connectors

- **RF Input** Type N female on front panel
- **RF Output** Type N female on front panel

### Power Characteristics

- **Primary Power** 90 - 264 VAC
- **50 / 60 Hz, single phase, 2200 watts max.**

### RF Connections

- **RF Output Type N female on front panel**
- **RF Input Type N female on front panel**

### RSA Performance

- **Linear @ 1dB Compression**
  - **Gain** 20 - 1000 MHz
  - **Noise Figure** 8 dB max., 6 dB typ.

- **Linear @ 3dB Compression**
  - **Gain** 20 - 1000 MHz
  - **Noise Figure** 8 dB max., 6 dB typ.

### Size

- **(WxHxD)** 50.3 x 24.9 x 53 cm / 19.8 x 9.8 x 21.1 in

---

![Graph](image1)

---

![Graph](image2)

---

![Graph](image3)
RF Solid State Amplifiers
80 to 1000 MHz

125W1000

125 watts CW. 80-1000 MHz.

<table>
<thead>
<tr>
<th>Rated Output Power</th>
<th>125 watts min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>Nominal 130 watts / Min. 110 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>Nominal 110 watts / Min. 85 watts</td>
</tr>
<tr>
<td>Flatness</td>
<td>±1.5 dB typ. / 2.0 dB max.</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>80 - 1000 MHz; instantaneously</td>
</tr>
<tr>
<td>Gain (at max. setting)</td>
<td>51 dB min.</td>
</tr>
<tr>
<td>Gain Adjustment (continuous range)</td>
<td>25 dB min. (4096 steps remote)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 ohms, nominal</td>
</tr>
<tr>
<td>Mismatch Tolerance*</td>
<td>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.</td>
</tr>
<tr>
<td>Spurious</td>
<td>Minus 73 dBc typ.</td>
</tr>
<tr>
<td>Harmonic Distortion</td>
<td>Minus 25 dBc max. at 100 watts</td>
</tr>
<tr>
<td>Third Order Intercept Point</td>
<td>Minus 30 dBc typ. at 100 watts</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>6 dB max., 6 dB typ.</td>
</tr>
<tr>
<td>Primary Power</td>
<td>50 / 60 Hz, single phase, 1000 watts max.</td>
</tr>
<tr>
<td>Size (WxHxD)</td>
<td>50.3 x 24.9 x 61 cm / 19.8 x 9.8 x 24 in</td>
</tr>
</tbody>
</table>

150W1000A

150 watts CW. 80-1000 MHz.

<table>
<thead>
<tr>
<th>Rated Output Power</th>
<th>150 watts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>Nominal 140 watts / Min. 120 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>Nominal 120 watts / Min. 100 watts</td>
</tr>
<tr>
<td>Flatness</td>
<td>±2.0 dB max. / 1.5 dB typ.</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>80 - 1000 MHz; instantaneously</td>
</tr>
<tr>
<td>Gain (at max. setting)</td>
<td>52 dB min.</td>
</tr>
<tr>
<td>Gain Adjustment (continuous range)</td>
<td>18 dB min. (4096 steps remote)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 ohms, VSWR 2:1 max.</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 ohms, nominal</td>
</tr>
<tr>
<td>Mismatch Tolerance*</td>
<td>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.</td>
</tr>
<tr>
<td>Harmonic Distortion</td>
<td>Minus 20 dBc max. at 100 watts</td>
</tr>
<tr>
<td>Third Order Intercept Point</td>
<td>58 dBm typ. / 0 - 200 watts</td>
</tr>
<tr>
<td>RF Power Display</td>
<td>Primary Power</td>
</tr>
<tr>
<td>Primary Power</td>
<td>90 - 264 VAC</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>8 dB max., 6 dB typ.</td>
</tr>
<tr>
<td>Weight</td>
<td>40 kg (88 lb)</td>
</tr>
<tr>
<td>Size (WxHxD)</td>
<td>50.3 x 24.9 x 61 cm / 19.8 x 9.8 x 21.1 in</td>
</tr>
</tbody>
</table>

250W1000B

250 watts CW. 80-1000 MHz.

<table>
<thead>
<tr>
<th>Rated Output Power</th>
<th>250 watts min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input For Rated Output</td>
<td>1.0 milliwatt max.</td>
</tr>
<tr>
<td>Power Output @ 3dB compression</td>
<td>Nominal 300 watts / Min. 250 watts</td>
</tr>
<tr>
<td>Power Output @ 1dB compression</td>
<td>Nominal 250 watts / Min. 200 watts</td>
</tr>
<tr>
<td>Flatness</td>
<td>±1.5 dB max. / ±1.0 dB typ.</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>80 - 1000 MHz; instantaneously</td>
</tr>
<tr>
<td>Gain (at max. setting)</td>
<td>54 dB min.</td>
</tr>
<tr>
<td>Gain Adjustment (continuous range)</td>
<td>25 dB min. (4096 steps remote)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.</td>
</tr>
<tr>
<td>Output Impedance</td>
<td>50 ohms, nominal</td>
</tr>
<tr>
<td>Mismatch Tolerance*</td>
<td>100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)</td>
</tr>
<tr>
<td>Harmonic Distortion</td>
<td>Minus 20 dBc max. at 200 watts</td>
</tr>
<tr>
<td>Third Order Intercept Point</td>
<td>8 dB max., 6 dB typ.</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>8 dB max., 6 dB typ.</td>
</tr>
<tr>
<td>Primary Power</td>
<td>120 - 240 VAC</td>
</tr>
<tr>
<td>Weight</td>
<td>40 kg (88 lb)</td>
</tr>
<tr>
<td>Size (WxHxD)</td>
<td>50.3 x 24.9 x 61 cm / 19.8 x 9.8 x 24 in</td>
</tr>
</tbody>
</table>

* See Application Note #27 at www.arworld.us/appnote27/
500W1000B

500 watts CW. 80-1000 MHz.

**Rated Output Power**
500 watts min.

**Input For Rated Output**
1.0 milliwatt max.

**Power Output @ 3dB compression**
Nominal 575 watts, 525 watts min. up to 500 MHz; 475 watts min. up to 500 MHz;

**Power Output @ 1dB compression**
Nominal 500 watts, 450 watts min. up to 500 MHz; 400 watts min. up to 500 MHz;

**Flattness**
±1.5 dB max. / ±1.0 dB typ.

**Frequency Response**
80 - 1000 MHz; instantaneously

**Gain**
58.8 dB min.

**Gain Adjustment**
25 dB min.

**Input Impedance**
50 ohms, VSWR 1.5:1 max.; 1.3:1 typical.

**Output Impedance**
50 ohms, nominal

**Mismatch Tolerance**
100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)

**Harmonic Distortion**
Minus 20 dBc max. at 400 watts, -20 dBc typ. at 750 watts

**Third Order Intercept Point**
600 watts from 500 to 1000 MHz

**Flatness**
±1.5 dB max. / ±1.0 dB typ.

**Frequency Response**
80 - 1000 MHz; instantaneously

**Gain**
50 ohms, VSWR 1.5:1 max.; 1.3:1 typical.

**Input Impedance**
50 ohms, nominal

**Output Impedance**
50 ohms, nominal

**Mismatch Tolerance**
100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)

**Harmonic Distortion**
Minus 20 dBc max. at 600 watts, -20 dBc typ. at 750 watts

**Third Order Intercept Point**
64 dBm typ.

**Noise Figure**
8 dB max., 6 dB typ.

**Power Output @ 3dB compression**
Nominal 750 watts / 700 watts min. up to 500 MHz;

**Power Output @ 1dB compression**
Nominal 500 watts / 500 watts min. up to 500 MHz;

**Flattness**
±1.5 dB max. / ±1.0 dB typ.

**Frequency Response**
80 - 1000 MHz; instantaneously

**Gain**
50 ohms, VSWR 1.5:1 max.; 1.3:1 typical.

**Input Impedance**
50 ohms, nominal

**Output Impedance**
50 ohms, nominal

**Mismatch Tolerance**
100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)

**Harmonic Distortion**
Minus 20 dBc max. at 800 watts, -20 dBc typ. @ 1000 watts

**Third Order Intercept Point**
66 dBm typ.

**Noise Figure**
8 dB max., 6 dB typ.

**Primary Power (user must specify)**
120-240 VAC, 50/60 Hz, single phase, 2200 watts

**Connectors**
RF Input
RF Output
Type N on front panel
Type N female on front panel

Forward Sample
Reverse Sample
BNC female, front (-50 dBc)
BNC female, front (-50 dBc)

Safety Interlock
15 pin subminiature D on rear panel

USB 2.0 Type B Ethernet RJ-45

**Cooling**
Forced air (self contained fans), enters front and bottom

**Weight**
62.5 kg (137 lb)

**Size (WxHxD)**
50.3 x 47 x 61 cm / 19.8 x 18.5 x 24 in

---

750W1000

750 watts CW. 80-1000 MHz.

**Rated Output Power**
750 watts min.

**Input For Rated Output**
1.0 milliwatt max.

**Power Output @ 3dB compression**
Nominal 900 watts / 775 watts min. up to 500 MHz;

**Power Output @ 1dB compression**
Nominal 750 watts / 700 watts min. up to 500 MHz;

**Flattness**
±1.5 dB max. / ±1.0 dB typ.

**Frequency Response**
80 - 1000 MHz; instantaneously

**Gain**
58.8 dB min.

**Gain Adjustment**
25 dB min.

**Input Impedance**
50 ohms, VSWR 1.5:1 max.; 1.3:1 typical.

**Output Impedance**
50 ohms, nominal

**Mismatch Tolerance**
100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)

**Harmonic Distortion**
Minus 20 dBc max. at 800 watts, -20 dBc typ. @ 1000 watts

**Third Order Intercept Point**
64 dBm typ.

**Noise Figure**
8 dB max., 6 dB typ.

**Primary Power (user must specify)**
120-240 VAC, 50/60 Hz, single phase, 3200 watts

**Connectors**
RF Input
RF Output
Type N female on front panel
Type N female on front panel

Forward Sample
Reverse Sample
BNC female, front (-60 dBc)
BNC female, front (-60 dBc)

Remote Interfaces:
IEEE-488 24-pin female
RS-232 9-pin Subminiature D, female
Fiber Optic ST Connect Tx and Rx RS-232
USB 2.0 Type B Ethernet RJ-45

**Cooling**
Forced air (self contained fans), enters front and bottom

**Weight**
120 kg (263 lb)

**Size (WxHxD)**
50.3 x 108 x 83 cm / 19.8 x 42.5 x 32.4 in

---

1000W1000E

1000 watts CW. 80-1000 MHz.

**Rated Output Power**
1000 watts min.

**Input For Rated Output**
1.0 milliwatt max.

**Power Output @ 3dB compression**
Nominal 1200 watts / 1100 watts min. up to 500 MHz;

**Power Output @ 1dB compression**
Nominal 950 watts, 950 watts min up to 500 MHz,

**Flattness**
±1.5 dB max. ±1.0 dB typ.

**Frequency Response**
80 - 1000 MHz instantly

**Gain**
60 dB min.

**Gain Adjustment**
25 dB min.

**Input Impedance**
50 ohms, VSWR 1.5:1 max.; 1.3:1 typical.

**Output Impedance**
50 ohms, nominal

**Mismatch Tolerance**
100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)

**Harmonic Distortion**
Minus 20 dBc max. at 1000 watts

**Third Order Intercept Point**
66 dBm typ.

**Noise Figure**
8 dB max., 6 dB typ.

**Primary Power (user must specify)**
200 - 240 VAC, 50/60 Hz, single phase, 5000 watts

**Connectors**
RF Input
RF Output
Type N female on front panel
Type N female on rear panel

Forward Sample
Reverse Sample
BNC female, front (-60 dBc)
BNC female, front (-60 dBc)

Safety Interlock
15 pin subminiature D on rear panel

USB 2.0 Type B Ethernet RJ-45

**Cooling**
Forced air (self contained fans), enters front and bottom

**Weight**
124.8 kg (275 lb)

**Size (WxHxD)**
50.3 x 108 x 83 cm / 19.8 x 42.5 x 32.4 in
RF Solid State Amplifiers
80 to 1000 MHz

1500W1000

1500 watts CW. 80 - 1000 MHz.

- Rated Output Power: 1500 watts min.
- Input For Rated Output: 1.0 milliwatt max.
- Power Output @ 3dB compression
  - Nominal 1600 watts / 1500 watts min. up to 500 MHz;
  - 1650 watts from 500 to 1000 MHz
- Power Output @ 1dB compression
  - Nominal 1480 watts / 1300 watts min. up to 500 MHz;
  - 1420 watts from 500 to 1000 MHz
- Flatness: ±2.0 dB max. / ±1.5 dB typ.
- Frequency Response: 80 - 1000 MHz instantaneously
- Gain: (at max. setting) 61.8 dB min.
- Gain Adjustment (continuous range): 25 dB min.
- Input Impedance: 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
- Output Impedance: 50 ohms, nominal
- Mismatch Tolerance*: 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- Harmonic Distortion: Minus 20 dBc max. at 1500 watts, -20 dB typ. at 2000 watts
- Third Order Intercept Point: 68 dB typ.
- Noise Figure: 8 dB max., 6 dB typ.

- Primary Power (user must specify)
  - 200 - 240 VAC
  - 50 / 60 Hz, 3 phase, 7000 watts

Connectors
- RF Input
  - Type N female on rear panel
- RF Output
  - Type 1/8 female on rear panel
- Forward Sample
  - Type N female, front (65 dBc)
- Reverse Sample
  - Type N female, front (65 dBc)
- Remote Interfaces:
  - IEEE-488
  - 24-pin female
  - RS-232
  - 9-pin Subminiature D, female
  - Fiber Optic
  - ST Corn Tx and Rx RS-232
  - USB 2.0
  - Type B
  - Ethernet
  - RJ45
- Safety Interlock: 15 pin female subminiature D, rear panel

Cooling
- Forced air (self contained fans), enters front and bottom
- Weight (approximate): 182 kg (400 lb)
- Size (WxHxD): 56.1 x 175.3 x 97.6 cm / 22.1 x 69 x 38.4 in

2000W1000C

2000 watts CW. 80 - 1000 MHz.

- Rated Output Power: 2000 watts min.
- Input For Rated Output: 1.0 milliwatt max.
- Power Output @ 3dB compression
  - Nominal 2110 watts / 2000 watts min. up to 500 MHz;
  - 1670 watts from 500 to 1000 MHz
- Power Output @ 1dB compression
  - Nominal 1850 watts / 1750 watts min. up to 500 MHz;
  - 1450 watts from 500 to 1000 MHz
- Flatness: ±2.0 dB max. / ±1.5 dB typ.
- Frequency Response: 80 - 1000 MHz instantaneously
- Gain: (at max. setting) 63 dB min.
- Gain Adjustment (continuous range): 25 dB min.
- Input Impedance: 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
- Output Impedance: 50 ohms, nominal
- Mismatch Tolerance*: 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- Harmonic Distortion: Minus 20 dBc max. at 2400 watts, -20 dB typ. at 3000 watts
- Third Order Intercept Point: 70 dBm typ.
- Noise Figure: 8 dB max., 6 dB typ.

- Primary Power (user must specify)
  - 200 - 240 VAC
  - 50 / 60 Hz, 3 phase, 9000 watts

Connectors
- RF Input
  - Type N female on rear panel
- RF Output
  - Type 1/8 female on rear panel
- Forward Sample
  - Type N female, front (65 dBc)
- Reverse Sample
  - Type N female, front (65 dBc)
- Remote Interfaces:
  - IEEE-488
  - 24-pin female
  - RS-232
  - 9-pin Subminiature D, female
  - Fiber Optic
  - ST Corn Tx and Rx RS-232
  - USB 2.0
  - Type B
  - Ethernet
  - RJ45
- Safety Interlock: 15 pin female subminiature D, rear panel

Cooling
- Forced air (self contained fans), enters front and bottom
- Weight (approximate): 218 kg (480 lb)
- Size (WxHxD) (3 cabinets): 56.1 x 173 x 82.3 cm / 22.1 x 68 x 32.4 in

3000W1000B

3000 watts CW. 80 - 1000 MHz.

- Rated Output Power: 2800 watts min.
- Input For Rated Output: 1.0 milliwatt max.
- Power Output @ 3dB compression
  - Nominal 3200 watts / 3000 watts min. up to 500 MHz;
  - 2600 watts from 500 to 1000 MHz
- Power Output @ 1dB compression
  - Nominal 2600 watts / 2500 watts min. up to 500 MHz;
  - 1600 watts from 500 to 1000 MHz
- Flatness: ±2.0 dB max. / ±1.5 dB typ.
- Frequency Response: 80 - 1000 MHz instantaneously
- Gain: (at max. setting) 64.8 dB min.
- Gain Adjustment (continuous range): 25 dB min.
- Input Impedance: 50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
- Output Impedance: 50 ohms, nominal
- Mismatch Tolerance*: 100% of rated power without foldback up to 6.01 mismatch above, which may limit to 1500 watts reflected power. Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
- Harmonic Distortion: Minus 20 dBc max. at 3000 watts, -20 dB typ. at 4000 watts
- Third Order Intercept Point: 72 dBm typ.
- Noise Figure: 8 dB max., 6 dB typ.

- Primary Power (user must specify)
  - 200 - 240 VAC
  - 360-435 VAC Wye connected (5-wire)
  - 50 / 60 Hz, 3 phase, 14kVA

Connectors
- RF Input
  - Type N female on rear panel
- RF Output
  - Type 1/8 female on rear panel
- Forward Sample
  - BNC female, front (-60 dBc)
- Reverse Sample
  - BNC female, front (-60 dBc)
- Remote Interfaces:
  - IEEE-488
  - 24-pin female
  - RS-232
  - 9-pin Subminiature D, female
  - Fiber Optic
  - ST Corn Tx and Rx RS-232
  - USB 2.0
  - Type B
  - Ethernet
  - RJ45
- Safety Interlock: 15 pin female subminiature D, rear panel

Cooling
- Forced air (self contained fans), enters front and bottom
- Weight (approximate): 364 kg (800 lb)
- Size (WxHxD) (2 joined cabinets): 111.8 x 177.8 x 82.3 cm / 44 x 70 x 32.4 in

* See Application Note #27A at www.arworld.us/appnote27/
4000W1000B

4000 watts CW. 80-1000 MHz.

Rated Output Power
Nominal, 3700 watts
Input For Rated Output
1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 4000 watts / 3600 watts min. up to 500 MHz;
3400 watts from 500 to 1000 MHz;
Power Output @ 1dB compression
Nominal 3500 watts / 3000 watts min. up to 500 MHz;
2500 watts from 500 to 1000 MHz;
Flatness
±2.0 dB max. / ±1.5 dB typ.
Frequency Response
80 - 1000 MHz; instantaneously
Gain
(at max. setting) 66 dB min.
Gain Adjustment
(continuous range) 25 dB min.
Input Impedance
50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Output Impedance
50 ohms, nominal
Mismatch Tolerance*
100% of rated power without foldback up to 6.0:1 mismatch
above, which may limit to 2000 watts reflected power.
Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
Harmonic Distortion
Minus 20 dBc max. at 3400 watts, -20 dBc typ. at 4000 watts
Third Order Intercept Point
73 dBm typ.
Noise Figure
8 dB max., 6 dB typ.
Primary Power (user must specify)
200-240 VAC, 360-435 VAC Wye connected (5-wire)
50 / 60 Hz, 17.5kVA
Connectors
RF Input Type N female on rear panel
RF Output Type 1 5/8 female on rear panel
Remote Interfaces:
IEEE-488 24-pin female
RS-232 9-pin Subminiature D, female
Fiber Optic ST Conn Tx and Rx RS-232
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15 pin female subminiature D, rear panel
Cooling Forced air (self contained fans), enters front and bottom
Weight (approximate) 432 kg (950 lb)
Size (WxHxD) (2 joined cabinets) 111.8 x 177.8 x 82.3 cm / 44 x 70 x 32.4 in

10000 watts CW. 80-1000 MHz.

Rated Output Power
Nominal, 12500 watts
Input For Rated Output
1.0 milliwatt max.
Power Output @ 3dB compression
Nominal 12500 watts / 12000 watts min. up to 700 MHz;
10500 watts min. up to 1000 MHz;
Power Output @ 1dB compression
Nominal 11000 watts / 10500 watts min. up to 700 MHz;
9500 watts from 700 to 1000 MHz;
Flatness
±2.0 dB max. / ±1.5 dB typ.
Frequency Response
80 - 1000 MHz; instantaneously
Gain
(at max. setting) 70 dB min.
Gain Adjustment (continuous range) 25 dB min.
Input Impedance
50 ohms, VSWR 1.5:1 max.; 1.3:1 typ.
Output Impedance
50 ohms, nominal
Mismatch Tolerance*
100% of rated power without foldback up to 6.0:1 mismatch
above which may limit to 6000 watts reflected power.
Will operate without damage or oscillation with any magnitude and phase of source and load impedance.
Harmonic Distortion
Minus 20 dBc max. at 10000 watts, -25 dBc typ. at 10000 watts
Third Order Intercept Point
78 dBm typ.
Noise Figure
8 dB max., 6 dB typ.
Primary Power (specify voltage)
200-240 VAC Delta connected (4-wire), 360-435 VAC Wye connected (5-wire)
50/60 Hz, three phase, 48000W
Connectors
RF Input Type N female on rear panel
RF Output Type 4-1/16 EIA, rear panel
Remote Interfaces:
IEEE-488 24-pin female
RS-232 9-pin Subminiature D, female
Fiber Optic ST Conn Tx and Rx RS-232
USB 2.0 Type B
Ethernet RJ-45
Safety Interlock 15 pin female subminiature D, rear panel
Cooling Forced air (self contained fans), enters front and bottom
Weight (approximate) 703 kg (1550 lbs)
Size (WxHxD) 170 x 183 x 99 cm / 67 x 72 x 39 in
Export classification EAR99