

Microwave Amplifiers

For EMC and Wireless Testing

*"ST" Series. Hybrids.
0.8 to 18 GHz. - 10 to 50 watts.*

*"T" Series.
0.8 to 45 GHz. - 15 to 16,000 watts.*

*"S" Series.
0.8 to 20 GHz. - 1 to 800 watts.*

*When you buy a new S4G8 or S4G11,
we'll upgrade your SIG3 amplifier to an SIG4 - and
eliminate the gap between 3 & 4 GHz.
Ask your AR Sales Associate for details or call us.*

No Competition

AR is known throughout the far corners of the world for our unique ability to make high quality products that are also exceptional values. Our unwavering commitment to making quality=value gives us a strong competitive edge. And it gives every company that uses our products an edge in their industries.

Value is Multi-Dimensional.

At AR, value is more than a good price. It's multi-dimensional - from innovation to application. We exceed our customers' expectations every day with products and services that out-perform the competition on every level.

These Are No Ordinary Amps!

AR amps have power and abilities far beyond those of ordinary amps. They're more powerful than the competition. Able to deliver power and not foldback. They're virtually indestructible.

Our amps deliver real power to the load, where it really counts. Competitors' amps begin to foldback at a VSWR of 2:1; and their output decreases significantly at 3:1. AR high power amps don't even begin to foldback until 6:1, and the lower power ones don't fold back at all. A lot goes into making our amps so superior:

• Technical Innovation

We're always pushing the boundaries and exploring new ways to give you what you need - plus a little more. Our commitment to the highest levels of innovation and state-of-the-art design means we're continuously anticipating and responding to market needs and changing standards.

• Quality Build and Workmanship

Only the best materials go into AR products. All are built to exacting standards by the finest craftsmen and designed by the very best engineering minds.

• Durability and Longevity

The workhorses of the industry, AR amps last twice as long as standard amplifiers. They just don't give out!

• Mismatch Tolerance Second to None

An unparalleled level of mismatch capability is what really makes our amps pop in a crowd. Most AR amps offer infinite VSWR tolerance - even our highest power instruments operate at full capacity into ratios as high as 6.0:1. Because they continue to provide power when most amplifiers fold-back or shut down, AR amps cost less, watt per watt, than competitive amplifiers.

• Better Choices, More Options

Another way AR gives you the competitive edge is by making it easy to find exactly the amplifier you need. Our microwave amps cover the range from .8 to 45 GHz with power from 1-16,000 watts. We've got those hard-to-find combinations of power & bandwidth in frequency increments and power output to meet your most demanding specs.

• Worldwide Support Network

We know testing can be a long and arduous process. So each purchase comes with the support of a worldwide network of technical and sales support that's second to none.

• The Strongest Warranties in the Business

AR amps carry a 3-year warranty - that's twice the industry standard! The 200T1G3A, 200T2G8A, 200T8G18A, 250T1G3 and the 250T8G18 are backed by our exclusive 2-year/9,000-hour warranty on their traveling-wave tubes (1 year on other models) and by AR's industry-leading 3-year warranty on the rest of the instrument.

When you make the best products, you can support them with the best warranty. Nobody beats our products and nobody has a better, more comprehensive warranty.

Need More Proof?

Want to see exactly how AR microwave amps give you more for your money?

Go to www.ar-worldwide.com/apspdfs.asp to see Application Note #27 for details.



Innovations Above A Gig

“ST” Series AR Hybrids – The Best of Both Worlds.

AR is pleased to introduce a technological first in microwave amplifiers - a new family of amps that marry solid-state reliability and TWT power in a single unit.

Called hybrids, the 10ST1G18A, 20ST1G18A, 35ST1G18 and 50ST1G18 offer combinations of power and frequency carved out expressly for Telcordia (which requires suppressed harmonics) and EMC microwave applications. Each unit is designed for the .8 - 18 GHz frequency range; and they provide 10, 20, 35 and 50 watts of CW power respectively.

Applications that require microwave power from 1 to 18 GHz are usually addressed by a solid-state unit to cover the low frequency range and a traveling-wave tube amplifier (TWTA) for the higher range. The hybrids eliminate the need for the cable switching required when two amplifiers are used - a painstaking procedure that can lead to system errors and repeatability problems.

Hybrids provide a cost-effective solution to frequency coverage problems by combining solid-state and TWT elements. And they eliminate the need for cable switching, because a switch is contained in one convenient bench-top instrument.





“T” Series More Power & Features

When test needs call for higher power and higher frequency, consider our “T” Series microwave amps. They range from 0.8 to 45 GHz. CW goes to 2700 watts and pulse goes to 16,000 watts. These amps provide coverage for a wider range of high-power microwave and EMC test applications than any other brand of microwave amplifier. Plus, they’re rich with features that make testing quicker, easier, more accurate.

They also offer a more advanced design and higher quality construction than any TWT amplifier.

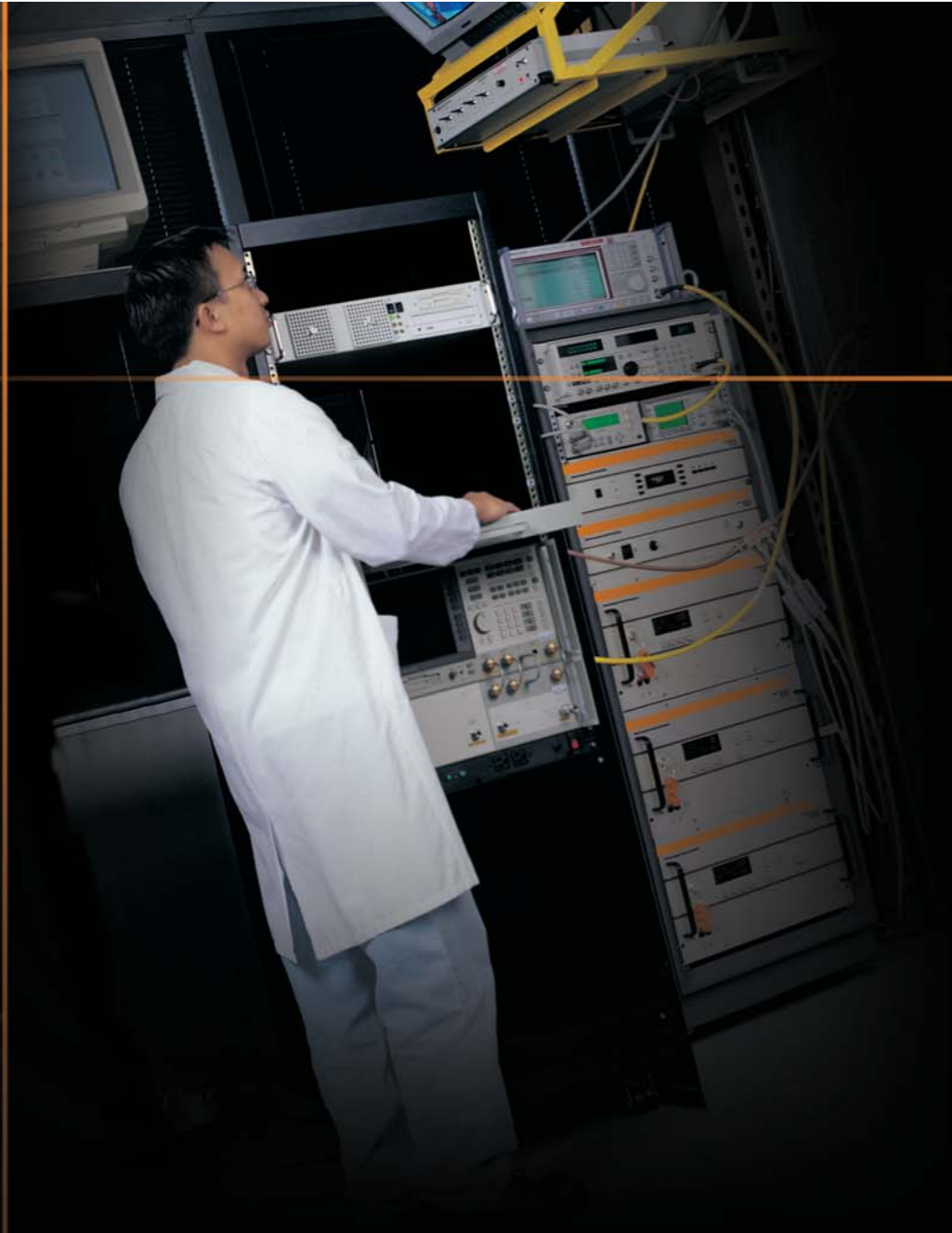
Just How Rich Are They?

Front panel displays give you digital data on everything the amplifier’s internal component monitoring system does-including forward and reflected power, gain, event recognition, and complete TWT monitoring. A well-thought out help screen for simple navigation keeps information clear and your test accurate. Modular switching power supplies keep amplifiers maintainable, transportable and serviceable. Built-in IEEE interface, forced-air cooling, 0 dBm input, RF sample port, hardware and software VSWR protection are all standard.

Five Examples of “T” Performance.

1. Telcordia Testing - Done.

If it connects to a telephone line, domestic telecommunications equipment must be tested to Telcordia GR-1089 - one of the most comprehensive specs out there. Our 10ST1G18A and 35ST1G18 hybrids are specially designed to meet the high-end of this spec’s requirements from 0.8 to 10 GHz.



Major classifications of network equipment-network terminal and satellite earth station equipment are required to withstand RF fields of up to 8.5 V/m with 80% amplitude modulation from 10 kHz to 10 GHz. “T” Series amps cover radiated susceptibility testing for the 4.2 to 10 GHz segment of this requirement.

2. Unwanted Harmonics - Gone.

You use “T” Series amps for their combination of power and high frequency. But sometimes you need power, bandwidth and low harmonics. These are the times to consider a 10ST1G18A or 35ST1G18; or a 15T4G18A or 40T4G18 supplied with internal filters that drastically reduce harmonics to below the level required by the Telcordia specification. For high power testing, the 500T8G18, the 1000T’s, the 1500T’s, the 2000TP’s (excluding the 2000TP8G12), and the 4000TP1G2 also offer inherently reduced harmonic levels.

3. Commercial Aircraft & The Rigorous RTCA/DO-160 - Met.

From collision avoidance systems to fly-by-wire, every electronic instrument, system and subsystem used in aircraft must meet rigorous EMC standards. AR “T” Series and other AR amps are well known in this industry, ensuring safe operation of critical craft.

4. Military EMC Testing to MIL STD 461/462 - Mission Accomplished.

Sonar, radar, missile guidance and ground-to-air communications-these are just a few mission-critical electronics systems found in military operations that must operate immunity-free. AR’s higher-power amps, including the 1000T’s, are routinely used to test large electronic systems where high fields are needed. AR’s first amps were manufactured for use in the military, where we’ve become the test amplifier of choice.

5. Automotive Testing to 600 V/m Radiated Susceptibility - Safe and Sound.

Automotive systems, from climate control to collision avoidance, need to be tested for EMC. And AR high-power “T” amps generate the high-level fields necessary to test entire vehicles or larger subsystems at a distance. When you use AR amps and RF test instruments, you’ve got the tools to test everything under the hood.

Auto Sleep Mode ...Extends the Life of the TWT!

Our Sleep Mode software helps TWTs last longer by turning them off when an amp is not needed to operate or produce RF power.

Filters are available for the TWT’s to help reduce harmonic levels.



"S" Series – 10 Reasons Why

Ten Powerful Examples of Value, Quality and Innovation.

1. Great-Shape Wireless Testing.

Recognize this shape above? If you're in telecom testing you do. It's the shape you hope for when testing driver amplifiers and other wireless transmission equipment. You can easily adjust the gain, backed off from 100%, to find an optimized operating point where distortion and spectral regrowth are minimized to get superior signal fidelity (or low distortion). This accurately lets the user analyze what distortion or spectral regrowth is coming from the base station amplifier and related components.

2. Linear, Clean Telecom Applications.

AR amps amplify host signals with the low intermodulation characteristics needed to test for signal spillover. So you don't waste bandwidth - an all too precious resource - in transmission.

We've enhanced the design of our "S" series amps to better accommodate multi-tone testing. Signals are reproduced with even greater linearity. Spurious signals, noise figures and distortion are lower than ever. With full-rated power across the band. Please refer to Application Notes 37 and 39B for more information.

3. Mismatch Capability.

"S" Series amps generate 100% of rated power and make it available to the load even when mismatch is severe. 100% of the power is available and delivered to the output device 100% of the time. Many competitive amplifiers see reflection (high VSWR) and limit output or shut down. Note the competitive response to this basic performance claim. We haven't found one yet that meets it.

4. Class A Design That Eliminates Mismatch.

All Class A's are not created equal. "S" Series amps offer exceptional design features for load tolerance:

- transistor pairs, combined with quadrature couplers - more rugged than the single output arrangement found in lesser-grade Class A's.
- internal power combiners that can withstand high reflected power.
- top quality, high-power-handling internal directional couplers.
- switching power supplies to increase efficiency and reduce internal heat load.

5. Expandable Power

AR high-power "S" 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.

The latest examples are Models 10S4G11A (10 watts, 4-10.6 GHz) and 15S4G8A (15 watts, 4-8 GHz). A fairly simple upgrade performed by AR expands the 10S4G11A to a 20S4G11A (20 watt, 4-10.6 GHz) ... and the 15S4G8A to a 35S4G8A (35 watts, 4-8 GHz).

The 20S4G11A and the 35S4G8A are like building blocks that can easily be expanded by adding additional sub amps and controller/combiner units to obtain great output levels.

6. Cost-Effective Upgrades

AR has a special offer that enables you to upgrade our S1G3 Amplifier to an S1G4 - to eliminate gaps as you expand your frequency coverage. AR will retune your S1G3 series amplifier (.8 - 3.0 GHz) to an S1G4 amplifier (.8 - 4.2 GHz) to eliminate the frequency gap between 3 GHz and 4 GHz when you expand your frequency coverage with the purchase of a new S4G8 (4 - 8 GHz) or S4G11 Series Amplifier (4 - 11 GHz).

The charge for the retuning will be the difference in price between the S1G3 and the S1G4. This offer is only valid for customers who purchase the S4G8 or S4G11 solution in conjunction with the upgrade. The price for retuning is based on the S1G3 and S1G4 prices in effect at the time you order a new S4G8 or S4G11 series amplifier.

7. Telecom Testing To Telcordia 8.5 V/m.

"S" Series amps provide radiated susceptibility to the 0.8 to 4.2 GHz segment of the Telcordia specification. Our 10ST1G18A and 35ST1G18 hybrids are specially designed to meet the upper end (0.8 to 10 GHz) of this spec's requirements. The 15T4G18A and 40T4G18 and "S" Series amps provide another option for the low-harmonic requirements (-20dBc) of Telcordia testing. The rest of the requirement is covered by AR "W" and "A" Series. See pg. 6 for more. Note: Telcordia testing ends at 10 GHz. Our "S" Series amps can cover this requirement in 2 bands, 0.8 to 4.2 GHz and 4.2 to 10.6 GHz.

8. Comprehensive.

The Medical Devices Directive (MDD) is comprehensive and stringent. Its EMC aspect is covered by EN 60601-1-2:2001. AR "S" and "W" Series amps provide the power you need to meet the RF portion required by the current spec.

9. General Lab Testing

AR amps, along with signal generators, oscilloscopes, power meters and spectrum analyzers are classified as the best basic lab test equipment by experts everywhere. They remain a benchtop staple in research and development everywhere.

10. Accessories and Options

Alternative operating voltages are also possible. Antennas and directional couplers are matched in frequency and power. Cables, waveguide and adapters are also available. (Check AR's website and Price List for a full listing of all accessories.)

0.8 to 18 GHz.



10 watts. 0.8-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 15 watts / min. 10 watts
Linear @ 1dB Compression 8 watts min., 0.8 - 4.2 GHz
5 watts min., 4.2 - 18 GHz

Flatness ±3dB max., 0.8 - 4.2 GHz
±9dB max., 4.2 - 18 GHz

Frequency Response 0.8 - 18 GHz in one of four selectable sub-bands

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 40dB min.

Gain Adjustment (continuous range) 10dB min. 0.8 - 4.2 GHz
35dB min. 4.2 - 18 GHz

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
100% of rated power without foldback from 0.8 - 4.2 GHz. Output power foldback protection above 4.2 GHz at reflected power exceeding 10 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density (from 4.2 - 18 GHz)
Minus 80dBm/Hz (max.), Minus 90dBm/Hz (typ.)

Harmonic Distortion (in user selectable sub-band at 10 watts)
Minus 20dBc max./Minus 30dBc typ.

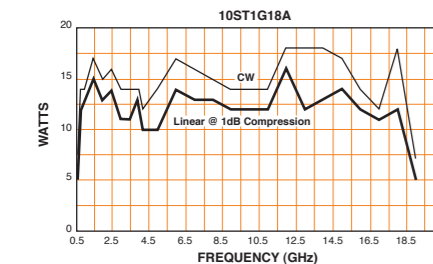
Primary Power
99 - 260 VAC
50/60 Hz, single phase
700 VA max.

Connectors
RF input Type N precision female on rear panel
RF output Type N female on rear panel
RF output sample port Type N precision female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight 55 kg (120 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



20 watts. 0.8-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 30 watts / min. 20 watts
Linear @ 1dB Compression 10 watts min.

Flatness ±3dB max., 0.8 - 4.2 GHz
±9dB max., 4.2 - 18 GHz

Frequency Response 0.8 - 4.2 GHz and 4.2 - 18 GHz

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 43dB min.

Gain Adjustment (continuous range) 10dB min. 0.8 - 4.2 GHz
35dB min. 4.2 - 18 GHz

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Same as 10ST1G18A with reflected power exceeding 20 watts.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density (from 4.2 - 18 GHz)
Minus 80dBm/Hz (max.), Minus 90dBm/Hz (typ.)

Harmonic Distortion (at 20 watts)
0.8 - 4.2 GHz; Minus 20dBc max., Minus 30dBc typical
4.2 - 4.5 GHz; Minus 0dBc max., Minus 1dBc typical
4.5 - 5 GHz; Minus 1dBc max., Minus 2dBc typical
5 - 7 GHz; Minus 2.5dBc max., Minus 4dBc typical
7 - 10 GHz; Minus 5dBc max., Minus 9dBc typical
10 - 12 GHz; Minus 8dBc max., Minus 12dBc typical
Above 12 GHz; Minus 20dBc max., Minus 30dBc typical

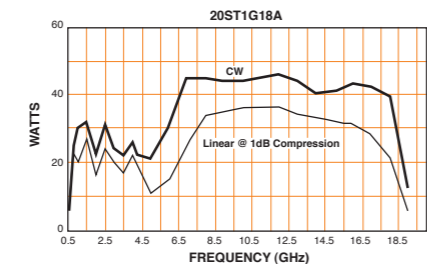
Primary Power
99 - 260 VAC
50/60 Hz, single phase
700 VA max.

Connectors
RF input Type N precision female on rear panel
RF output Type N female on rear panel
RF output sample port Type N precision female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight 62 kg (135 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



35 watts. 0.8-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 50 watts / min. 35 watts
Linear @ 1dB Compression 10 watts min.

Flatness ±3dB max., 0.8 - 4.2 GHz
±10dB max., 4.2 - 18 GHz

Frequency Response 0.8 - 18 GHz in one of two selectable sub-bands

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 45dB min.

Gain Adjustment (continuous range) 10dB min. 0.8 - 4.2 GHz
35dB min. 4.2 - 18 GHz

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
100% of rated power without foldback from 0.8 - 4.2 GHz. Output power foldback protection above 4.2 GHz at reflected power exceeding 20 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density (from 4.2 - 18 GHz)
Minus 80dBm/Hz (max.), Minus 90dBm/Hz (typ.)

Harmonic Distortion (at 20 watts)
0.8 - 4.2 GHz; Minus 20dBc max., Minus 30dBc typical
4.2 - 4.5 GHz; Minus 0dBc max., Minus 1dBc typical
4.5 - 6 GHz; Plus 0.5dBc maximum, Minus 1dBc typical
6 - 8 GHz; Minus 4dBc maximum, Minus 6dBc typical
8 - 10 GHz; Minus 6dBc maximum, Minus 9dBc typical
Above 10 GHz; Minus 10dBc maximum, Minus 15dBc typical

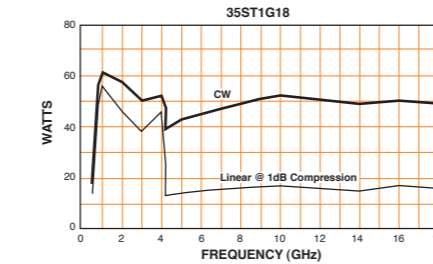
Primary Power
99 - 260 VAC
50/60 Hz, single phase
1400 VA max.

Connectors
RF input Type N precision female on rear panel
RF output Type N precision female on rear panel
RF output sample port Type N precision female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight 84 kg (185 lb)

Size (WxHxD)
50.3 x 48 x 74 cm / 19.8 x 19 x 29 in.



50 watts. 0.8-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 50 watts / min. 35 watts
Linear @ 1dB Compression 10 watts min.

Flatness ±3dB max., 0.8 - 4.2 GHz
±10dB max., 4.2 - 18 GHz

Frequency Response 0.8 - 18 GHz in one of two selectable sub-bands

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 47dB min.

Gain Adjustment (continuous range) 10dB min. 0.8 - 4.2 GHz
35dB min. 4.2 - 18 GHz
50 ohms, VSWR 2.0:1 max.

Input Impedance 50 ohms, VSWR 2.5:1 typ.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Same as 35ST1G18 with reflected power exceeding 20 watts.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density (from 4.2 - 18 GHz)
Minus 80dBm/Hz (max.), Minus 90dBm/Hz (typ.)

Harmonic Distortion (at 20 watts)
0.8 - 4.2 GHz; Minus 20dBc maximum, Minus 30dBc typical
4.2 - 4.5 GHz; Plus 2.5dBc maximum, Minus 0dBc typical
4.5 - 6 GHz; Plus 0.5dBc maximum, Minus 1dBc typical
6 - 8 GHz; Minus 4dBc maximum, Minus 6dBc typical
8 - 10 GHz; Minus 6dBc maximum, Minus 9dBc typical
Above 10 GHz; Minus 10dBc maximum, Minus 15dBc typical

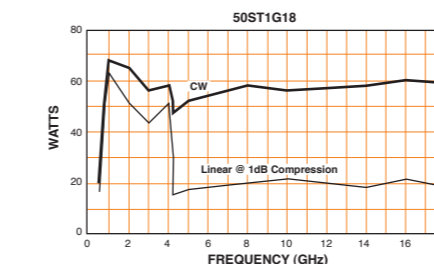
Primary Power
99 - 260 VAC
50/60 Hz, single phase
1400 VA max.

Connectors
RF input Type N precision female on rear panel
RF output Type N precision female on rear panel
RF output sample port Type N precision female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight 80 kg (175 lb)

Size (WxHxD)
50.3 x 48 x 74 cm / 19.8 x 19 x 29 in.



0.8 to 4.2 GHz.



1 watt. 0.8-4.2 GHz CW

Rated Power Output 1 watt min.
1 milliwatt max.

Input For Rated Output 1 milliwatt max.

Power Output @ 3dB compression
Nominal 1.3 watts / min. 1 watt

Power Output @ 1dB compression
Nominal 1 watt / min. 0.7 watts

Flatness ±1dB typ. / ±1.5dB max.

Frequency Response 0.8 - 4.2 GHz instantaneously

Gain (at max. setting) 30dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, nominal

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

Harmonic Distortion Minus 20dBc max. at 0.8 watts

Third Order Intercept Point 41dBm typ.

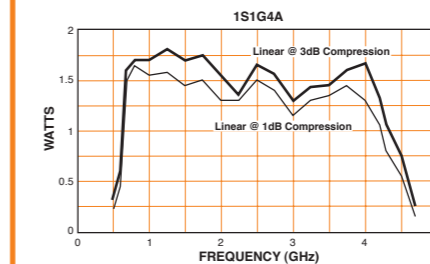
Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
150 watts max.

Connectors
RF input Type N female on front panel
RF output Type N female on front panel

Cooling
Forced air (self contained fans)

Weight 6.4 kg (14 lb)

Size (WxHxD)
26 x 10.9 x 28.2 cm / 10.3 x 4.3 x 11.1 in.



5 watts. 0.8-4.2 GHz CW

Rated Power Output 6.5 watts min.
1 milliwatt max.

Input For Rated Output 1 milliwatt max.

Power Output @ 3dB compression
Nominal 8 watts / min. 6.5 watts

Power Output @ 1dB compression
Nominal 7 watts / min. 5 watts

Flatness ±1.5dB typ. / ±2dB max.

Frequency Response 0.8 - 4.2 GHz instantaneously

Gain (at max. setting) 37dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, nominal

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

Harmonic Distortion Minus 20dBc max. at 5 watts

Third Order Intercept Point 49dBm typ.

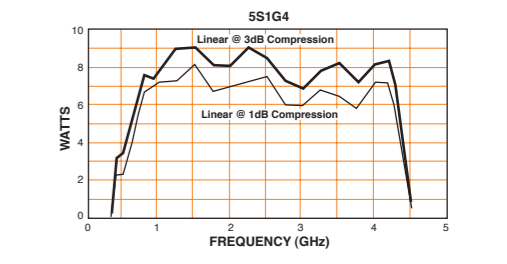
Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
150 watts max.

Connectors
RF input Type N female on front panel
RF output Type N female on front panel

Cooling
Forced air (self contained fans)

Weight 17.2 kg (38 lb)

Size (WxHxD)
50.3 x 15.5 x 30 cm / 19.8 x 6.1 x 11.8 in.



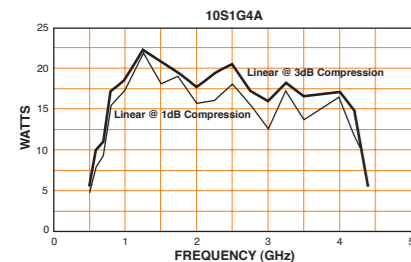
0.8 to 4.2 GHz.

10S1G4A Solid State Amplifier



10 watts. 0.8-4.2 GHz CW

Rated Power Output	10 watts min.
Input For Rated Output	1 milliwatt max.
Power Output @ 3dB compression	Nominal 18 watts / min. 13 watts
Power Output @ 1dB compression	Nominal 16 watts / min. 10 watts
Flatness	±1.5dB typ. / ±2dB max.
Frequency Response	0.8 - 4.2 GHz instantaneously
Gain (at max. setting)	40dB min.
Gain Adjustment (continuous range)	10dB 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 (See Application Note #27).
Harmonic Distortion	Minus 20dBc max. at 10 watts
Third Order Intercept Point	52dBm typ.
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	250 watts max.
Remote Interfaces	IEEE-488, RS-232
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.

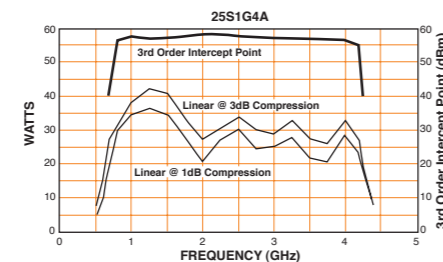


25S1G4A Solid State Amplifier



25 watts. 0.8-4.2 GHz CW

Rated Power Output	25 watts min.
Input For Rated Output	1 milliwatt max.
Power Output @ 3dB compression	Nominal 32 watts / min. 25 watts
Power Output @ 1dB compression	Nominal 27 watts / min. 20 watts
Flatness	±1.5dB typ. / ±2dB max.
Frequency Response	0.8 - 4.2 GHz instantaneously
Gain (at max. setting)	44dB min.
Gain Adjustment (continuous range)	10dB 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. (See Application Note #27).
Third Order Intercept	See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion	Minus 20dBc max. at 20 watts
Spurious	Minus 73dBc typ.
Phase Linearity	±1 deg/100 MHz, typ.
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	340 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	35 kg (77 lb)
Size (WxHxD)	50.3 x 20.3 x 54.6 cm / 19.8 x 8 x 21.5 in.

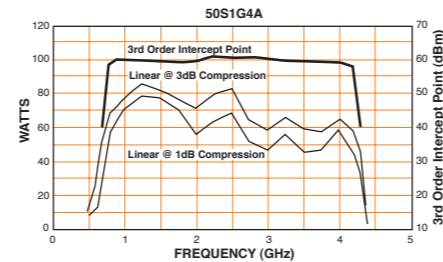


50S1G4A Solid State Amplifier



50 watts. 0.8-4.2 GHz CW

Rated Power Output	50 watts min.
Input For Rated Output	1 milliwatt max.
Power Output @ 3dB compression	Nominal 70 watts / min. 50 watts
Power Output @ 1dB compression	Nominal 60 watts / min. 40 watts
Flatness	±1.5dB typ. / ±2dB max.
Frequency Response	0.8 - 4.2 GHz instantaneously
Gain (at max. setting)	47dB min.
Gain Adjustment (continuous range)	10dB 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. (See Application Note #27).
Third Order Intercept	See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion	Minus 20dBc max. at 50 watts
Spurious	Minus 73dBc typ.
Phase Linearity	±1 deg/100 MHz, typ.
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	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
Safety Interlock	15 pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	45 kg (100 lb)
Size (WxHxD)	50.3 x 24.9 x 54.6 cm / 19.8 x 9.8 x 21.5 in.

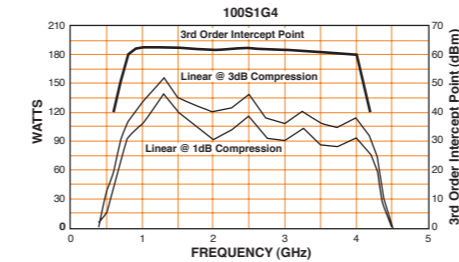


100S1G4 Solid State Amplifier



100 watts. 0.8-4.2 GHz CW

Rated Power Output	100 watts min.
Input For Rated Output	1 milliwatt max.
Power Output @ 3dB compression	Nominal 120 watts / min. 90 watts
Power Output @ 1dB compression	Nominal 100 watts / min. 70 watts
Flatness	±1.5dB typ. / ±2dB max. / ±1dB with Internal Leveling
Frequency Response	0.8 - 4.2 GHz instantaneously
Gain (at max. setting)	50dB min.
Gain Adjustment (continuous range)	15dB min. (4096 steps remote)
Input Impedance	50 ohms, VSWR 2.0:1 max.
Output Impedance	50 ohms, nominal / 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. (See Application Note #27).
RF Power Display	0 - 150 Watts
Third Order Intercept	See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion	Minus 20dBc max. at 80 watts
Spurious	Minus 73dBc typ.
Phase Linearity	±1 deg/100 MHz, typ.
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 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 female Subminiature D
Cooling	Forced air (self contained fans)
Weight	86.2 kg (190 lb)
Size (WxHxD)	50.3 x 47 x 61 cm / 19.8 x 18.5 x 24 in.

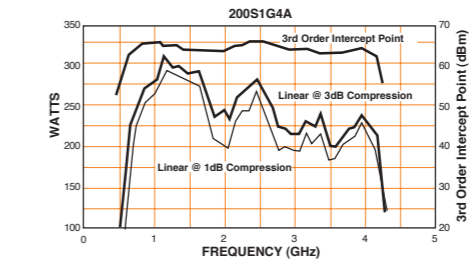


200S1G4A Solid State Amplifier



200 watts. 0.8-4.2 GHz CW

Rated Power Output	200 watts min.
Input For Rated Output	1 milliwatt max.
Power Output @ 3dB compression	Nominal 230 watts / min. 180 watts
Power Output @ 1dB compression	Nominal 210 watts / min. 160 watts
Flatness	±2.5dB max. / ±1dB with Internal Leveling
Frequency Response	0.8 - 4.2 GHz instantaneously
Gain (at max. setting)	53dB min.
Gain Adjustment	15dB 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. (See Application Note #27).
RF Power Display	Digital, forward and reflected
Third Order Intercept Point	64dBm typ.
Harmonic Distortion	Minus 20dBc max. at 200 watts
Primary Power	120 - 240 VAC
	50/60 Hz, single phase
	2150 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 input	Type BNC female on front panel
Detected RF output	Type BNC female on front panel
Remote computer interface	IEEE-488 (GPIB) & RS-232 female connector on rear panel
Remote Computer Interface (Fiber Optic)	ST Conn Tx and Rx RS-232
Safety Interlock	15 pin female Subminiature D on rear panel
Cooling	Operate Interface 25 pin Subminiature D on rear panel
Weight	172.4 kg (380 lb)
Size (WxHxD)	56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.

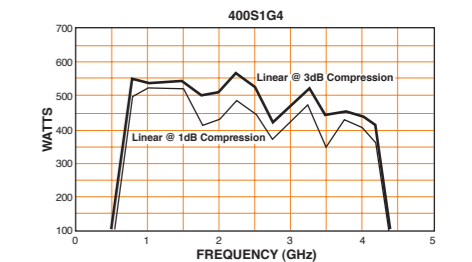


400S1G4 Solid State Amplifier



375 watts. 0.8-4.2 GHz CW

Rated Power Output	375 watts min.
Input For Rated Output	1 milliwatt max.
Power Output @ 3dB compression	Nominal 430 watts / min. 335 watts
Power Output @ 1dB compression	Nominal 390 watts / min. 300 watts
Flatness	±3.5dB max. / ±1dB with Internal Leveling
Frequency Response	0.8 - 4.2 GHz instantaneously
Gain (at max. setting)	56dB min.
Gain Adjustment	15dB 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. (See Application Note #27).
RF Power Display	Digital, forward and reflected
Third Order Intercept Point	66dBm typical
Harmonic Distortion	Minus 20dBc max. at 375 watts
Primary Power	200 - 240 VAC
	50/60 Hz, single phase
	5000 watts
Connectors	
RF input	Type N female on front panel
RF output	Type 7-16 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 Interfaces	IEEE-488 (GPIB) & RS-232 female connector on rear panel
Remote Computer Interface (Fiber Optic)	ST Conn Tx and Rx RS-232
Safety Interlock	15 pin female Subminiature D on rear panel
Cooling	Forced air (self contained fans) enters front and bottom
Weight	336 kg (850 lb)
Size (WxHxD)	56.1 x 152.4 x 67.1 cm / 22.1 x 60 x 26.4 in.

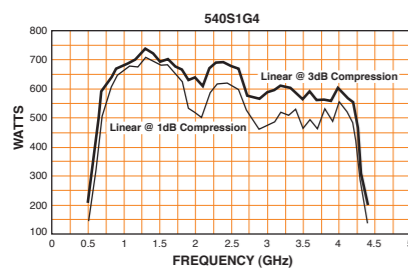


0.8 to 4.2 GHz.



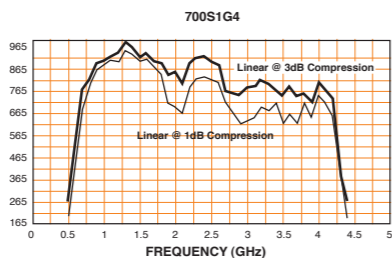
540 watts. 0.8-4.2 GHz CW

Rated Power Output 540 watts min.
Input For Rated Output 1 milliwatt max.
Power Output @ 3dB compression
 Nominal 585 watts / min. 485 watts
Power Output @ 1dB compression
 Nominal 535 watts / min. 430 watts
Flatness ±3.5dB max. / ±1dB with Internal Leveling
Frequency Response 0.8 - 4.2 GHz instantaneously
Gain (at max. setting) 58dB min.
Gain Adjustment 15dB 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. (See Application Note #27)
RF Power Display Digital, forward and reflected
Harmonic Distortion Minus 20dBc max. at 475 watts
Third Order Intercept Point 67dBm typical
Primary Power
 200 - 240 VAC
 50/60 Hz, single phase
 6850 watts
Connectors
 RF input Type N female on front panel
 RF output Type 7/8 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
 Remote Interfaces
 IEEE-488.2 (GPIB) 24 pin female connector on rear panel
 RS-232 (fiber optic) ST Conn Tx and Rx RS-232 on rear panel
Safety Interlock 15 pin female Subminiature D on rear panel
Cooling Forced air (self contained fans) enters front and bottom
 600 kg (1323 lb)
Weight
Size (WxHxD) (3 Cabinets)
 Cabinet 1 (2) 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.
 Cabinet 2 (1) 56.1 x 152.4 x 67.1 cm / 22.1 x 60 x 26.4 in.



700 watts. 0.8-4.2 GHz CW

Rated Power Output 700 watts min.
Input For Rated Output 1 milliwatt max.
Power Output @ 3dB compression
 Nominal 780 watts / min. 645 watts
Power Output @ 1dB compression
 Nominal 700 watts / min. 575 watts
Flatness ±3.5dB max. / ±1dB with Internal Leveling
Frequency Response 0.8 - 4.2 GHz instantaneously
Gain (at max. setting) 59dB min.
Gain Adjustment (continuous range) 15dB 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. (See Application Note #27)
RF Power Display Digital, forward and reflected
Harmonic Distortion Minus 20dBc max. at 675 watts
Third Order Intercept Point 68dBm typical
Primary Power
 200 - 240 VAC
 50/60 Hz, single phase
 9000 watts
Connectors
 RF input Type N female on front panel
 RF output Type 7/8 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
 Remote Interfaces
 IEEE-488.2 (GPIB) 24 pin female connector on rear panel
 RS-232 (fiber optic) ST Conn Tx and Rx RS-232 on rear panel
Safety Interlock 15 pin female Subminiature D on rear panel
Cooling Forced air (self contained fans) enters front and bottom
 771 kg (1700 lb)
Weight
Size (WxHxD) (4 Cabinets)
 Cabinet 1 (3) 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.
 Cabinet 2 (1) 56.1 x 152.4 x 67.1 cm / 22.1 x 60 x 26.4 in.

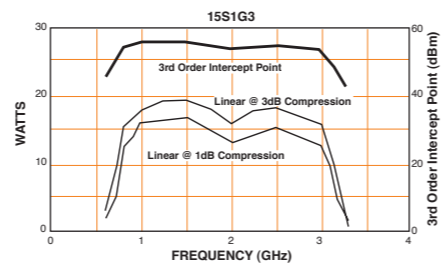


0.8 to 3 GHz.



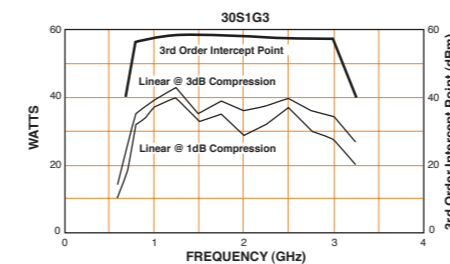
15 watts. 0.8-3.0 GHz CW

Rated Power Output 15 watts min.
Input For Rated Output 1 milliwatt max.
Power Output @ 3dB compression
 Nominal 17 watts / min. 15 watts
Power Output @ 1dB compression
 Nominal 15 watts / min. 12 watts
Flatness ±1.5dB typ. / ±2dB max.
Frequency Response 0.8 - 3.0 GHz instantaneously
Gain (at max. setting) 42dB min.
Gain Adjustment (continuous range)
 10dB 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. (See Application Note #27)
Third Order Intercept
 See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion Minus 20dBc max. at 12 watts
Spurious Minus 73dBc typ.
Phase Linearity ±1 deg/100 MHz, typ.
Primary Power (selected automatically)
 90 - 132, 180 - 264 VAC
 50/60 Hz, single phase
 250 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 male
Safety Interlock 15 Pin Subminiature D male
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.



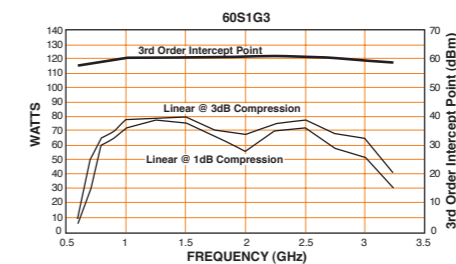
30 watts. 0.8-3.0 GHz CW

Rated Power Output 30 watts min.
Input For Rated Output 1 milliwatt max.
Power Output @ 3dB compression
 Nominal 37 watts / min. 30 watts
Power Output @ 1dB compression
 Nominal 32 watts / min. 25 watts
Flatness ±1.5dB typ. / ±2dB max.
Frequency Response 0.8 - 3.0 GHz instantaneously
Gain (at max. setting) 45dB min.
Gain Adjustment (continuous range)
 10dB 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. (See Application Note #27)
Third Order Intercept
 See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion Minus 20dBc max. at 25 watts
Spurious Minus 73dBc typ.
Phase Linearity ±1 deg/100 MHz, typ.
Primary Power (selected automatically)
 90 - 132, 180 - 264 VAC
 50/60 Hz, single phase
 340 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
Safety Interlock 15 pin Subminiature D
Cooling Forced air (self contained fans)
Weight 35 kg (77 lb)
Size (WxHxD)
 50.3 x 20.3 x 54.6 cm / 19.8 x 8 x 21.5 in.



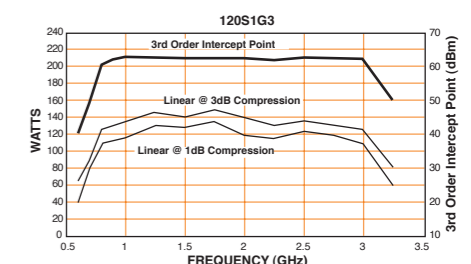
60 watts. 0.8-3.0 GHz CW

Rated Power Output 60 watts min.
Input For Rated Output 1 milliwatt max.
Power Output @ 3dB compression
 Nominal 70 watts / min. 60 watts
Power Output @ 1dB compression
 Nominal 60 watts / min. 50 watts
Flatness ±1.5dB typ. / ±2dB max.
Frequency Response 0.8 - 3.0 GHz instantaneously
Gain (at max. setting) 48dB min.
Gain Adjustment (continuous range)
 10dB 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. (See Application Note #27)
Third Order Intercept
 See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion Minus 20dBc max. at 50 watts
Spurious Minus 73dBc typ.
Phase Linearity ±1 deg/100 MHz, typ.
Primary Power (selected automatically)
 90 - 132, 180 - 264 VAC
 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
Safety Interlock 15 pin Subminiature D
Cooling Forced air (self contained fans)
Weight 45 kg (100 lb)
Size (WxHxD)
 50.3 x 24.9 x 54.6 cm / 19.8 x 9.8 x 21.5 in.



120 watts. 0.8-3.0 GHz CW

Rated Power Output 120 watts min.
Input For Rated Output 1 milliwatt max.
Power Output @ 3dB compression
 Nominal 140 watts / min. 120 watts
Power Output @ 1dB compression
 Nominal 122 watts / min. 100 watts
Flatness ±1.5dB typ. / ±2dB max. / ±1dB Internal Leveling
Frequency Response 0.8 - 3.0 GHz instantaneously
Gain (at max. setting) 51dB min.
Gain Adjustment (continuous range)
 15dB min. (4096 steps remote)
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, nominal / 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. (See Application Note #27)
RF Power Display 0 - 150 Watts
Third Order Intercept Point
 See chart. The third order intercept points for this chart have been determined using two tones spaced 1 MHz apart. This is typical for W-CDMA systems. Closer tone spacing such as 60 kHz generally provides about a 1db to 3db improvement in the IP.
Harmonic Distortion Minus 20dBc max. at 100 watts
Spurious Minus 73dBc typ.
Phase Linearity ±1 deg/100 MHz, typ.
Primary Power (selected automatically)
 90 - 132, 180 - 264 VAC
 50/60 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 86.2 kg (190 lb)
Size (WxHxD)
 50.3 x 47 x 61 cm / 19.8 x 18.5 x 24 in.



0.8 to 3 GHz.

240S1G3A Solid State Amplifier



240 watts. 0.8-3.0 GHz CW

Rated Power Output 0.8 - 1 GHz: 230 watts min.
1 - 3 GHz: 240 watts min.
1 milliwatt max.

Input For Rated Output

Power Output @ 3dB compression
Nominal 250 watts / min. 200 watts

Power Output @ 1dB compression
Nominal 230 watts / min. 180 watts

Flatness ±2.5dB max. / ±1dB with Internal Leveling

Frequency Response 0.8 - 3.0 GHz instantaneously

Gain (at max. setting) 54dB min.

Gain Adjustment 15dB 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. (See Application Note #27)

Third Order Intercept Point 65dBm typical

Harmonic Distortion Minus 20dBc max. at 200 watts

Primary Power
120 - 240 VAC
50/60 Hz, single phase
2150 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 input Type BNC female on front panel
Detected RF output Type BNC female on front panel
Remote computer interface 24 pin female IEEE-488.2 (GPIB) connector on rear panel
IEEE-488 (GPIB) & RS-232 female connector on rear panel
Remote Computer Interface (Fiber Optic) ST Conn Tx and Rx RS-232

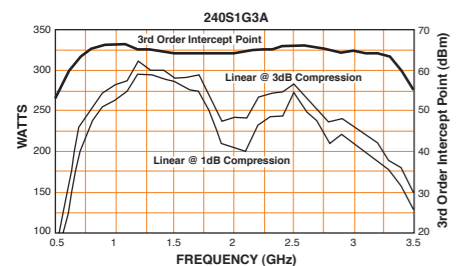
Operate Interface 25 pin Subminiature D on rear panel

Safety Interlock 15 pin female Subminiature D on rear panel

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

Weight 172.4 kg (380 lb)

Size (WxHxD)
Cabinet 1 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.
Cabinet 2 56.1 x 152.4 x 67.1 cm / 22.1 x 60 x 26.4 in.



450S1G3 Solid State Amplifier



450 watts. 0.8-3.0 GHz CW

Rated Power Output 0.8 - 1 GHz: 430 watts min.
1 - 3 GHz: 450 watts min.
1 milliwatt max.

Input For Rated Output

Power Output @ 3dB compression
Nominal 470 watts / min. 370 watts

Power Output @ 1dB compression
Nominal 430 watts / min. 340 watts

Flatness ±3.5dB max. / ±1dB with Internal Leveling

Frequency Response 0.8 - 3.0 GHz instantaneously

Gain (at max. setting) 56.5dB min.

Gain Adjustment 15dB 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. (See Application Note #27)

RF Power Display Digital, forward and reflected

Third Order Intercept Point 67dBm typical

Harmonic Distortion Minus 20dBc max. at 380 watts

Primary Power
200 - 240 VAC
50/60 Hz, single phase
5000 watts

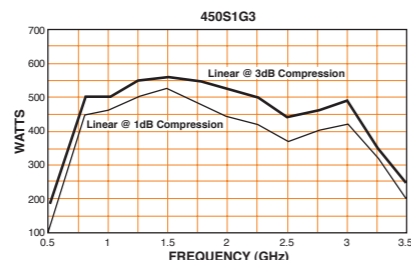
Connectors
RF input Type N female on front panel
RF output Type 7-16 on rear panel
External leveling inputs Type BNC female on front panel
Pulse Modulation input Type BNC female on front panel
Detected RF output Type BNC female on front panel
Remote computer interfaces 24 pin female IEEE-488.2 (GPIB) connector on rear panel
Remote Computer Interface (Fiber Optic) ST Conn Tx and Rx RS-232

Safety Interlock 15 pin female Subminiature D on rear panel

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

Weight 336 kg (850 lb)

Size (WxHxD)
Cabinet 1 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.
Cabinet 2 56.1 x 152.4 x 67.1 cm / 22.1 x 60 x 26.4 in.



600S1G3 Solid State Amplifier



590 watts. 0.8-3.0 GHz CW

Rated Power Output 0.8 - 1 GHz: 590 watts min.
1 - 3 GHz: 625 watts min.
1 milliwatt max.

Input For Rated Output

Power Output @ 3dB compression
Nominal 625 watts / min. 500 watts

Power Output @ 1dB compression
Nominal 565 watts / min. 460 watts

Flatness ±3.5dB max. / ±1dB with Internal Leveling

Frequency Response 0.8 - 3.0 GHz instantaneously

Gain (at max. setting) 58dB min.

Gain Adjustment 15dB 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. (See Application Note #27)

RF Power Display Digital, forward and reflected

Harmonic Distortion Minus 20dBc max. at 500 watts

Third Order Intercept Point 67dBm typical

Primary Power
200 - 240 VAC
50/60 Hz, single phase
6850 watts

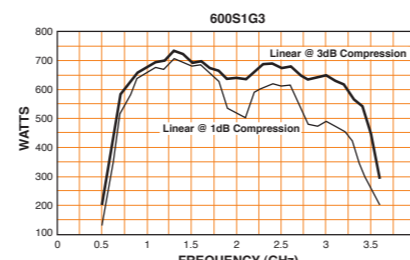
Connectors
RF input Type N female on front panel
RF output Type 7/8 EIA on rear panel
External leveling inputs Type BNC female on front panel
Pulse modulation input Type BNC female on front panel
Detected RF output Type BNC female on front panel
Remote Interfaces IEEE-488.2 (GPIB) 24 pin female connector on rear panel
IEEE-488.2 (GPIB) RS-232 (fiber optic) ST Conn Tx and Rx RS-232

Safety Interlock 15 pin female Subminiature D on rear panel

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

Weight 600 kg (1323 lb)

Size (WxHxD) (3 Cabinets)
Cabinet 1 (2) 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.
Cabinet 2 (1) 56.1 x 152.5 x 67.1 cm / 22.1 x 60 x 26.4 in.



800S1G3 Solid State Amplifier



800 watts. 0.8-3.0 GHz CW

Rated Power Output 0.8 - 1 GHz: 750 watts min.
1 - 3 GHz: 800 watts min.
1 milliwatt max.

Input For Rated Output

Power Output @ 3dB compression
Nominal 825 watts / min. 675 watts

Power Output @ 1dB compression
Nominal 780 watts / min. 600 watts

Flatness ±3.5dB max. / ±1dB with Internal Leveling

Frequency Response 0.8 - 4.2 GHz instantaneously

Gain (at max. setting) 59dB min.

Gain Adjustment (continuous range) 15dB 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. (See Application Note #27)

RF Power Display Digital, forward and reflected

Harmonic Distortion Minus 20dBc max. at 675 watts

Third Order Intercept Point 68dBm typical

Primary Power
200 - 240 VAC
50/60 Hz, single phase
9000 watts

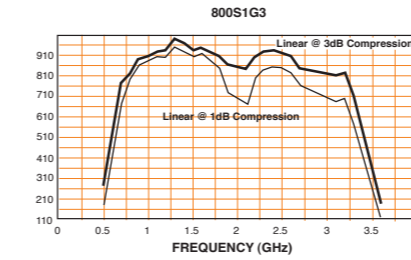
Connectors
RF input Type N female on front panel
RF output Type 7/8 EIA on rear panel
External leveling inputs Type BNC female on front panel
Pulse modulation input Type BNC female on front panel
Detected RF output Type BNC female on front panel
Remote Interfaces IEEE-488.2 (GPIB) 24 pin female connector on rear panel
IEEE-488.2 (GPIB) RS-232 (fiber optic) ST Conn Tx and Rx RS-232

Safety Interlock 15 pin female Subminiature D on rear panel

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

Weight 771 kg (1700 lb)

Size (WxHxD) (4 Cabinets)
Cabinet 1 (3) 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.
Cabinet 2 (1) 56.1 x 152.4 x 67.1 cm / 22.1 x 60 x 26.4 in.



0.8 to 2.8 GHz.

200T1G3A TWT Amplifier



200 watts. 0.8-2.8 GHz CW & Pulse

Power (fundamental), CW/Pulse @ Output Connector
Nominal 242 watts / min. 200 watts
Linear @ 1dB Compression 50 watts min.

Flatness ±12dB max., equalized for ±5dB max. at rated power

Frequency Response 0.8 - 2.8 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 53dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.05 microseconds min.
Pulse Rate (PRF) 100 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density
(pulse on) Minus 72dBm/Hz max., Minus 77dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 2dBc max., Minus 2.5dBc typ.

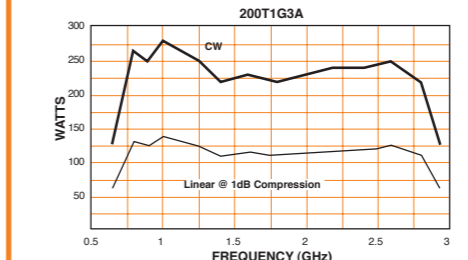
Primary Power
190 - 260 VAC
50/60 Hz, single phase
2.5 kVA max

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
Video BNC-female on rear panel
GPIB IEEE-488(f)

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

Weight 60 kg (130 lb)

Size (WxHxD)
50.3 x 29.7 x 76.2 cm / 19.8 x 11.7 x 30 in.



1 to 2.5 GHz.

250T1G3 TWT Amplifier



250 watts. 1-2.5 GHz CW & Pulse

Power (fundamental), CW/Pulse @ Output Connector
Nominal 300 watts / min. 250 watts
Linear @ 1dB Compression 70 watts min.

Flatness ±12dB max., equalized for ±5dB max. at rated power

Frequency Response 1 - 2.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 53dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 50 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.05 microseconds min.
Pulse Rate (PRF) 100 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse Width Distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density
(pulse on) Minus 72dBm/Hz max., Minus 77dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 3dBc max., Minus 4.5dBc typ.

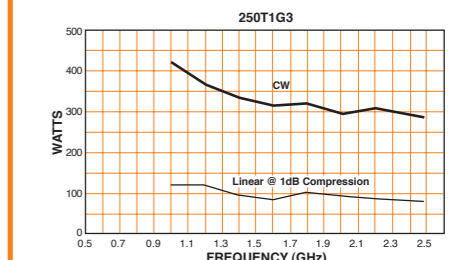
Primary Power
190 - 260 VAC
50/60 Hz, single phase
2.5 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
Video BNC-female on rear panel
GPIB IEEE-488(f)

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

Weight 59 kg (130 lb)

Size (WxHxD)
50.3 x 29.7 x 76.2 cm / 19.8 x 11.7 x 30 in.



1 to 2.5 GHz.

1 to 2 GHz.

2 to 4 GHz.



500 watts. 1-2.5 GHz CW



1000 watts. 1-2.5 GHz CW



1500 watts. 1-2.5 GHz CW



2000 watts. 1-2.5 GHz CW



200 watts. 1-2 GHz CW



200 watts. 2-4 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 537 watts / min. 500 watts
Linear @ 1dB Compression 125 watts min.

Flatness
±8dB max., equalized for ±5dB max. at rated power

Frequency Response
1 - 2.5 GHz instantaneously

Input For Rated Output
1 milliwatt max.

Gain (at max. setting)
57dB min.

Gain Adjustment (continuous range)
35dB min.

Input Impedance
50 ohms, VSWR 2.0:1 max.

Output Impedance
50 ohms, VSWR 2.5:1 typ.

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

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 80dBm/Hz max., Minus 87dBm/Hz typ.

Harmonic Distortion
Minus 3dBc max., Minus 4dBc typ.

Primary Power
208 VAC ±10%
50/60 Hz, three phase
3.3 kVA max.

Connectors
RF input Type N female on rear panel
RF output 7-16 DIN female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight
71 kg (155 lb)

Size (WxHxD)
50.3 x 25.4 x 83.8 cm / 19.8 x 10 x 33 in.

Power (fundamental), CW, @ Output Connector
Nominal 1100 watts
Min. 925 watts 1 - 1.2 GHz, 1000 watts 1.2 - 2.5 GHz
Linear @ 1dB Compression 250 watts min.

Flatness
±8dB max., equalized for ±3dB max. at rated power

Frequency Response
1 - 2.5 GHz instantaneously

Input For Rated Output
1 milliwatt max.

Gain (at max. setting)
60dB min.

Gain Adjustment (continuous range)
35dB min.

Input Impedance
50 ohms, VSWR 2.0:1 max.

Output Impedance
50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 200 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 80dBm/Hz max., Minus 90dBm/Hz typ.

Harmonic Distortion
Minus 1.5dBc max., Minus 20dBc typ.

Primary Power
190 - 255 VAC
50/60 Hz, three phase, delta (4 wire)
8.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output 7-16 DIN female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight
318 kg (700 lb)

Size (WxHxD)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.

Power (fundamental), CW, @ Output Connector
Nominal 1600 watts
Min. 1500 watts
Linear @ 1dB Compression 375 watts min.

Flatness
±8dB max., equalized for ±6dB max. at rated power

Frequency Response
1 - 2.5 GHz instantaneously

Input For Rated Output
1 milliwatt max.

Gain (at max. setting)
62dB min.

Gain Adjustment (continuous range)
35dB min.

Input Impedance
50 ohms, VSWR 2.0:1 max.

Output Impedance
50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 300 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 90dBm/Hz max., Minus 95dBm/Hz typ.

Harmonic Distortion
Minus 20dBc max., Minus 20dBc typ.

Primary Power
190 - 255 VAC or 360 - 435 VAC
50/60 Hz, three phase, delta (4 wire) or WYE (5 wire)
16 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type 1 5/8 EIA on rear panel
RF output sample ports (forward and reflected) Type N female on rear panel
GPIO IEEE-488 female on rear panel
Interlock DB-15 female on rear panel

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

Weight
409 kg (900 lb)

Size (WxHxD)
56 x 193 x 82.3 cm / 22.1 x 76 x 32.4 in.

Power (fundamental), CW, @ Output Connector
Nominal 2200 watts
Min. 2000 watts
Linear @ 1dB Compression 500 watts min.

Flatness
±8dB max., equalized for ±5dB max. at rated power

Frequency Response
1 - 2.5 GHz instantaneously

Input For Rated Output
1 milliwatt max.

Gain (at max. setting)
63dB min.

Gain Adjustment (continuous range)
35dB min.

Input Impedance
50 ohms, VSWR 2.0:1 max.

Output Impedance
50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 400 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 90dBm/Hz max., Minus 95dBm/Hz typ.

Harmonic Distortion
Minus 20dBc max., Minus 22dBc typ.

Primary Power
190 - 255 VAC
50/60 Hz, three phase, delta (4 wire)
24 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type 1 5/8 EIA
RF output sample ports (forward and reflected) Type N female on rear panel
GPIO IEEE-488 female on rear panel
Interlock DB-15 female on rear panel

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

Weight
954 kg (2100 lb)

Size (WxHxD)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.

Power (fundamental), CW, @ Output Connector
Nominal 215 watts / min. 200 watts
Linear @ 1dB Compression 100 watts min.

Flatness
±5dB max. at rated power

Frequency Response
1 - 2 GHz instantaneously

Input For Rated Output
1 milliwatt max.

Gain (at max. setting)
53dB min.

Gain Adjustment (continuous range)
35dB min.

Input Impedance
50 ohms, VSWR 2.0:1 max.

Output Impedance
50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 72dBm/Hz max., Minus 77dBm/Hz typ.

Harmonic Distortion
Minus 4dBc max., Minus 6dBc typ.

Primary Power
190 - 260 VAC
50/60 Hz, single phase
2.5 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight
57 kg (125 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.

Power (fundamental), CW, @ Output Connector
Nominal 283 watts / min. 200 watts
Linear @ 1dB Compression 100 watts min.

Flatness
±7dB max. at rated power

Frequency Response
2 - 4 GHz instantaneously

Input For Rated Output
1 milliwatt max.

Gain (at max. setting)
53dB min.

Gain Adjustment (continuous range)
35dB min.

Input Impedance
50 ohms, VSWR 2.0:1 max.

Output Impedance
50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 66dBm/Hz max., Minus 77dBm/Hz typ.

Harmonic Distortion
Minus 4.5dBc max., Minus 6dBc typ.

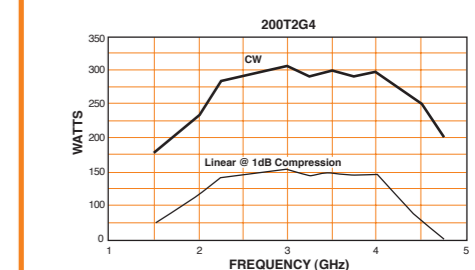
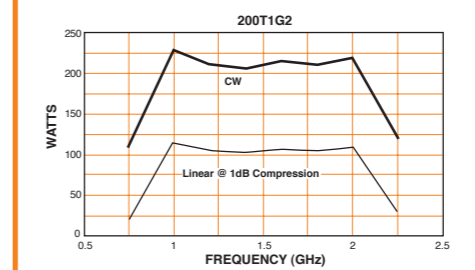
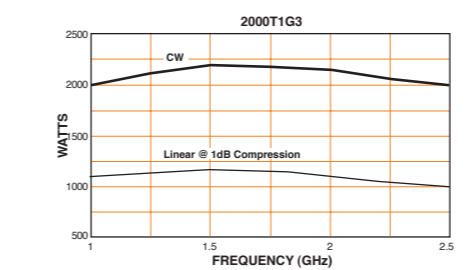
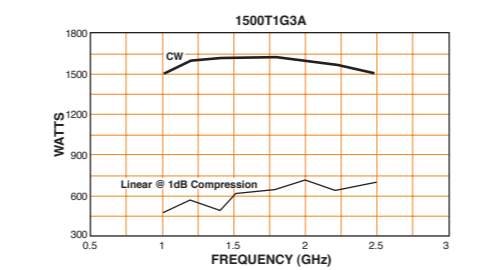
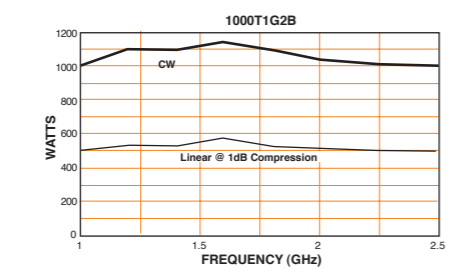
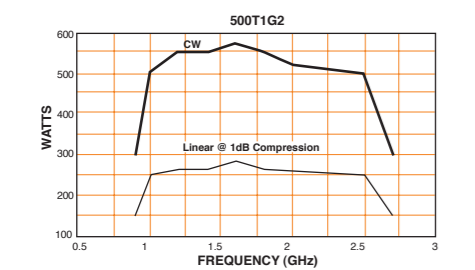
Primary Power
190 - 260 VAC
50/60 Hz, single phase
2.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight
54 kg (120 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



Also available in a smaller size. Ask for more information on Model 1000T1G2D.

2 to 4 GHz.

2.5 to 7.5 GHz.



1000T2G4 TWT Amplifier

1000 watts. 2-4 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 1300 watts / min. 1000 watts
Linear @ 1dB Compression 250 watts min.

Flatness ±4 dB max., ±3 dB max. at rated power

Frequency Response 2 - 4 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 200 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 70dBm/Hz max., Minus 77dBm/Hz typ.

Harmonic Distortion
Minus 6dBc max., Minus 10dBc typ.

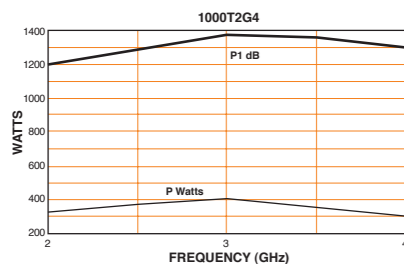
Primary Power
190 - 255 VAC
50/60 Hz, three phase, delta (4 wire)
8 kVA max.

Connectors
RF input Type N female
RF output 1 1/4 EIA on rear panel
RF output sample ports (forward and reflected) Type N female on rear panel
GPIO IEEE-488 female on rear panel
Interlock DB-15 female on rear panel

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

Weight 318 kg (700 lb)

Size (WxHxD)
56 x 183 x 82.3 cm / 22.1 x 72 x 32.4 in.



200T2G8A TWT Amplifier

200 watts. 2.5-7.5 GHz CW & Pulse

Power (fundamental), CW/Pulse @ Output Connector
Nominal 267 watts / min. 200 watts
Linear @ 1dB Compression 100 watts min.

Flatness ±12dB max, equalized for ±5dB max. at rated power

Frequency Response 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 53dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.05 microseconds min.
Pulse Rate (PRF) 100 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300ns max. from pulse input to RF 90%
Pulse width distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density (pulse on) Minus 69dBm/Hz max., Minus 72dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 2dBc max., Minus 3.5dBc typ.

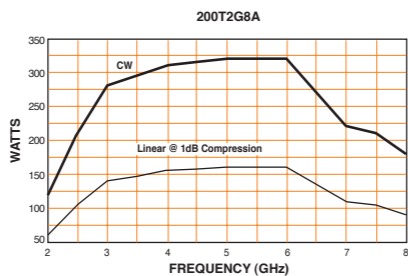
Primary Power
190 - 260 VAC
50/60 Hz, single phase
2.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
Video BNC-female on rear panel
GPIO IEEE-488(f)

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

Weight 54 kg (120 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



300T2G8 TWT Amplifier

300 watts. 2.5-7.5 GHz CW & Pulse

Power (fundamental), CW/Pulse @ Output Connector
Nominal 350 watts / min. 300 watts
Linear @ 1dB Compression 75 watts min.

Flatness ±12dB max, equalized for ±5dB max. at rated power

Frequency Response 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 55dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 60 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.05 microseconds min.
Pulse Rate (PRF) 100 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse width distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density (pulse on) Minus 85dBm/Hz max., Minus 90dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 3dBc max., Minus 4.5dBc typ.

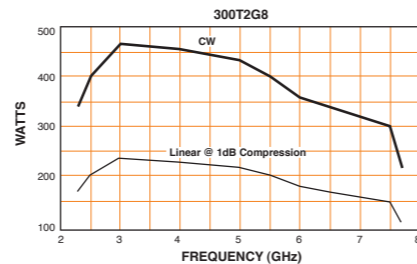
Primary Power
190 - 260 VAC
50/60 Hz, single phase
3.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
Video BNC-female on rear panel
GPIO IEEE-488(f)

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

Weight 54 kg (120 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



500T2G8 TWT Amplifier

500 watts. 2.5-7.5 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 541 watts / min. 500 watts
Linear @ 1dB Compression 125 watts min.

Flatness ±8dB max., equalized for ±5dB max. at rated power

Frequency Response 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 57dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

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

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 85dBm/Hz max., Minus 95dBm/Hz typ.

Harmonic Distortion
Minus 3dBc max., Minus 3.5dBc typ.

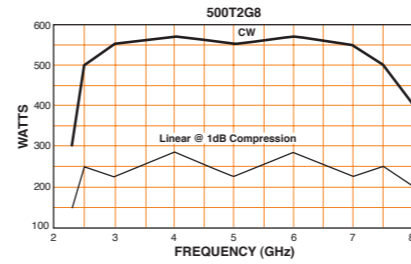
Primary Power
208 VAC ±10%
50/60 Hz, three phase
3.5 kVA max.

Connectors
RF input Type N female on rear panel
RF output 7-16 DIN female on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight 55 kg (120 lb)

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



1000T2G8B TWT Amplifier

1000 watts. 2.5-7.5 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 1100 watts / min. 900 watts, 2.5 - 2.7 GHz,
1700 watts, 3 - 7.5 GHz
Linear @ 1dB Compression 250 watts min.

Flatness ±8dB max., equalized for ±3dB max. at rated power

Frequency Response 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 200 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 80dBm/Hz max., Minus 90dBm/Hz typ.

Harmonic Distortion
Minus 15dBc max., Minus 17dBc typ.

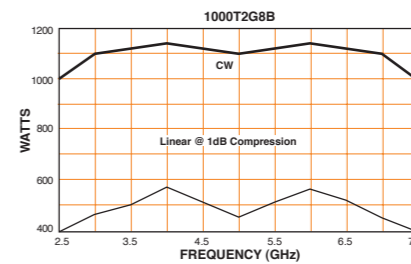
Primary Power
190 - 255 VAC
50/60 Hz, three phase, delta (4 wire)
8.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 250D30 waveguide flange on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIO IEEE-488(f)

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

Weight 295 kg (650 lb)

Size (WxHxD)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.



Also available in a smaller size. Ask for more information on Model 1000T2G8C.



1500T2G8A TWT Amplifier

1500 watts. 2.5-7.5 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 2000 watts / min. 1600 watts, 2.5 - 3 GHz,
1700 watts, 3 - 7.5 GHz
Linear @ 1dB Compression 400 watts min.

Flatness ±8dB max., equalized for ±6dB max. at rated power

Frequency Response 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 62dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 300 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 85dBm/Hz max., Minus 95dBm/Hz typ.

Harmonic Distortion
Minus 15dBc max., Minus 17dBc typ.

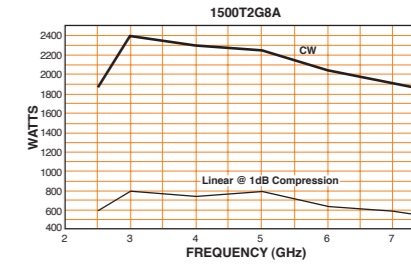
Primary Power
190 - 255 VAC or 360 - 435 VAC
50/60 Hz, three phase, delta (4 wire) or WYE (5 wire)
11 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 250D30 waveguide flange on rear panel
RF output sample ports (forward and reflected) Type N female on rear panel
GPIO IEEE-488 female on rear panel
Interlock DB-15 female on rear panel

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

Weight 296 kg (650 lb)

Size (WxHxD)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.



2.5 to 7.5 GHz.

4 to 10.6 GHz.



2000 watts. 2.5-7.5 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 2200 watts / min. 2000 watts
Linear @ 1dB Compression 500 watts min.

Flatness
±8dB max., equalized for ±6dB max. at rated power

Frequency Response 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 63dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 400 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 85dBm/Hz max., Minus 95dBm/Hz typ.

Harmonic Distortion
Minus 15dBc max., Minus 22dBc typ., minus 20 dBc max. when used with supplied external filter.

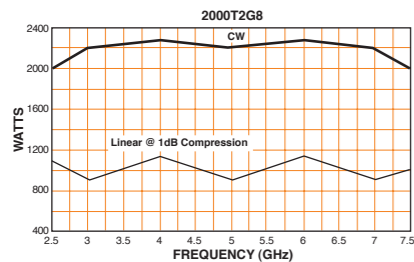
Primary Power
190 - 255 VAC
50/60 Hz, three phase, delta (4 wire)
22 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 250D30 waveguide flange on rear panel
RF output sample ports (forward and reflected) Type N female on rear panel
 GPIB IEEE-488 female on rear panel
 Interlock DB-15 female on rear panel

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

Weight 909 kg (2000 lb)

Size (WxHxD) (4 cabinets)
56 x 160 x 82.3 cm [22.1 x 63 x 32.4 in]



1 watt. 4.0-10.6 GHz CW

Rated Power Output 1 watt min.
Input For Rated Output 1 milliwatt max.

Power Output @ 3dB compression
Nominal 1.3 watts / min. 1 watt

Power Output @ 1dB compression
Nominal 1 watt / min. 0.7 watts

Flatness ±1.5dB typ. / ±2.5dB max.

Frequency Response 4.0 - 10.6 GHz instantaneously

Gain (at max. setting) 30dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, nominal

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

Harmonic Distortion Minus 20dBc max. at 0.8 watts

Third Order Intercept Point 40dBm typ.

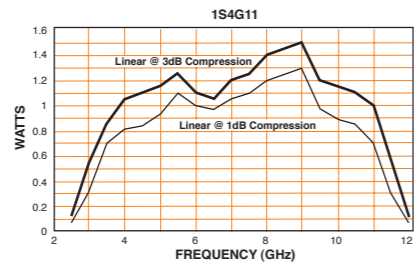
Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
50 watts max.

Connectors
RF input Type N female on front panel
RF output Type N female on front panel

Cooling Forced air (self contained fans)

Weight 6.4 kg (14 lb)

Size (WxHxD)
26 x 10.9 x 28.2 cm / 10.3 x 4.3 x 11.1 in.



5 watts. 4.0-10.6 GHz CW

Rated Power Output 5 watt min.
Input For Rated Output 1 milliwatt max.

Power Output @ 3dB compression
Nominal 7 watts / min. 5.5 watt

Power Output @ 1dB compression
Nominal 6 watt / min. 4.5 watts

Flatness ±2dB typ. / ±3dB max.

Frequency Response 4.0 - 10.6 GHz instantaneously

Gain (at max. setting) 37dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, nominal

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

Harmonic Distortion Minus 20dBc max. at 5 watts

Third Order Intercept Point 47dBm typ.

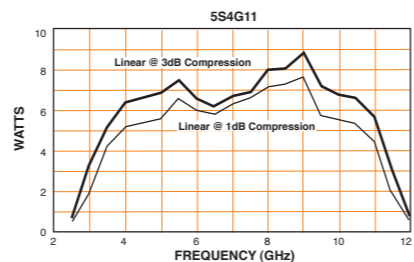
Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
175 watts max.

Connectors
RF input Type N female on front panel
RF output Type N female on front panel

Cooling Forced air (self contained fans)

Weight 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.



10 Watts. 4.0-10.6 GHz CW

Rated Power Output 10 watts min.

Power Output @ 3dB compression
Nominal 13 watts / min. 10 watts

Power Output @ 1dB compression
Nominal 11 watts / min. 9 watts

Flatness ±2dB typ. / ±3dB max.

Frequency Response 4.0 - 10.6 GHz instantaneously

Gain (at max. setting) 40dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, nominal

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

Harmonic Distortion Minus 20dBc max. at 10 watts

Third Order Intercept Point 50dBm typ.

Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
<300 watts max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel

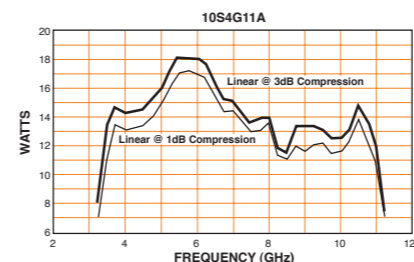
Remote Interfaces
IEEE-488 24 pin female
RS-232 9 pin Subminiature D female
RS-232 (Fiber-optic) Type ST
USB 2.0 Type B
Ethernet RJ-45

Safety Interlock 15 Pin Subminiature D

Cooling Forced air (self contained fans)

Weight 31.3 kg (69 lb)

Size (WxHxD)
50.3 x 24.9 x 54.6 cm / 19.8 x 9.8 x 21.5 in



20 watts. 4.0-10.6 GHz CW

Rated Power Output 20 watts min.
Input For Rated Output 1 milliwatt max., 0dBm

Power Output @ 3dB compression
Nominal 25 watts / min. 20 watts

Power Output @ 1dB compression
Nominal 22 watts / min. 18 watts

Flatness ±2dB typ. / ±3dB max.

Frequency Response 4.0 - 10.6 GHz instantaneously

Gain (at max. setting) 43dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, nominal

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

Third Order Intercept Point 52dBm typ.

Harmonic Distortion Minus 20dBc max. at 20 watts

Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
<550 watts max.

Connectors
RF input Type N female on front panel
RF output Type N female on front panel

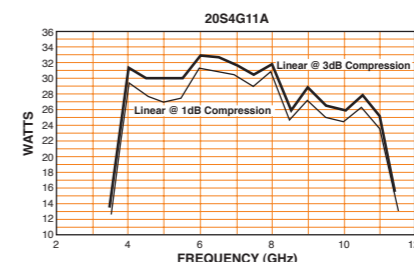
Remote Interfaces
IEEE-488 24 pin female
RS-232 9 pin Subminiature D female
RS-232 (Fiber-optic) Type ST
USB 2.0 Type B
Ethernet RJ-45
Sub-Amplifier Interface RJ-45

Safety Interlock 15 Pin Subminiature D

Cooling Forced air (self contained fans)

Weight 42.6 kg (94 lb)

Size (WxHxD)
50.3 x 24.9 x 54.6 cm / 19.8 x 9.8 x 21.5 in



40 watts. 4.0-10.6 GHz CW

Rated Power Output 40 watts min.
Input For Rated Output 1 milliwatt max., 0dBm

Power Output @ 3dB compression
Nominal 45 watts / min. 40 watts

Power Output @ 1dB compression
Nominal 40 watts / min. 36 watts

Flatness ±2 dB typ. / ±3dB max.

Frequency Response 4.0 - 10.6 GHz instantaneously

Gain (at max. setting) 46dB min.

Gain Adjustment (continuous range) 10dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, nominal

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

Third Order Intercept 52dBm typ.

Harmonic Distortion Minus 20dBc max. at 40 watts

RF Power Display Digital, forward, and reflected

Primary Power (selected automatically)
90 - 132, 180 - 264 VAC
50/60 Hz, single phase
<1300 watts max.

Connectors
RF input Type N female on front 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

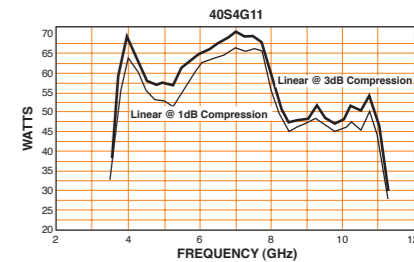
Remote Interfaces
IEEE-488 24 pin female
RS-232 9 pin Subminiature D female
RS-232 (Fiber-optic) Type ST
USB 2.0 Type B
Ethernet RJ-45

Safety Interlock 15 pin Subminiature D

Cooling Forced air (self contained fans)

Weight 113.4 kg (250 lb)

Size (WxHxD)
56.1 x 90.2 x 67.1 cm / 22.1 x 35.5 x 26.4 in.



4 to 10.6 GHz.

4 to 8 GHz.

60S4G11 Solid State Amplifier



60 watts. 4.0-10.6 GHz CW

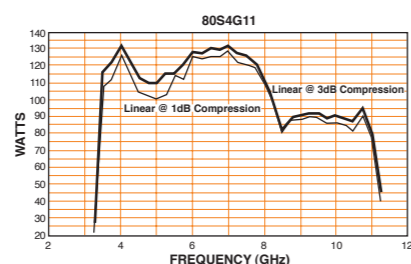
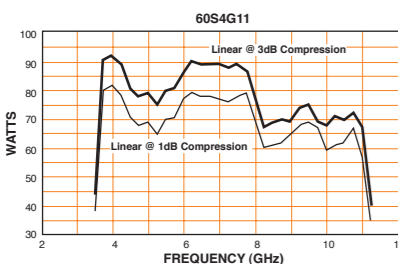
Rated Power Output	60 watts min.
Input For Rated Output	1 milliwatt max., 0dBm
Power Output @ 3dB compression	Nominal 70 watts / min. 60 watts
Power Output @ 1dB compression	Nominal 60 watts / min. 50 watts
Flatness	±2dB typ. / ±3dB max.
Frequency Response	4.0 - 10.6 GHz instantaneously
Gain (at max. setting)	47.8dB min.
Gain Adjustment (continuous range)	10dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
RF Power Display	Digital, forward, and reflected
Third Order Intercept Point	56dBm typ.
Harmonic Distortion	Minus 20dBc max. at 60 watts
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	<1800 watts max.
Connectors	
RF input	Type N female on front 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
Remote Interfaces	
IEEE-488	24 pin female
RS-232	9 pin Subminiature D female
RS-232 (Fiber-optic)	Type ST
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	148.4 kg (326 lb)
Size (WxHxD)	56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.

80S4G11 Solid State Amplifier



80 watts. 4.0-10.6 GHz CW

Rated Power Output	80 watts min.
Input For Rated Output	1 milliwatt max., 0dBm
Power Output @ 3dB compression	Nominal 85 watts / min. 75 watts
Power Output @ 1dB compression	Nominal 80 watts / min. 70 watts
Flatness	±2dB typ. / ±3dB max.
Frequency Response	4.0 - 10.6 GHz instantaneously
Gain (at max. setting)	49dB min.
Gain Adjustment (continuous range)	10dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
RF Power Display	Digital, forward, and reflected
Third Order Intercept Point	57dBm typ.
Harmonic Distortion	Minus 20dBc max. at 80 watts
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	<2200 watts max.
Connectors	
RF input	Type N female on front 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
Remote Interfaces	
IEEE-488	24 pin female
RS-232	9 pin Subminiature D female
RS-232 (Fiber-optic)	Type ST
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	172.4 kg (380 lb)
Size (WxHxD)	56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.

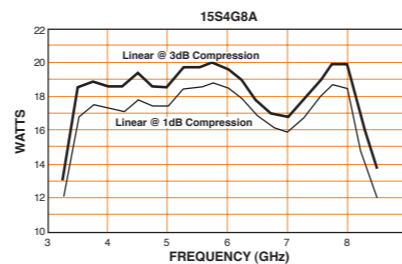


15S4G8A Solid State Amplifier



15 watts. 4.0-8.0 GHz CW

Rated Power Output	15 watts min.
Input For Rated Output	1 milliwatt max., 0dBm
Power Output @ 3dB compression	Nominal 19 watts / min. 16 watts
Power Output @ 1dB compression	Nominal 16 watts / min. 14 watts
Flatness	±1dB typ. / ±2dB max.
Frequency Response	4.0 - 8.0 GHz instantaneously
Gain (at max. setting)	42dB min.
Gain Adjustment (continuous range)	10dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
Third Order Intercept Point	51dBm typ.
Harmonic Distortion	Minus 20dBc max. at 15 watts
Primary Power (selected automatically)	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
RS-232 (Fiber-optic)	Type ST
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 Pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	31.3 kg (69 lb)
Size (WxHxD)	50.3 x 24.9 x 54.6 cm / 19.8 x 9.8 x 21.5 in.

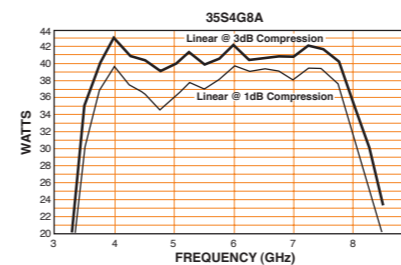


35S4G8A Solid State Amplifier



35 watts. 4.0-8.0 GHz CW

Rated Power Output	35 watts min.
Input For Rated Output	1 milliwatt max., 0dBm
Power Output @ 3dB compression	Nominal 38 watts / min. 32 watts
Power Output @ 1dB compression	Nominal 32 watts / min. 28 watts
Flatness	±1 dB typ. / ±2dB max.
Frequency Response	4.0 - 8.0 GHz instantaneously
Gain (at max. setting)	45.5dB min.
Gain Adjustment (continuous range)	10dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
Third Order Intercept	54dBm typ.
Harmonic Distortion	Minus 20dBc max. at 35 watts
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	<550 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
RS-232 (Fiber-optic)	Type ST
USB 2.0	Type B
Ethernet	RJ-45
Sub-Amplifier Interface	RJ-45
Safety Interlock	15 pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	42.6 kg (94 lb)
Size (WxHxD)	50.3 x 24.9 x 54.6 cm / 19.8 x 9.8 x 21.5 in.

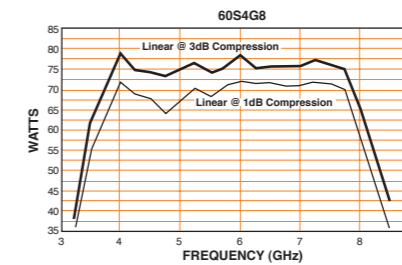


60S4G8 Solid State Amplifier



60 watts. 4.0-8.0 GHz CW

Rated Power Output	60 watts min.
Input For Rated Output	1 milliwatt max., 0dBm
Power Output @ 3dB compression	Nominal 70 watts / min. 60 watts
Power Output @ 1dB compression	Nominal 60 watts / min. 55 watts
Flatness	±1.5dB typ. / ±2dB max.
Frequency Response	4.0 - 8.0 GHz instantaneously
Gain (at max. setting)	47.8dB min.
Gain Adjustment (continuous range)	10dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
RF Power Display	Digital, forward, and reflected
Third Order Intercept Point	56dBm typ.
Harmonic Distortion	Minus 20dBc max. at 60 watts
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	<1300 watts max.
Connectors	
RF input	Type N female on front 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
Remote Interfaces	
IEEE-488	24 pin female
RS-232	9 pin Subminiature D female
RS-232 (Fiber-optic)	Type ST
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	113.4 kg (250 lb)
Size (WxHxD)	56.1 x 90.2 x 67.1 cm / 22.1 x 35.5 x 26.4 in.

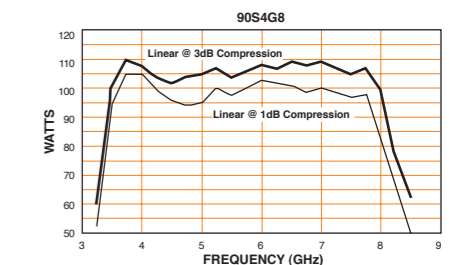


90S4G8 Solid State Amplifier



90 watts. 4.0-8.0 GHz CW

Rated Power Output	90 watts min.
Input For Rated Output	1 milliwatt max., 0dBm
Power Output @ 3dB compression	Nominal 100 watts / min. 90 watts
Power Output @ 1dB compression	Nominal 90 watts / min. 75 watts
Flatness	±1.5dB typ. / ±2.5dB max.
Frequency Response	4.0 - 8.0 GHz instantaneously
Gain (at max. setting)	49.6dB min.
Gain Adjustment (continuous range)	10dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, nominal
Mismatch Tolerance	100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
RF Power Display	Digital, forward, and reflected
Third Order Intercept Point	57dBm typ.
Harmonic Distortion	Minus 20dBc max. at 90 watts
Primary Power (selected automatically)	90 - 132, 180 - 264 VAC
	50/60 Hz, single phase
	<1800 watts max.
Connectors	
RF input	Type N female on front 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
Remote Interfaces	
IEEE-488	24 pin female
RS-232	9 pin Subminiature D female
RS-232 (Fiber-optic)	Type ST
USB 2.0	Type B
Ethernet	RJ-45
Safety Interlock	15 pin Subminiature D
Cooling	Forced air (self contained fans)
Weight	148 kg (325 lb)
Size (WxHxD)	56.1 x 109 x 67 cm / 22.1 x 43.0 x 26.4 in.

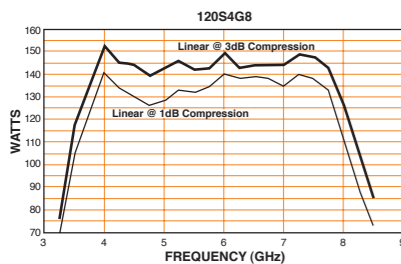


4 to 8 GHz.



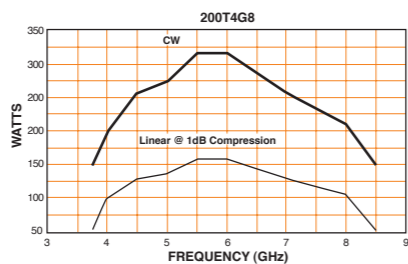
120 watts. 4.0-8.0 GHz CW

Rated Power Output 120 watts min.
Input For Rated Output 1 milliwatt max., 0dBm
Power Output @ 3dB compression Nominal 135 watts / min. 120 watts
Power Output @ 1dB compression Nominal 120 watts / min. 100 watts
Flatness ±1.5dB typ. / ±2.5dB max.
Frequency Response 4.0 - 8.0 GHz instantaneously
Gain (at max. setting) 50.8dB min.
Gain Adjustment (continuous range) 15dB min.
Input Impedance 50 ohms, VSWR 2.5:1 max.
Output Impedance 50 ohms, nominal
Mismatch Tolerance 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. (See Application Note #27)
RF Power Display Digital, forward, and reflected
Third Order Intercept Point 58dBm typ.
Harmonic Distortion Minus 20dBc max. at 120 watts
Primary Power (selected automatically) 90 - 132, 180 - 264 VAC
 50/60 Hz, single phase
 <2200 watts max.
Connectors
 RF input Type N female on front 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
 Remote Interfaces
 IEEE-488 24 pin female
 RS-232 9 pin Subminiature D female
 RS-232 (Fiber-optic) Type ST
 USB 2.0 Type B
 Ethernet RJ-45
Safety Interlock 15 pin Subminiature D
Cooling Forced air (self contained fans)
Weight 172.4 kg (380 lb)
Size (WxHxD) 56.1 x 109 x 67.1 cm / 22.1 x 43 x 26.4 in.



200 watts. 4.0-8.0 GHz CW

Power (fundamental), CW, @ Output Connector Nominal 262 watts / min. 200 watts
 Linear @ 1dB Compression 100 watts min.
Flatness ±6dB max. at rated power
Frequency Response 4.0 - 8.0 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 53dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density Minus 64dBm/Hz max., Minus 70dBm/Hz typ.
Harmonic Distortion Minus 4dBc max., Minus 7dBc typ.
Primary Power 190-260 VAC
 50/60 Hz, single phase
 2.0 kVA max.
Connectors
 RF input Type N female on rear panel
 RF output Type N female on rear panel
 RF output sample port Type N female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 54 kg (120 lb)
Size (WxHxD) 50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.

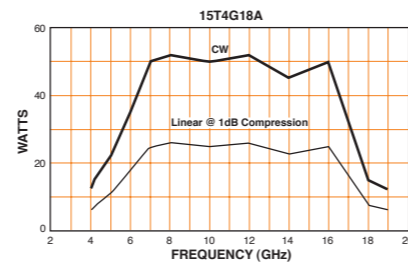


4.2 to 18 GHz.



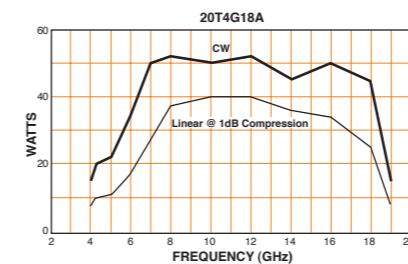
15 watts. 4.2-18 GHz CW

Power (fundamental), CW, @ Output Connector Nominal 40 watts / min. 15 watts,
 10 watts in low harmonic mode
 Linear @ 1dB Compression 7 watts min.
Flatness ±9dB max., 4.2 - 18 GHz / ±5dB max., 8 - 18 GHz
Frequency Response 4.2 - 18 GHz instantaneously or one of three selectable sub-bands in low harmonic mode
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 41dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 20 watts (10 watts in low harmonic mode). Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density Minus 80dBm/Hz max., Minus 90dBm/Hz typ.
Harmonic Distortion (in user selectable sub-band at 10 watts) Minus 20dBc max., Minus 30dBc typ.
Harmonic Distortion (full band at 15 watts) 4.2 - 4.5 GHz; Minus 0dBc max. / Minus 1dBc typ.
 4.5 - 5 GHz; Minus 1dBc max. / Minus 2dBc typ.
 5 - 7 GHz; Minus 2.5dBc max. / Minus 4dBc typ.
 7 - 10 GHz; Minus 5dBc max. / Minus 9dBc typ.
 10 - 12 GHz; Minus 8dBc max. / Minus 12dBc typ.
 Above 12 GHz; Minus 20dBc max. / Minus 30dBc typ.
Primary Power 99 - 260 VAC, 50/60 Hz, single phase, 600 VA max.
Connectors
 RF input Type N female on rear panel
 RF output Type N female on rear panel
 RF output sample port Type N female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 34 kg (75 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.



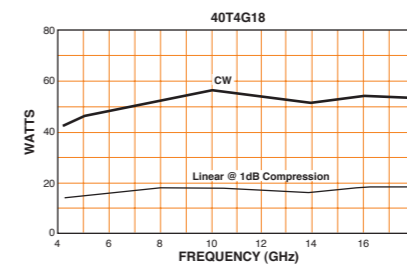
20 watts. 4.2-18 GHz CW

Power (fundamental), CW, @ Output Connector Nominal 42 watts / min. 20 watts
 Linear @ 1dB Compression 10 watts min.
Flatness ±9dB max., 4.2 - 18 GHz
 ±5dB max., 8.0 - 18 GHz
Frequency Response 4.2 - 18 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 43dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 20 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Noise Power Density Minus 80dBm/Hz max., Minus 90dBm/Hz typ.
Harmonic Distortion (at 20 watts) 4.2 - 4.5 GHz; Minus 0dBc max. / Minus 1dBc typ.
 4.5 - 5 GHz; Minus 1dBc max. / Minus 2dBc typ.
 5 - 7 GHz; Minus 2.5dBc max. / Minus 4dBc typ.
 7 - 10 GHz; Minus 5dBc max. / Minus 9dBc typ.
 10 - 12 GHz; Minus 8dBc max. / Minus 12dBc typ.
 Above 12 GHz; Minus 20dBc max. / Minus 30dBc typ.
Primary Power 99-260 VAC
 50/60 Hz, single phase
 600 VA max.
Connectors
 RF input Type N female on rear panel
 RF output Type N female on rear panel
 RF output sample port Type N female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 32 kg (70 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.



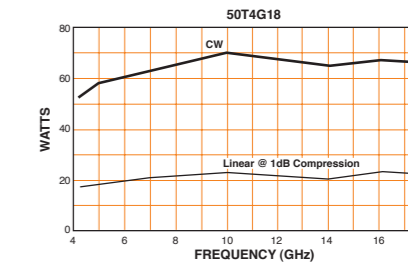
40 watts. 4.2-18 GHz CW

Power (fundamental), CW, @ Output Connector Nominal 50 watts / min. 40 watts, 30 watts in
 low harmonic mode
 Linear @ 1dB Compression 10 watts min.
Flatness ±10dB max., 4.2 - 18 GHz
Frequency Response 4.2 - 18 GHz instantaneously or one of three selectable sub-bands in low harmonic mode
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 46dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 20 watts (13 watts in low harmonic mode). Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density Minus 80dBm/Hz max., Minus 90dBm/Hz typ.
Harmonic Distortion (in user selectable sub-band at 30 watts) Minus 20dBc max., Minus 30dBc typ.
Harmonic Distortion (full band at 40 watts) 4.2 - 4.5 GHz; Plus 2.5dBc max., Minus 0dBc typ.
 4.5 - 6 GHz; Plus 0.5dBc max., Minus 1dBc typ.
 6 - 8 GHz; Minus 4dBc max., Minus 6dBc typ.
 8 - 10 GHz; Minus 6dBc max., Minus 9dBc typ.
 Above 10 GHz; Minus 10dBc max., Minus 15dBc typ.
Primary Power 99 - 260 VAC, 50/60 Hz, single phase
 850 VA max.
Connectors
 RF input Type N precision female on rear panel
 RF output Type N precision female on rear panel
 RF output sample port Type N precision female on rear panel
 GPIB IEEE-488(f)
 Interlock DB-15 female on rear panel
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 39 kg (85 lb)
Size (WxHxD) 50.3 x 26 x 68.6 cm / 19.8 x 10 x 27 in.

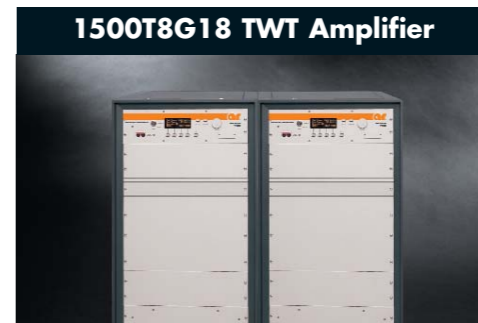


50 watts. 4.2-18 GHz CW

Power (fundamental), CW, @ Output Connector Nominal 60 watts / min. 50 watts
 Linear @ 1dB Compression 10 watts min.
Flatness ±10dB max., 4.2 - 18 GHz
Frequency Response 4.2 - 18 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 47dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 20 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density Minus 80dBm/Hz max., Minus 90dBm/Hz typ.
Harmonic Distortion (at 50 watts) 4.2 - 4.5 GHz; Plus 2.5dBc max., Minus 0dBc typ.
 4.5 - 6 GHz; Plus 0.5dBc max., Minus 1dBc typ.
 6 - 8 GHz; Minus 4dBc max., Minus 6dBc typ.
 8 - 10 GHz; Minus 6dBc max., Minus 9dBc typ.
 Above 10 GHz; Minus 10dBc max., Minus 15dBc typ.
Primary Power 99 - 260 VAC
 50/60 Hz, single phase
 850 VA max.
Connectors
 RF input Type N precision female on rear panel
 RF output Type N precision female on rear panel
 RF output sample port Type N precision female on rear panel
 GPIB IEEE-488(f)
 Interlock DB-15 female on rear panel
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 32 kg (70 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.



7.5 to 18 GHz.



200 watts. 7.5-18 GHz CW & Pulse

Power (fundamental), CW/Pulse @ Output Connector
Nominal 267 watts / min. 200 watts
Linear @ 1dB Compression 50 watts min.

Flatness ±12dB max., equalized for ±5dB max. at rated power

Frequency Response 7.5 - 18 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 53dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.05 microseconds min.
Pulse Rate (PRF) 100 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse width distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density (pulse on) Minus 70dBm/Hz max., Minus 72dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion
Below 10 GHz, Minus 5dBc max., Minus 8dBc typ.
10 - 12 GHz, Minus 8dBc max., Minus 12dBc typ.
Above 12 GHz, Minus 20dBc max., Minus 30dBc typ.

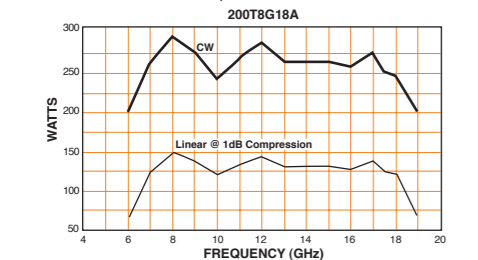
Primary Power
190 - 260 VAC, 50/60 Hz, single phase, 2.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD-750 D24 waveguide flange on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
Video BNC-female on rear panel
GPIB IEEE-488(f)

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

Weight 52 kg (115 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



250 watts. 7.5-18 GHz CW & Pulse

Power (fundamental), CW/Pulse @ Output Connector
Nominal 300 watts / min. 250 watts
Linear @ 1dB Compression 70 watts min.

Flatness ±12dB max., equalized for ±5dB max. at rated power

Frequency Response 7.5 - 18 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 54dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 50 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.05 microseconds min.
Pulse Rate (PRF) 100 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse width distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density (pulse on) Minus 70dBm/Hz max., Minus 72dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion
Below 10 GHz, Minus 5dBc max., Minus 7dBc typ.
10 - 12 GHz, Minus 8dBc max., Minus 12dBc typ.
Above 12 GHz, Minus 20dBc max., Minus 30dBc typ.

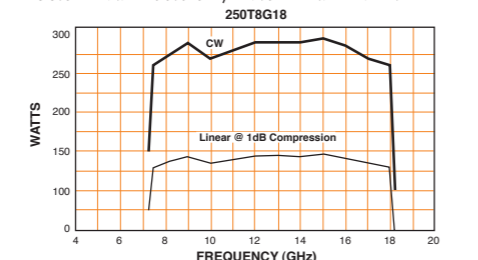
Primary Power
190 - 260 VAC, 50/60 Hz, single phase, 2.5 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD-750D24 waveguide flange on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
Video BNC-female on rear panel
GPIB IEEE-488(f)

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

Weight 52 kg (115 lb)

Size (WxHxD)
50.3 x 29.7 x 68.6 cm / 19.8 x 11.7 x 27 in.



500 watts. 7.5-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 543 watts / min. 500 watts
Linear @ 1dB Compression 125 watts min.

Flatness ±11dB max., equalized for ±3dB max. at rated power

Frequency Response 7.5 - 18 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 57dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

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

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

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

Harmonic Distortion
Minus 20dBc max., Minus 22dBc typical

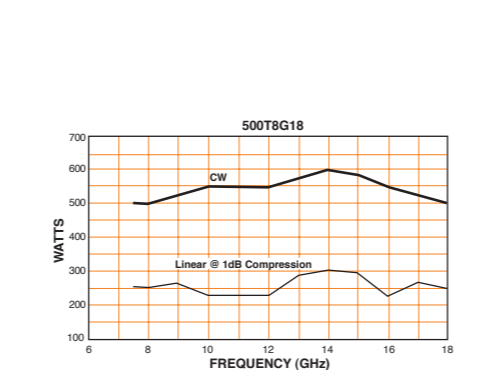
Primary Power
208 VAC ±10%
50/60 Hz, three phase
4.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIB IEEE-488(f)

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

Weight 91 kg (200 lb)

Size (WxHxD)
50.3 x 40.6 x 68.6 cm / 19.8 x 16 x 27 in.



1000 watts. 7.5-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 1100 watts
Min. 1000 watts 7.5 - 17 GHz, 925 watts 17 - 18 GHz
Linear @ 1dB Compression 250 watts min.

Flatness ±11dB max., equalized for ±3dB max. at rated power

Frequency Response 7.5 - 18 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 200 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

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

Harmonic Distortion
Minus 20dBc max., Minus 27dBc typ.

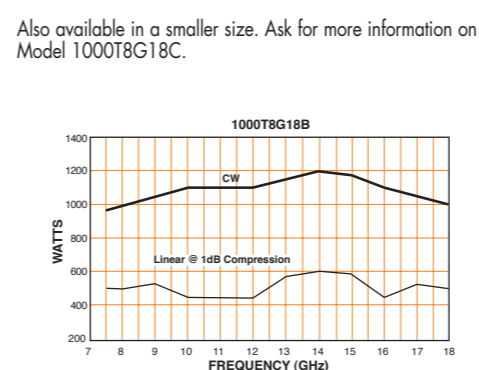
Primary Power
190 - 255 VAC
50/60 Hz, three phase, delta (4 wire)
8.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel
RF output sample port Type N female on rear panel
Interlock DB-15 female on rear panel
GPIB IEEE-488(f)

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

Weight 295 kg (650 lb)

Size (WxHxD)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.



1500 watts. 7.5-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 2000 watts
Min. 1500 watts
Linear @ 1dB Compression 375 watts min.

Flatness ±11dB max., equalized for ±6dB max. at rated power

Frequency Response 7.5 - 18 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 62dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 300 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

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

Harmonic Distortion
Minus 20dBc max., Minus 27dBc typ.

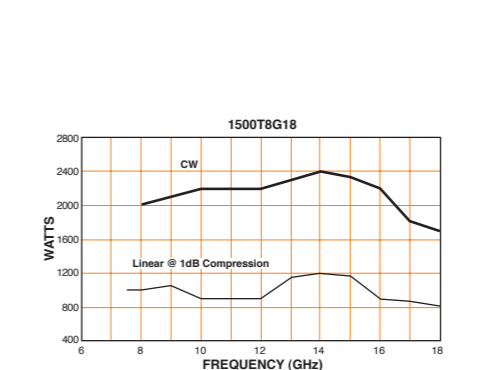
Primary Power
190 - 255 VAC or 360 - 435 VAC
50/60 Hz, three phase, delta (4 wire) or WYE (5 wire)
16 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel
RF output sample ports (forward and reverse) Type N female on rear panel
GPIB IEEE-488 female on rear panel
Interlock DB-15 female on rear panel

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

Weight 546 kg (1200 lb)

Size (WxHxD) (2 cabinets)
56 x 160 x 84 cm / 22.1 x 63 x 33 in.



2000 watts. 7.5-18 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 2200 watts
Min. 2000 watts
Linear @ 1dB Compression 500 watts min.

Flatness ±11dB max., equalized for ±5dB max. at rated power

Frequency Response 7.5 - 18 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 63dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 400 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

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

Harmonic Distortion
Minus 20dBc max., Minus 27dBc typ.

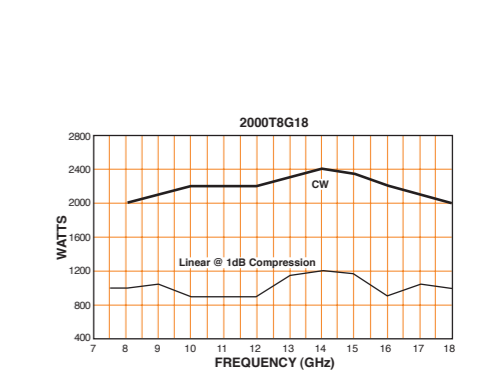
Primary Power
190 - 255 VAC or 360 - 435 VAC
50/60 Hz, three phase, delta (4 wire) or WYE (5 wire)
22 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel
RF output sample ports (forward and reflected) Type N female on rear panel
GPIB IEEE-488 female on rear panel
Interlock DB-15 female on rear panel

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

Weight 1182 kg (2600 lb)

Size (WxHxD) (4 cabinets)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.



10 to 20 GHz.

18 to 40 GHz.

18 to 26.5 GHz.

26.5 to 40 GHz.

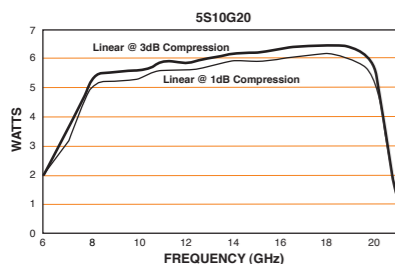
5S10G20 Solid State Amplifier



5 watts. 10-20 GHz CW

Rated Power Output 5 watts min.
Input For Rated Output 1 milliwatt max., 0dBm
Power Output @ 3dB compression Nominal 7 watts / min. 5 watts
Power Output @ 1dB compression Nominal 6 watts / min. 5 watts
Flatness ±2dB typ. / ±3dB max.
Frequency Response 10 - 20 GHz instantaneously
Gain (at max. setting) 40dB min.
Gain Adjustment (continuous range) 10dB min.
Input Impedance 50 ohms, VSWR 2.5:1 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. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Harmonic Distortion Minus 20dBc max. at 5 watts
Third Order Intercept Point 43dBm typ.
Primary Power (selected automatically) 90 - 132, 180 - 264 VAC
 50/60 Hz, single phase
 <550 watts max.
Connectors
 RF input Type SMA female on front panel
 RF output Type SMA female on front panel
 Remote Interfaces
 IEEE-488 24 pin female
 RS-232 9 pin Subminiature D (female)
 RS-232 (Fiber-optic) Type ST
 USB Type B
 Ethernet RJ-45
Safety Interlock 15 Pin Subminiature D
Cooling Forced air (self contained fans)

For higher power units that cover 10 - 20 GHz. Visit our Website, www.ar-worldwide.com.

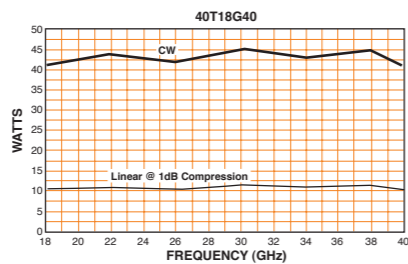


40T18G40 TWT Amplifier



40 watts. 18-40 GHz CW

Power (fundamental), CW @ Output Connector Nominal 43 watts / min. 40 watts
Flatness ±8dB max. at rated power
Frequency Response 18 - 40 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 46dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.5:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance 100% of rated power without foldback. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density (pulse on) Minus 67dBm/Hz max., Minus 70dBm/Hz typ.
Harmonic Distortion Minus 3dBc max., Minus 5dBc typ.
Primary Power 190 - 260 VAC
 50/60 Hz, single phase
 1 kVA max.
Connectors
 RF input Type K female on rear panel
 RF output Type WRD180C24 flange on rear panel
 RF output sample ports Type K female on rear panel
 GPIB IEEE-488 female on rear panel
 Interlock DB-15 female on rear panel
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 37 kg (80 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.

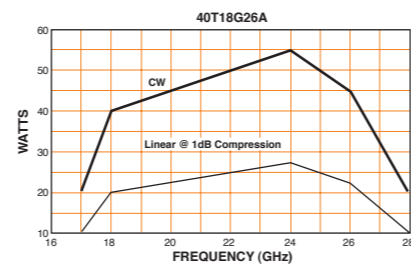


40T18G26A TWT Amplifier



40 watts. 18-26.5 GHz CW

Power (fundamental), CW @ Output Connector Nominal 45 watts / min. 40 watts
 Linear @ 1dB Compression 10 watts min.
Flatness ±8dB max
Frequency Response 18 - 26.5 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 46dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 10 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density Minus 60dBm/Hz max., Minus 65dBm./Hz typ.
Harmonic Distortion Minus 20dBc max., Minus 28dBc typ.
Primary Power 99 - 260 VAC
 50/60 Hz, single phase
 850 VA max.
Connectors
 RF input Type K female on rear panel
 RF output Type WR-42 waveguide flange on rear panel
 RF output sample port Type K female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 30 kg (65 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.

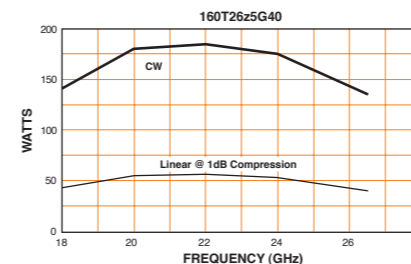


130T18G26z5 TWT Amplifier



130 watts. 18-26.5 GHz CW

Power (fundamental), CW @ Output Connector Nominal 150 watts / min. 130 watts
 Linear @ 1dB Compression 30 watts min.
Flatness ±9dB max
Frequency Response 18 - 26.5 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 51dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 25 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Video Pulse Capability
 Pulse Width 0.1 microseconds min.
 Pulse Rate (PRF) 10 kHz max.
 RF Rise and Fall 30 ns max. (10% to 90%)
 Delay 300 ns max. from pulse input to RF90%
 Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Noise Power Density Minus 70dBm/Hz max., Minus 75dBm./Hz typ.
Harmonic Distortion Minus 15dBc max., Minus 20dBc typ.
Primary Power 190 - 260 VAC
 50/60 Hz, single phase
 1.5 kVA max.
Connectors
 RF input Type K female on rear panel
 RF output Type WR-42 waveguide flange on rear panel
 RF output sample port Type K female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 46 kg (100 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.

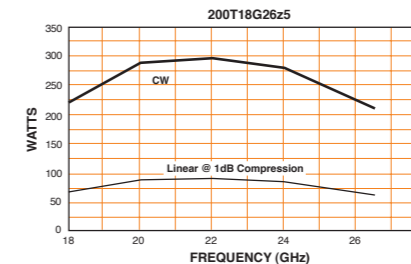


200T18G26z5 TWT Amplifier



200 watts. 18-26.5 GHz CW

Power (fundamental), CW @ Output Connector Nominal 550 watts / min. 200 watts
 Linear @ 1dB Compression 50 watts min.
Flatness ±9dB max
Frequency Response 18 - 26.5 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 53dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 40 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Video Pulse Capability
 Pulse Width 0.1 microseconds min.
 Pulse Rate (PRF) 10 kHz max.
 RF Rise and Fall 30 ns max. (10% to 90%)
 Delay 300 ns max. from pulse input to RF90%
 Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Noise Power Density Minus 70dBm/Hz max., Minus 75dBm./Hz typ.
Harmonic Distortion Minus 20dBc max., Minus 30dBc typ.
Primary Power 190 - 260 VAC
 50/60 Hz, single phase
 3 kVA max.
Connectors
 RF input Type K female on rear panel
 RF output Type WR-42 waveguide flange on rear panel
 RF output sample port Type K female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 91 kg (200 lb)
Size (WxHxD) 50.3 x 43 x 81 cm / 19.8 x 17 x 32 in.

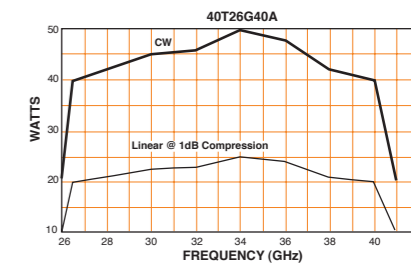


40T26G40A TWT Amplifier



40 watts. 26.5-40 GHz CW

Power (fundamental), CW @ Output Connector Nominal 45 watts / min. 40 watts
 Linear @ 1dB Compression 10 watts min.
Flatness ±8dB max.
Frequency Response 26.5 - 40 GHz instantaneously
Input For Rated Output 1 milliwatt max.
Gain (at max. setting) 46dB min.
Gain Adjustment (continuous range) 35dB min.
Input Impedance 50 ohms, VSWR 2.0:1 max.
Output Impedance 50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance Output power foldback protection at reflected power exceeding 10 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.
Modulation Capability Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.
Noise Power Density Minus 60dBm/Hz max., Minus 70dBm/Hz typ.
Harmonic Distortion Minus 20dBc max., Minus 28dBc typ.
Primary Power 99 - 260 VAC
 50/60 Hz, single phase
 850 VA max.
Connectors
 RF input Type K female on rear panel
 RF output Type WR-28 waveguide flange on rear panel
 RF output sample port Type K female on rear panel
 Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)
Cooling Forced air (self contained fans), air entry and exit in rear.
Weight 30 kg (65 lb)
Size (WxHxD) 50.3 x 16.5 x 68.6 cm / 19.8 x 6.5 x 27 in.



26.5 to 40 GHz.



100 watts. 26.5-40 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 130 watts / min. 100 watts
Linear @ 1dB Compression 25 watts min.

Flatness ±10dB max

Frequency Response 26.5 - 40 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 50dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 20 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.1 microseconds min.
Pulse Rate (PRF) 10 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density
Minus 70dBm/Hz max., Minus 75dBm./Hz typ.

Harmonic Distortion
Minus 15dBc max., Minus 20dBc typ.

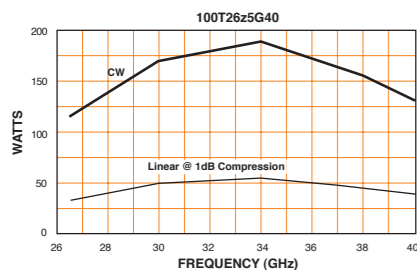
Primary Power
190 - 260 VAC
50/60 Hz, single phase
1.5 kVA max.

Connectors
RF input Type K female on rear panel
RF output Type WR-42 waveguide flange on rear panel
RF output sample port Type K female on rear panel
Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)

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

Weight 46 kg (100 lb)

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



160 watts. 26.5-40 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 200 watts / min. 160 watts
Linear @ 1dB Compression 40 watts min.

Flatness ±10dB max

Frequency Response 26.5 - 40 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 52dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output power foldback protection at reflected power exceeding 32 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Video Pulse Capability
Pulse Width 0.1 microseconds min.
Pulse Rate (PRF) 10 kHz max.
RF Rise and Fall 30 ns max. (10% to 90%)
Delay 300 ns max. from pulse input to RF90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)

Noise Power Density
Minus 70dBm/Hz max., Minus 75dBm./Hz typ.

Harmonic Distortion
Minus 20dBc max., Minus 30dBc typ.

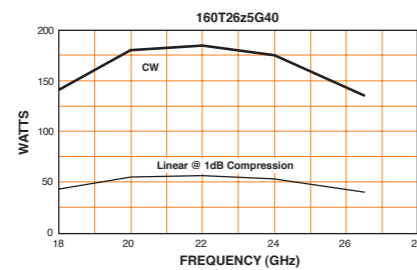
Primary Power
190 - 260 VAC
50/60 Hz, single phase
3 kVA max.

Connectors
RF input Type K female on rear panel
RF output Type WR-42 waveguide flange on rear panel
RF output sample port Type K female on rear panel
Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)

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

Weight 91 kg (200 lb)

Size (WxHxD)
50.3 x 43 x 81 cm / 19.8 x 17 x 32 in.



40 to 45 GHz.



70 watts. 40-45 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 85 watts / min. 70 watts
Linear @ 1dB Compression 17 watts min.

Flatness ±5dB max.

Frequency Response 40 - 45 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 48dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output isolator used to offer excellent mismatch tolerance up to reflected power of 70 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 70dBm/Hz max., Minus 75dBm/Hz typ.

Harmonic Distortion
Minus 20dBc typ.

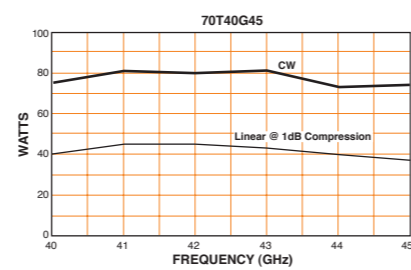
Primary Power
190 - 260 VAC
50/60 Hz, single phase
1 kVA max.

Connectors
RF input Type 2.4 mm female on rear panel
RF output Type WR-22 waveguide flange on rear panel
RF output sample ports Type 2.4 mm female on rear panel
 GPIB IEEE-488 on rear panel
Interlock DB-15 female on rear panel

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

Weight 41 kg (120 lb)

Size (WxHxD)
50.3 x 25.4 x 68.6 cm / 19.8 x 10 x 27 in.



120 watts. 40-45 GHz CW

Power (fundamental), CW, @ Output Connector
Nominal 140 watts / min. 120 watts
Linear @ 1dB Compression 30 watts min.

Flatness ±5dB max.

Frequency Response 40 - 45 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 51dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.0:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output isolator used to offer excellent mismatch tolerance up to reflected power of 120 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Noise Power Density
Minus 70dBm/Hz max., Minus 75dBm/Hz typ.

Harmonic Distortion
Minus 20dBc typ.

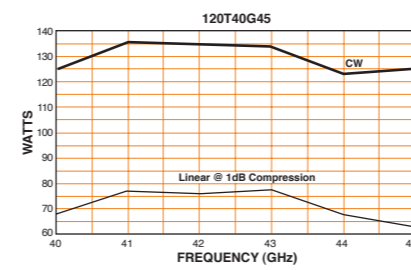
Primary Power
190 - 260 VAC
50/60 Hz, single phase
2 kVA max.

Connectors
RF input Type 2.4 mm female on rear panel
RF output Type WR-22 waveguide flange on rear panel
RF output sample ports Type 2.4 mm female on rear panel
 GPIB IEEE-488 on rear panel
Interlock DB-15 female on rear panel

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

Weight 105 kg (230 lb)

Size (WxHxD)
50.3 x 43 x 76 cm / 19.8 x 17 x 30 in.



1 to 2.5 GHz Pulse



1000 watts. 1-2.5 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector
Nominal 1400 watts / min. 925 watts

Flatness ±10dB max., equalized for ±3dB max. at rated power

Frequency Response 1 - 2.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at average reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width 0.07 - 100 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max (10% to 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80dB min. / 90dB typ.

Noise Power Density
(pulse on) Minus 90dBm/Hz max., Minus 93dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 0dBc max., Minus 5dBc typ.

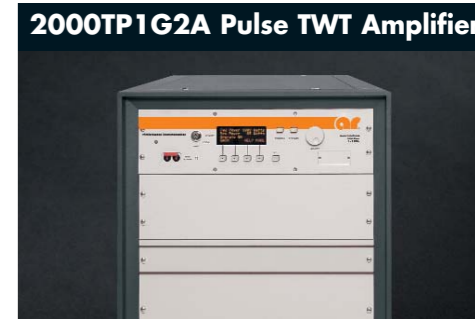
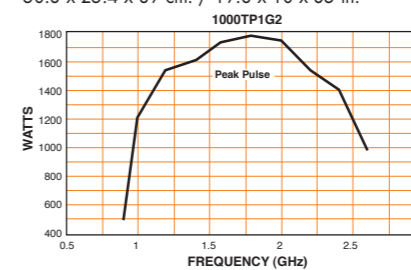
Primary Power
190 - 260 VAC
50/60 Hz, single phase
1.0 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)

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

Weight 68 kg (150 lb)

Size (WxHxD)
50.3 x 25.4 x 89 cm. / 19.8 x 10 x 35 in.



1700 watts. 1-2.5 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector
Nominal 2200 watts / min. 1700 watts

Flatness ±10dB max., equalized for ±3dB max. at rated power

Frequency Response 1 - 2.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 62dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at average reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width 0.07 - 30 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max (10% to 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80dB min. / 90dB typ.

Noise Power Density
(pulse on) Minus 90dBm/Hz max., Minus 93dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 15dBc max., Minus 18dBc typ.

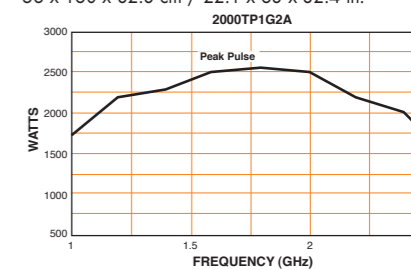
Primary Power
190 - 260 VAC
50/60 Hz, single phase
1.5 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)

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

Weight 273 kg (600 lb)

Size (WxHxD)
56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.



1 to 2.5 GHz Pulse

6500TP1z5G2 Pulse TWT Amplifier



6500 watts. 1.5-2 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 8000 watts / min. 6500 watts

Flatness	±6dB min.
Frequency Response	1.5 - 2 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	68dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output VSWR protection using internal isolator. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	1% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 55dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Minus 15dBc typ.

Primary Power

190 - 260 VAC, 50/60 Hz, single phase, 1 kVA max.

Connectors

RF input	Type N female on rear panel
RF output	Type DIN 7-16 on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

Cooling

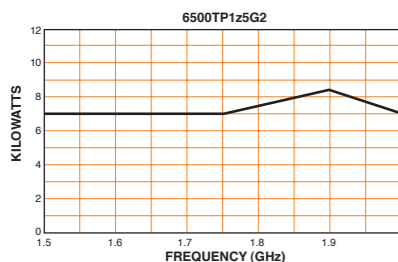
Forced air (self contained fans), air entry and exit in rear.

Weight

57 kg (125 lb)

Size (WxHxD)

50.3 x 26 x 94 cm / 19.8 x 10.3 x 37 in.



6500TP1z35G2 Pulse TWT Amplifier



6500 watts. 1.35-2 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 8000 watts / min. 6600 watts

Flatness	±6dB min.
Frequency Response	1.35 - 2 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	68dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 3300 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 60dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Minus 15dBc typ.

Primary Power

190 - 255 VAC, 50/60 Hz, three phase, delta (4-wire) 6 kVA max.

Connectors

RF input	Type N female on rear panel
RF output	Type DIN 7-16 on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

Cooling

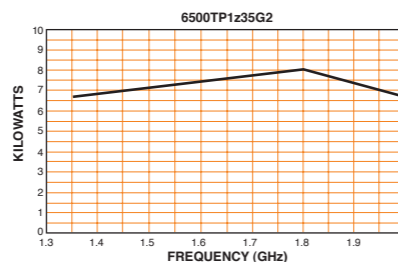
Forced air (self contained fans), air entry and exit in rear.

Weight

1136 kg (2500 lb)

Size (WxHxD) [4 cabinets]

56 x 190 x 76 cm / 22.1 x 75 x 30 in.



8000TP1G1z5 Pulse TWT Amplifier



8000 watts. 1-1.5 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 10,000 watts / min. 8000 watts

Flatness	±6dB min.
Frequency Response	1 - 1.5 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	69dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output VSWR protection using internal isolator. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	1% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 55dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Minus 15dBc typ.

Primary Power

190 - 260 VAC, 50/60 Hz, single phase, 1 kVA max.

Connectors

RF input	Type N female on rear panel
RF output	Type DIN 7-16 on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

Cooling

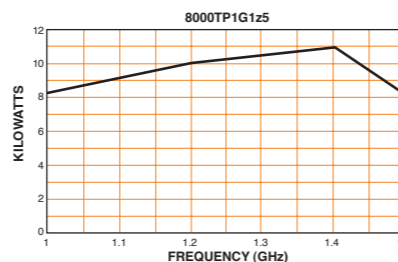
Forced air (self contained fans), air entry and exit in rear.

Weight

57 kg (125 lb)

Size (WxHxD)

50.3 x 26 x 94 cm / 19.8 x 10.3 x 37 in.



16000TP1G1z35 Pulse TWT Amplifier



16,000 watts. 1-1.35 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 20,000 watts / min. 16,000 watts

Flatness	±2dB min.
Frequency Response	1 - 1.35 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	72dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off. Includes output isolator.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 25 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 60dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Minus 15dBc typ.

Primary Power

190 - 260 VAC, 50/60 Hz, single phase, 3 kVA max.

Connectors

RF input	Type N female on rear panel
RF output	Type DIN 7-16 female on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

Cooling

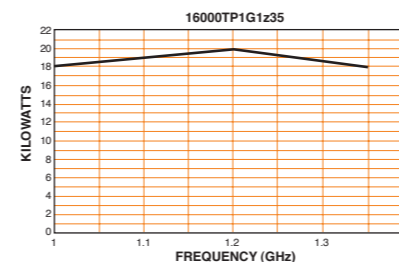
Forced air (self contained fans), air entry and exit in rear.

Weight

909 kg (2000 lb)

Size (WxHxD) [2 cabinets]

56 x 190 x 76 cm / 22.1 x 75 x 30 in.



1 - 2 GHz Pulse

4000TP1G2 Pulse TWT Amplifier



4000 watts. 1-2 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 4300 watts
Min. 3.4 kW @ 1 - 1.2 GHz; 4 kW @ 1.2 - 2 GHz.

Flatness	±10dB min.
Frequency Response	1 - 2 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	66dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 2000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 100 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 90dBm/Hz max., Minus 93dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Minus 15dBc typ.

Primary Power

208 VAC ± 10% or 190 - 260 VAC
50/60 Hz, three phase or single phase, 3 kVA max.

Connectors

RF input	Type N female on rear panel
RF output	Type N female on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

Cooling

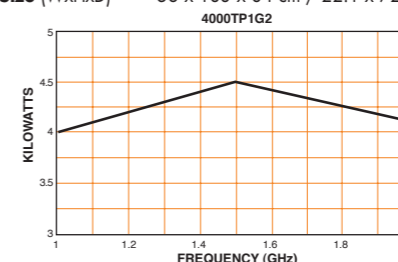
Forced air (self contained fans), air entry and exit in rear.

Weight

318 kg (700 lb)

Size (WxHxD)

56 x 183 x 84 cm / 22.1 x 72 x 33 in.



5000TP1G2 Pulse TWT Amplifier



5000 watts. 1-2 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 5600 watts / min. 4900 watts from 1 - 1.1 GHz,
5000 watts from 1.1 to 1.9 GHz,
4900 watts from 1.9 - 2 GHz

Flatness	±6dB min.
Frequency Response	1 - 2 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	67dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 2500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 60dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Minus 15dBc typ.

Primary Power

190 - 255 VAC, 50/60 Hz, three phase, delta (4 wire), 6 kVA max.

Connectors

1.15 to 1.45 GHz, 2.7 to 3.1 GHz Pulse



**750TP1G3/200T
Pulse TWT Amplifier**

750/500 Watts Pulse 1.15-1.45 GHz, 2.7-3.1 GHz 200 Watts CW, 1-2 GHz

Power (fundamental), Peak Pulse, @ Output Connector
Nominal 1400 watts / min. 750 watts (from 1.15 - 1.45 GHz)
Nominal 525 watts / min. 500 watts (from 2.7 - 3.1 GHz)

Flatness ±12dB max., equalized for ±3dB max. at rated power within each band

Frequency Response 1.15 - 1.45 GHz / 2.7 - 3.1 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 58dB min. low band, 57dB min. high band

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width .07 - 30 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max (100%)
Delay 300 ns max from pulse input to RF 90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80dB min., 90dB typ.
Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 85dBm/Hz max., Minus 90dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 0dBc max., Minus 5dBc typ. low band, Minus 1.5dBc typical high band

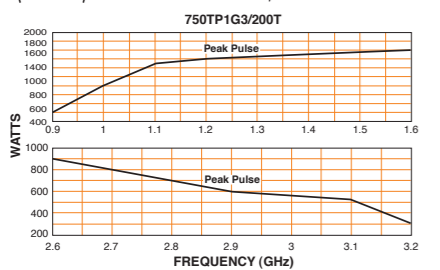
Primary Power 190 - 260 VAC, single phase, 50/60 Hz, 3.3 KVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output forward sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)

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

Weight 64 kg (140 lb)

Size (WxHxD) 19 x 8.75 x 35 in, 48.3 x 22.2 x 89 cm



1000TP1G3 Pulse TWT Amplifier

1000 watts. 1.15-1.45 GHz Pulse 500 watts. 2.7-3.1 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector
Nominal 1400 watts / min. 1000 watts (from 1.15 - 1.45 GHz)
Nominal 525 watts / min. 475 watts (from 2.7 - 3.1 GHz)

Flatness ±10dB max., equalized for ±3dB max. at rated power within each band

Frequency Response 1.15 - 1.45 GHz / 2.7 - 3.1 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min. low band, 57dB min. high band

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width .07 - 30 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max (10% to 90%)
Delay 300 ns max from pulse input to RF 90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80dB min., 90dB typ.
Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 90dBm/Hz max., Minus 93dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 0dBc max., Minus 5dBc typ. low band, Minus 1.5dBc typical high band

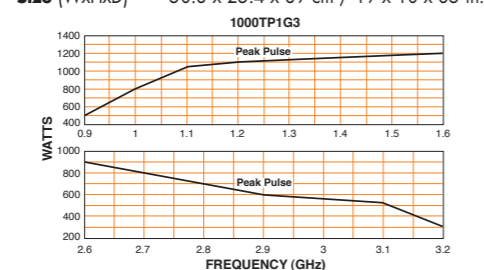
Primary Power 190 - 260 VAC, single phase, 50/60 Hz, 1.0 KVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output forward sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
Interlock DB-15 female on rear panel
 GPIB IEEE-488(f)

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

Weight 68 kg (150 lb)

Size (WxHxD) 50.3 x 25.4 x 89 cm / 19 x 10 x 35 in.



2 to 4 GHz Pulse



4000TP2G4 Pulse TWT Amplifier

4000 watts. 2-4 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 5800 watts / min. 4.7 kW

Flatness ±10dB min.

Frequency Response 2 - 4 GHz

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 66dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 2000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width 0.07 - 100 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max. (10% - 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse Width Distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80 dB min., 90 dB typ.
Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 57dBm/Hz max., Minus 59dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 0dBc typ.

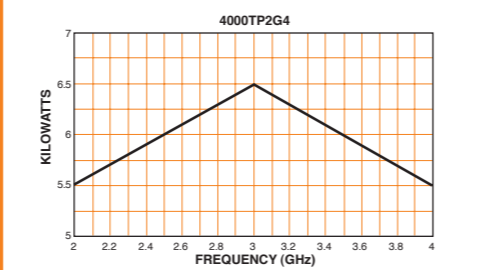
Primary Power 208 VAC ± 10% or 190 - 260 VAC 50/60 Hz, three phase or single phase, 3 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output forward sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
 GPIB IEEE-488 female on rear panel
 Interlock DB-15 female on rear panel

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

Weight 61 kg (135 lb)

Size (WxHxD) 48.3 x 27 x 81 cm / 19 x 10.5 x 32 in.



13000TP2G4 Pulse TWT Amplifier

13,000 watts. 2-4 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 15,000 watts / min. 13,000 watts

Flatness ±6dB min.

Frequency Response 2 - 4 GHz

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 71dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 6500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width 0.07 - 40 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max. (10% - 90%)
Delay 300 ns max. from pulse input to RF 90%
Pulse Width Distortion ±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80 dB min., 90 dB typ.
Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 55dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 15dBc typ.

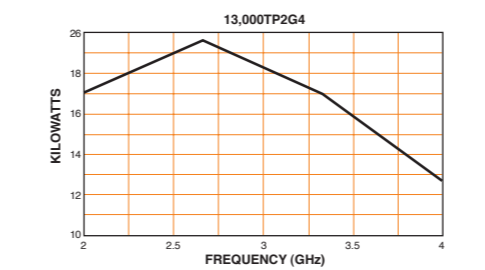
Primary Power 190 - 255 VAC or 360 - 435 VAC 50/60 Hz, three phase, delta (4 wire) or WYE (5 wire) 7 kVA max.

Connectors
RF input Type N female on rear panel
RF output Type DIN 7-16 female on rear panel
RF output forward and reflected sample ports Type N female on rear panel
Pulse input Type BNC female on rear panel
 GPIB IEEE-488 female on rear panel
 Interlock DB-15 female on rear panel

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

Weight 272 kg (600 lb)

Size (WxHxD) 56 x 160 x 82.3 cm / 22.1 x 63 x 32.4 in.



2.5 to 7.5 GHz Pulse



1000TP2G8 Pulse TWT Amplifier

1000 Watt. 2.5-7.5 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector
Nominal 1800 watts
Nominal 1000 watts

Flatness ±7dB max., equalized for ±3dB max. at rated power

Frequency Response 1.15 - 1.45 GHz / 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width 0.07 - 100 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max (10% to 90%)
Delay 300 ns max from pulse input to RF 90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80dB min., 90dB typ.
Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 72dBm/Hz max., Minus 74dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 0dBc max., Minus 1.5dBc typ.

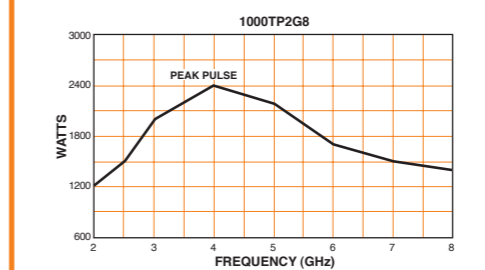
Primary Power 190 - 260 VAC, single phase, 50/60 Hz, 1.5 KVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
 GPIB IEEE-488 female on rear panel
 Interlock DB-15 female on rear panel

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

Weight 52 kg (115 lb)

Size (WxHxD) 50.3 x 25.4 x 69 cm / 19.8 x 10 x 27 in



2000TP2G8B Pulse TWT Amplifier

2000 watts. 2.5-7.5 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector
Nominal 2200 watts
Nominal 2000 watts

Flatness ±13dB max., equalized for ±3dB max. at rated power

Frequency Response 1.15 - 1.45 GHz / 2.5 - 7.5 GHz instantaneously

Input For Rated Output 1 milliwatt max.

Gain (at max. setting) 60dB min.

Gain Adjustment (continuous range) 35dB min.

Input Impedance 50 ohms, VSWR 2.5:1 max.

Output Impedance 50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability
Pulse Width .07 - 30 microseconds
Pulse Rate (PRF) 100 kHz max.
Duty Cycle 4% max.
RF Rise and Fall 30 ns max (10% to 90%)
Delay 300 ns max from pulse input to RF 90%
Pulse Width Distortion ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation 80dB min., 90dB typ.
Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 70dBm/Hz max., Minus 72dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

Harmonic Distortion Minus 0dBc max., Minus 1.5dBc typ.

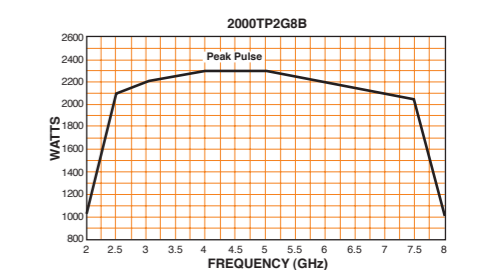
Primary Power 190 - 260 VAC, single phase, 50/60 Hz, 1.2 KVA max.

Connectors
RF input Type N female on rear panel
RF output Type N female on rear panel
RF output sample port Type N female on rear panel
Pulse input Type BNC female on rear panel
 GPIB IEEE-488 female on rear panel
 Interlock DB-15 female on rear panel

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

Weight 39 kg (85 lb)

Size (WxHxD) 48.3 x 22.2 x 69 cm / 19 x 8.75 x 27 in.



4 to 8 GHz Pulse

4000TP4G8 Pulse TWT Amplifier



4000 watts. 4-8 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 5000 watts / min. 3.8 kW from 4 - 4.5 GHz,
4 kW from 4.5 - 7.5 GHz, 3.8 kW from 7.5 - 8 GHz

Flatness	±10dB min.
Frequency Response	4 - 8 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	66dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 2000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability	
Pulse Width	0.07 - 100 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 65dBm/Hz max., Minus 75dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

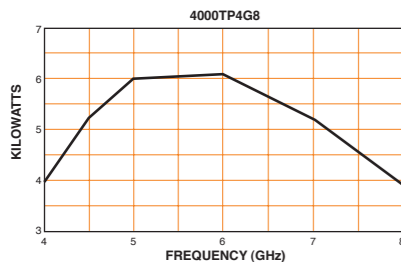
Harmonic Distortion Minus 0dBc typ.
Primary Power 208 VAC ± 10% or 190 - 260 VAC
50/60 Hz, three phase or single phase, 2.5 kVA max.

Connectors	
RF input	Type N female on rear panel
RF output	Type WRD350 waveguide flange on rear panel
RF output forward sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 57 kg (125 lb)

Size (WxHxD) 48.3 x 27 x 79 cm / 19 x 10.5 x 31 in.



4 to 6 GHz Pulse

8000TP4G6 Pulse TWT Amplifier



8000 watts. 4-6 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 11,000 watts / min. 8500 watts

Flatness	±6dB min.
Frequency Response	4 - 6 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	69dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 4300 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability	
Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	3% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 65dBm/Hz max., Minus 69dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

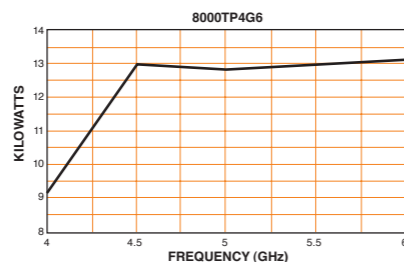
Harmonic Distortion Minus 15dBc typ.
Primary Power 190 - 260 VAC, 50/60 Hz, single phase, 2 kVA max.

Connectors	
RF input	Type N female on rear panel
RF output	Type DIN 7-16 on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 107 kg (235 lb)

Size (WxHxD) 50.3 x 49 x 74 cm / 19.8 x 19 x 29 in.



5 to 8 GHz Pulse

3000TP5G8 Pulse TWT Amplifier



3000 watts. 5-8 GHz Pulse

Power (fundamental), Peak Pulse, @ Output

Nominal 5000 watts / min. 3000 watts

Flatness	±6dB max.
Frequency Response	5 - 8 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	65dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at peak reflected power exceeding 2000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability	
Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density
(pulse on) Minus 65dBm/Hz max., Minus 69dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

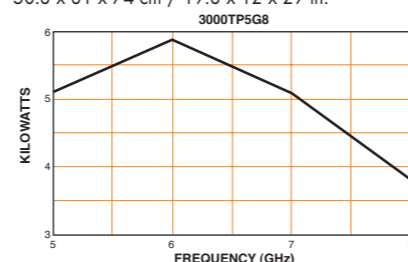
Harmonic Distortion Minus 15dBc max., Minus 20dBc typ.
Primary Power 190 - 260 VAC, 50/60 Hz, single phase, 2 kVA max.

Connectors	
RF input	Type N female on rear panel
RF output	Type DIN 7-16 female on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 71 kg (155 lb)

Size (WxHxD) 50.3 x 31 x 74 cm / 19.8 x 12 x 29 in.



7.5 to 18 GHz Pulse

1000TP8G18 Pulse TWT Amplifier



1000 watts. 7.5-18 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector

Nominal 1800 watts / min. 1000 watts

Flatness	±8dB max., equalized for ±3dB max. at rated power
Frequency Response	7.5 - 18 GHz instantaneously
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	60dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at average reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability	
Pulse Width	0.07 - 100 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max (10% to 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80dB min. / 90dB typ.

Noise Power Density
(pulse on) Minus 57dBm/Hz max., Minus 58dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

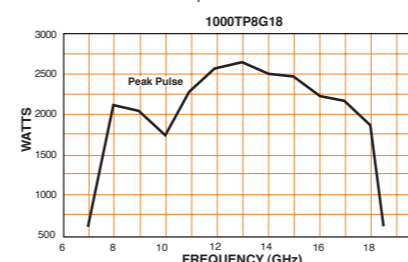
Harmonic Distortion Minus 18dBc max., Minus 20dBc typ.
Primary Power 190 - 260 VAC
50/60 Hz, single phase
1.5 kVA max.

Connectors	
RF input	Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel	Type N female on rear panel
RF output sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
Interlock	DB-15 female on rear panel
GPIB	IEEE-488(f)

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

Weight 52 kg (115 lb)

Size (WxHxD) 50.3 x 25.4 x 69 cm / 19.8 x 10 x 27 in.



2000TP8G18 Pulse TWT Amplifier



2000 watts. 7.5-18 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector

Nominal 2500 watts / min. 2000 watts

Flatness	±8dB max., equalized for ±3dB max. at rated power
Frequency Response	7.5 - 18 GHz instantaneously
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	63dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at average reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability	
Pulse Width	0.07 - 30 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max (10% to 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80dB min. / 90dB typ.

Noise Power Density
(pulse on) Minus 55dBm/Hz max., Minus 58dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

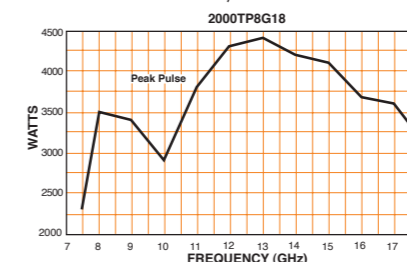
Harmonic Distortion Minus 18dBc max., Minus 20dBc typ.
Primary Power 190 - 260 VAC
50/60 Hz, single phase
3 kVA max.

Connectors	
RF input	Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel	Type N female on rear panel
RF output sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
Interlock	DB-15 female on rear panel
GPIB	IEEE-488(f)

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

Weight 72 kg (170 lb)

Size (WxHxD) 50.3 x 39.37 x 77.5 cm / 19.8 x 15.5 x 30.5 in.



8 to 12 GHz Pulse

2000TP8G12 Pulse TWT Amplifier



2000 watts. 8.2-12.4 GHz Pulse

Power (fundamental), Peak Pulse, @ Output Connector

Nominal 2500 watts / min. 2000 watts

Flatness	±13dB max., equalized for ±3dB max. at rated power
Frequency Response	8.2 - 12.4 GHz instantaneously
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	63dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.

Mismatch Tolerance
Output pulse width foldback protection at average reflected power exceeding 1000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability
Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability	
Pulse Width	0.07 - 30 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max (10% to 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30ns max (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80dB min. / 90dB typ.

Noise Power Density
(pulse on) Minus 70dBm/Hz max. / Minus 75dBm/Hz typ.
(pulse off) Minus 140dBm/Hz typ.

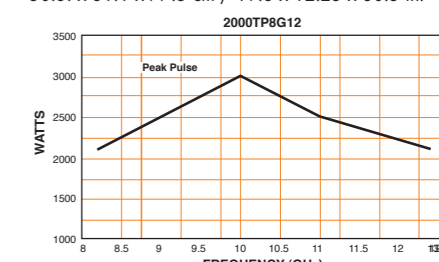
Harmonic Distortion Minus 8dBc max., Minus 10dBc typ.
Primary Power 190 - 260 VAC
50/60 Hz, single phase
2.0 kVA max.

Connectors	
RF input	Type N female on rear panel
RF output Type WRD 750D24 waveguide flange on rear panel	Type N female on rear panel
RF output sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
Interlock	DB-15 female on rear panel
GPIB	IEEE-488(f)

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

Weight 68 kg (150 lb)

Size (WxHxD) 50.3 x 31.1 x 77.5 cm / 19.8 x 12.25 x 30.5 in.



8 to 12 GHz Pulse

4000TP8G12 Pulse TWT Amplifier



4000 watts. 8-12 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 5500 watts / min. 4.2 kW

Flatness	±10dB min.
Frequency Response	8 - 12 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	66dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	

Output pulse width foldback protection at peak reflected power exceeding 2000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 100 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 57dBm/Hz max., Minus 59dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Primary Power	208 VAC ± 10% or 190 - 260 VAC
	50/60 Hz, three phase or single phase, 3 kVA max.

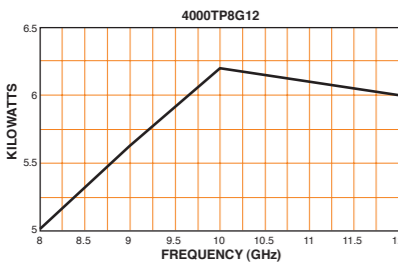
Connectors

RF input	Type N female on rear panel
RF output	Type WRD90 waveguide flange on rear panel
RF output forward sample port	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 57 kg (125 lb)

Size (WxHxD) 48.3 x 40 x 69 cm / 19 x 15.75 x 27 in.



8 to 10 GHz Pulse

10000TP8G10 Pulse TWT Amplifier



10,000 watts. 8-10 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 11,000 watts / min. 10,000 watts

Flatness	±6dB max.
Frequency Response	8 - 10 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	71dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	

Output pulse width foldback protection at peak reflected power exceeding 5000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	30 ns max. from pulse input to RF 90%
Pulse width distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB minimum, 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 65dBm/Hz max., Minus 69dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Primary Power	190 - 260 VAC, 50/60 Hz, single phase, 2.5 kVA max.
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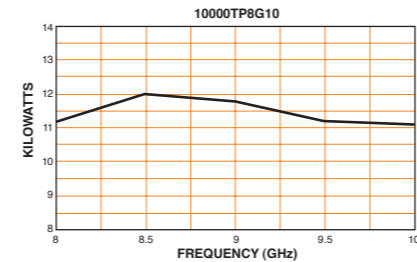
Connectors

RF input	Type N female on rear panel
RF output	Type WR90 waveguide flange on rear panel
RF output forward and reflected sample ports	Type N female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 107 kg (235 lb)

Size (WxHxD) 50.3 x 49 x 74 cm / 19.8 x 19 x 29 in.



10 to 12 GHz Pulse

8000TP10G12 Pulse TWT Amplifier



8000 watts. 10-12 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 10,000 watts / min. 8100 watts

Flatness	±6dB min.
Frequency Response	10 - 12 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	69dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	

Output pulse width foldback protection at peak reflected power exceeding 4000 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 65dBm/Hz max., Minus 69dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Primary Power	190 - 260 VAC, 50/60 Hz, single phase, 2 kVA max.
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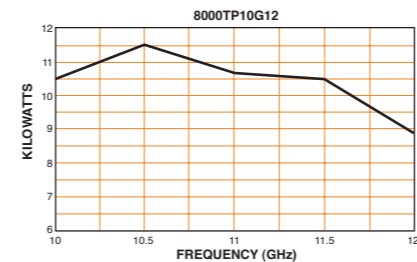
Connectors

RF input	Type N female on rear panel
RF output	Type WR90 waveguide flange on rear panel
RF output forward and reflected sample ports	Type N precision female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 107 kg (235 lb)

Size (WxHxD) 50.3 x 49 x 74 cm / 19.8 x 19 x 29 in.



12 to 18 GHz Pulse

3000TP12G18 Pulse TWT Amplifier



3000 watts. 12-18 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 3800 watts / min. 3000 watts

Flatness	±10dB max.
Frequency Response	12 - 18 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	65dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	

Output pulse width foldback protection at peak reflected power exceeding 1500 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 50 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 55dBm/Hz max., Minus 65dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Primary Power	190 - 260 VAC, 50/60 Hz, single phase, 2 kVA max.
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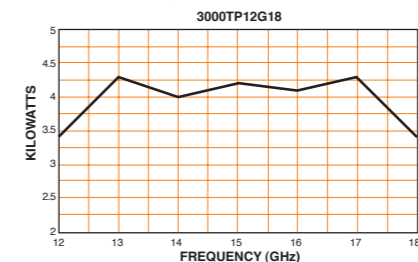
Connectors

RF input	Type N female on rear panel
RF output	Type WR62 waveguide flange on rear panel
RF output forward and reflected sample ports	Type N precision female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 52 kg (115 lb)

Size (WxHxD) 50.3 x 26 x 69 cm / 19.8 x 10 x 27 in.



5500TP12G18 Pulse TWT Amplifier



5500 watts. 12-18 GHz Pulse

Power (fundamental), Peak Pulse, @ Output
Nominal 6500 watts / min. 5500 watts

Flatness	±6dB min.
Frequency Response	12 - 18 GHz
Input For Rated Output	1 milliwatt max.
Gain (at max. setting)	67dB min.
Gain Adjustment (continuous range)	35dB min.
Input Impedance	50 ohms, VSWR 2.5:1 max.
Output Impedance	50 ohms, VSWR 2.5:1 typ.
Mismatch Tolerance	

Output pulse width foldback protection at peak reflected power exceeding 2700 watts. Will operate without damage or oscillation with any magnitude and phase of source and load impedance. May oscillate with unshielded open due to coupling to input. Should not be tested with connector off.

Modulation Capability

Will faithfully reproduce AM, FM, or pulse modulation appearing on the input signal. AM peak envelope power limited to specified power.

Pulse Capability

Pulse Width	0.07 - 40 microseconds
Pulse Rate (PRF)	100 kHz max.
Duty Cycle	4% max.
RF Rise and Fall	30 ns max. (10% - 90%)
Delay	300 ns max. from pulse input to RF 90%
Pulse Width Distortion	±30 ns max. (50% points of output pulse width compared to 50% points of input pulse width)
Pulse Off Isolation	80 dB min., 90 dB typ.
Pulse Input	TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on)	Minus 55dBm/Hz max., Minus 81dBm/Hz typ.
(pulse off)	Minus 140dBm/Hz typ.

Harmonic Distortion

Primary Power	190 - 260 VAC, 50/60 Hz, single phase, 2.5 kVA max.
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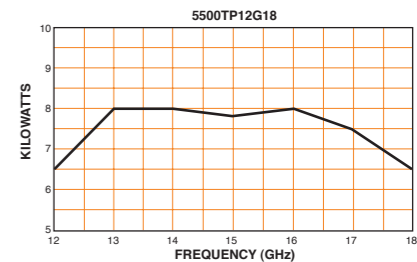
Connectors

RF input	Type N female on rear panel
RF output	Type WR62 waveguide flange on rear panel
RF output forward and reflected sample ports	Type N precision female on rear panel
Pulse input	Type BNC female on rear panel
GPIB	IEEE-488 female on rear panel
Interlock	DB-15 female on rear panel

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

Weight 107 kg (235 lb)

Size (WxHxD) 50.3 x 49 x 74 cm / 19.8 x 19 x 29 in.



Find It Fast

Frequency (GHz)

Output Power (Watts)	0.8	1	2	3	4.2	7.5	18	26.5	45
1	151G4A, 0.8 - 4.2 GHz					154G11, 4 - 10.6 GHz			
1						554G11, 4 - 10.6 GHz			
5						551G4, 0.8 - 4.2 GHz			
5								5510G20, 10 - 20 GHz	
10						10S4G11A, 4 - 10.6 GHz		10ST1G18A, 0.8 - 18 GHz	
13						10S1G4A, 0.8 - 4.2 GHz			
15	15S1G3, 0.8 - 3 GHz					15S4G8A, 4 - 8 GHz			
15								15T4G18A, 4.2 - 18 GHz	
20						20S4G11A, 4.2 - 10.6 GHz		20ST1G18A, 0.8 - 18 GHz	
20								20T4G18A, 4.2 - 18 GHz	
25						25S1G4A, 0.8 - 4.2 GHz			
30	30S1G3, 0.8 - 3 GHz					35S4G8A, 4 - 8 GHz			
35								35STG18, 0.8 - 18 GHz	
40						40S4G11, 4 - 10.6 GHz		40T4G18, 4.2 - 18 GHz	
40								40T18G40, 18 - 40 GHz	
40								40T26z5G40, 26.5 - 40 GHz	
50						50S1G4A, 0.8 - 4.2 GHz		50ST1G18, 0.8 - 18 GHz	
50								50T4G18, 4.2 - 18 GHz	
60	60S1G3, 0.8 - 3 GHz					60S4G8, 4 - 8 GHz			
60						60S4G11, 4 - 10.6 GHz			
70								70T40G45, 40 - 45 GHz	
80						80S4G11, 4 - 10.6 GHz			
90						90S4G8, 4 - 8 GHz			
100						100S1G4, 0.8 - 4.2 GHz		100T26z5G40, 26.5 - 40 GHz	
120	120S1G3, 0.8 - 3 GHz					120S4G8, 4 - 8 GHz		120T40G45, 40 - 45 GHz	
120									
130								130T18G26z5, 18 - 26.5 GHz	
160								160T26z5G40, 26.5 - 40 GHz	
200	200T1G2, 1 - 2 GHz					200T1G3A, 0.8 - 2.8 GHz			
200						200T2G4, 2 - 4 GHz			
200						200S1G4A, 0.8 - 4.2 GHz			
200						200T2G8A, 2.5 - 7.5 GHz			
200						200T4G8, 4 - 8 GHz		200T8G18A, 7.5 - 18 GHz	
200								200T18G26z5, 18 - 26.5 GHz	
240	240S1G3A, 0.8 - 3 GHz								
250	250T1G3, 1 - 2.5 GHz								
250						300T2G8, 2.5 - 7.5 GHz		250T8G18, 7.5 - 18 GHz	
300						400S1G4, 0.8 - 4.2 GHz			
375	450S1G3A, 0.8 - 3 GHz								
450	500T1G2, 1 - 2.5 GHz							500T8G18A, 7.5-18 GHz	
500						540S1G4, 0.8 - 4.2 GHz		500T2G8, 2.5 - 7.5 GHz	
500						600S1G3, 0.8 - 3 GHz			
540						700S1G4, 0.8 - 4.2 GHz			
590	750TP1G3/200T 750/500 Pulse, 1.15 - 1.45 GHz, 2.7 - 3.1 GHz,					200 CW, 1 - 2 GHz			
700	800S1G3, 0.8 - 3 GHz								
750	1000T1G2B, 1 - 2.5 GHz					1000T2G4, 2 - 4 GHz			
1000						1000T2G8B, 2.5 - 7.5 GHz		1000T8G18B, 7.5 - 18 GHz	
1000	1000TP1G3, 1000/500 Pulse, 1.15 - 1.45 GHz, 2.7 - 3.1 GHz								
1500	1500T1G3A, 1 - 2.5 GHz					1500T2G8A, 2.5 - 7.5 GHz		1500T8G18, 7.5 - 18 GHz	
1500									
2000	2000T1G3, 1 - 2.5 GHz					2000TP2G8A, 2.5 - 7.5 GHz, Pulse Only		2000TP8G12, 8.2 - 12.4 GHz, Pulse Only	
2000	2000TP1G2A, 1 - 2.5 GHz, Pulse Only					2000TP2G8, 2.5 - 7.5 GHz		2000TP8G18, 7.5 - 18 GHz, Pulse Only	
2000						2000TP2G8A, 2.5 - 7.5 GHz, Pulse Only		3000TP5G8, 5 - 8 GHz, Pulse Only	
2000						2000TP2G8, 2.5 - 7.5 GHz		3000TP12G18, 12 - 18 GHz, Pulse Only	
3000						4000TP2G4, 2 - 4 GHz, Pulse Only		4000TP4G8, 4 - 8 GHz, Pulse Only	
4000	4000TP1G2, 1 - 2 GHz, Pulse Only					4000TP4G6, 4 - 6 GHz, Pulse Only		4000TP8G12, 8 - 12 GHz, Pulse Only	
4000								5500TP12G18, 12 - 18 GHz, Pulse Only	
5000	5000TP1G2, 1 - 2 GHz, Pulse Only					6500TP1z35G5, 1.35 - 5 GHz, Pulse Only			
5500	6500TP1z5G2, 1.5 - 2 GHz, Pulse Only								
6500	8000TP1G1z5, 1 - 1.5 GHz, Pulse Only					8000TP4G6, 4 - 6 GHz, Pulse Only		8000TP10G12, 10 - 12 GHz, Pulse Only	
8000								10000TP8G10, 8 - 10 GHz, Pulse Only	
8000								12000TP8G12, 8 - 12 GHz, Pulse Only	
10000						13000TP2G4, 2 - 4 GHz, Pulse Only			
12000									
13000									
16000	16000TP1G1z35, 1 - 1.35 GHz, Pulse Only								

Output Power (Watts)

AR Competitive Edge.

At AR, there's no substitute for quality. It's the foundation of our business and the AR value that's recognized around the globe. It's one of the key reasons AR has become the worldwide leader in EMC, Wireless and beyond.

AR products do more, last longer, work harder and make your job easier. And that gives you a fierce competitive edge. Only AR delivers innovative technology, advanced design, quality build & workmanship, mismatch capability, durability & longevity, less cost watt for watt, and a worldwide support network that's here for you today and tomorrow.

With the combined resources of all the AR companies, we simply have more of the best people making the best products to overcome your toughest challenges.

AR RF/Microwave Instrumentation

- RF Amplifiers 1 to 10,000 watts, dc to 1 GHz
- Microwave Amplifiers 1 to 16,000 watts, 0.8 to 45 GHz
- Antennas 1 to 15,000 watts, 10 kHz to 50 GHz
- Transient Generators
- Precompliance Test Systems
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Want to know more about AR? Need help with any RF solutions or testing procedures?

Here's how to reach AR and get all the help you need:

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AR RF/Microwave Instrumentation

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For RF Amplifier modules, contact:

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11807 North Creek Parkway South, Suite 109,
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Tel 425-485-9000 • Fax 425-486-9657

For receiver systems, contact:

AR Receiver Systems

Tel 800-964-1424 or (Outside the U.S.) 818-700-0330

AR Global Promise

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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