



Model 1000TP2G8
M1 through M18
1000 Watts Pulse
2.5-7.5GHz

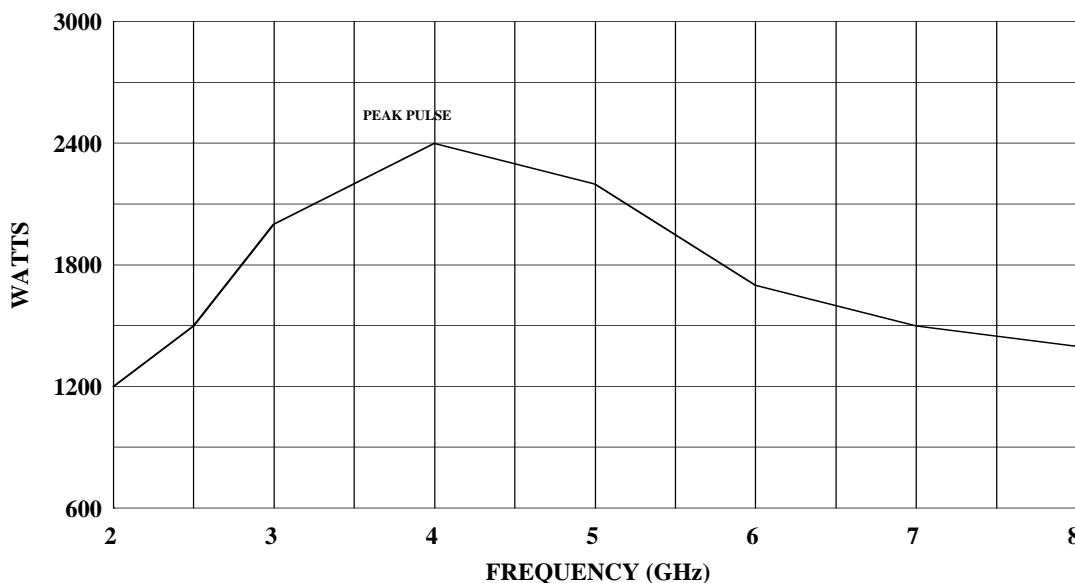
The Model 1000TP2G8 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for pulse applications at low to moderate duty factors where instantaneous bandwidth and high gain are required. A reliable TWT subsystem provides a conservative 1000 watts minimum peak RF pulse power at the amplifier output connector. Stated power specifications are at fundamental frequency.

The amplifier's front panel digital display shows forward and reflected average power output or forward and reflected peak power, plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess average or peak reflected power warning and remote. Standard features include a built-in IEEE-488 (GPIB) interface, 0 dBm input, TTL Gating, VSWR protection, gain control, RF output sample port, auto sleep, plus monitoring of TWT helix current, cathode voltage, collector voltage, heater current, heater voltage, baseplate temperature and cabinet temperature. Modular design of the power supply and RF components allow for easy access and repair. Use of a switching mode power supply results in significant weight reduction.

Housed in a stylish contemporary cabinet, the Model 1000TP2G8 provides readily available pulsed RF power for a variety of applications in Test and Measurement, (including EMC RF pulse susceptibility testing), Industrial and University Research and Development, and Service applications. AR also offers a broad range of amplifiers for CW (Continuous Wave) applications.

See Model Configurations for alternative packaging and special features.

1000TP2G8 TYPICAL POWER OUTPUT



SPECIFICATIONS, MODEL 1000TP2G8

Power (Fundamental), Peak Pulse, @ Output Connector

Nominal 1800 watts
Minimum 1000 watts

Flatness ± 7 dB maximum, equalized for ± 3 dB maximum at rated power

Frequency response 2.5 – 7.5 GHz instantaneously

Input for rated output 1.0 milliwatt maximum

Gain (at maximum setting) 60 dB minimum

Gain Adjustment (continuous range) 35 dB minimum

Input Impedance 50 ohms, VSWR 2.5:1 maximum

Output Impedance 50 ohms, VSWR 2.5:1 typical

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.

Pulse Capability

Pulse Width 0.07 – 100 microseconds.

Pulse Rate (PRF) 100 kHz maximum

Duty Cycle 4% maximum.

RF Rise and Fall 30 ns max (10% to 90%).

Delay 300 ns maximum from pulse input to RF 90%

Pulse Width Distortion ± 30 ns maximum (50% points of output pulse width compared to 50% points of input pulse width)

Pulse Off Isolation 80 dB minimum, 90 dB typical

Pulse Input TTL level, 50 ohm nominal termination

Noise Power Density

(pulse on) Minus 72 dBm/Hz (maximum), minus 74 dBm/Hz (typical)

(pulse off) Minus 140 dBm/Hz (typical)

Harmonic Distortion Minus 0 dBc maximum, Minus 1.5 dBc typical

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

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 and Size See Model Configurations

MODEL CONFIGURATIONS

- E** Must select one enclosure type from the following [E1 or E2 or E2S]:
- E1** removable outer enclosure, size 19.8 x 10 x 27 in., 50.3 x 25.4 x 69 cm.
- E2** without outer enclosure, size 19 x 8.75 x 27 in, 48.3 x 22.2 x 69 cm.
- E2S** without outer enclosure; slides and front handles installed for rack mounting.
- S** May select a special feature (extra cost) from the following [(S1R or S1F) and/or S2K} or S3E]
- S1R** Reflected sample port on rear panel, type N female connector. Forward and reflected sample port calibration data supplied on disk in Excel format at 51 points, evenly spaced over the specified frequency range.
- S1F** Reflected sample port on front panel, type N female connector. Input and forward sample port on front panel. Forward and reflected sample port calibration data supplied on disk in Excel format at 51 points, evenly spaced over the specified frequency range.
- S2K** Supplied with two TF type externally mountable harmonic filters and a switch kit that allows user to select an appropriate filter band, high or low, via this TWTA. Insertion loss when used with filters is maximum 1.5 dB. See TF type Filter specification table below. Dimensions listed are for TWTA's only without kits and filters.
- S3E** Extended frequency range from 2.0 to 2.5 GHz and 7.5–8.0 GHz at minimum 500 watts pulse. Harmonics:
 2–2.3GHz, plus 4.5 dBc maximum
 2.3–2.5GHz, plus 1.5 dBc maximum
 7.5–8.0 GHz, minus 1 dBc maximum

Model Number	Weight	Features	
		E	S
1000TP2G8	52 kg (115 lbs)	E1	-
1000TP2G8M1	39 kg (85 lbs)	E2	
1000TP2G8M2	41 kg (90 lbs)	E2S	-
1000TP2G8M3	52 kg (115 lbs)	E1	S1R
1000TP2G8M4	39 kg (85 lbs)	E2	S1R
1000TP2G8M5	41 kg (90 lbs)	E2S	S1R
1000TP2G8M6	52 kg (115 lbs)	E1	S1F
1000TP2G8M7	39 kg (85 lbs)	E2	S1F
1000TP2G8M8	41 kg (90 lbs)	E2S	S1F
1000TP2G8M9	62 kg (135 lbs)	E1	S2K
1000TP2G8M10	48 kg (105 lbs)	E2	S2K
1000TP2G8M11	50 kg (110 lbs)	E2S	S2K
1000TP2G8M12	62 kg (135 lbs)	E1	S2K & S1R
1000TP2G8M13	48 kg (105 lbs)	E2	S2K & S1R
1000TP2G8M14	50 kg (110 lbs)	E2S	S2K & S1R
1000TP2G8M15	62 kg (135 lbs)	E1	S2K & S1F
1000TP2G8M16	48 kg (105 lbs)	E2	S2K & S1F
1000TP2G8M17	50 kg (110 lbs)	E2S	S2K & S1F
1000TP2G8M18	52 kg (115 lbs)	E1	S3E

S2K – TF TYPE FILTER SPECIFICATIONS

Microwave Filter Model	For Use with AR TWTA Model	Pass Band (GHz)	Insertion Loss(dB max)	Reject Band (GHz)	Rejection (dB min)	Power (fundamental & harmonic, watts, max)	Input Connector	Output connector	Size L x W x D (cm, in max)	Weight (kg, lbs typical)	Input VSWR in Pass band (typical)	Input VSWR in Reject band (typical)
TF type filter 1	1000TP2G8* with N connector, requires two filters	2.5-4.2	0.5	5.0 - 8.4	25	150 & 100 average, 3000 & 2000 peak	N male (or N female plus supplied adapter or short cable)	N female	15 x 4 x 14, 6.0 x 1.5 x 5.5	3.2, 7	1.3:1	2.5:1
filter 2		4.2-7.5	0.5	8.4 - 15	25	150 & 100 average, 3000 & 2000 peak			15 x 2.5 x 14, 6.0 x 1.0 x 5.5	3.2, 7	1.3:1	2.5:1

*Not for use with feature S3E.