



**Model 1000TP8G10,  
M1 through M5  
10,000 Watt Pulse Amplifier  
8GHz–10GHz**

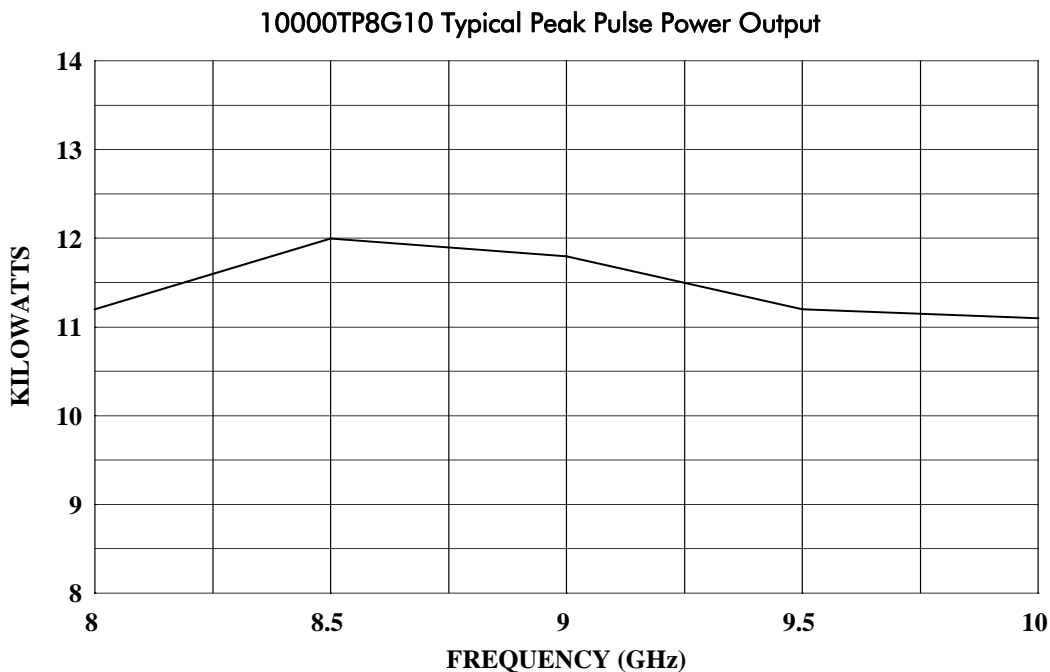
The Model 1000TP8G10 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for pulse applications at low to moderate duty factors where instantaneous bandwidth and high gain are required. A reliable TWT subsystem provides a conservative 10,000 watts minimum peak RF pulse power at the amplifier output connector. Stated power specifications are at the 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, 0dBm input, TTL Gating, VSWR protection, gain control, RF output sample ports, 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 switching mode power supplies results in significant weight reduction.

The rated power is developed by efficiently power combining the outputs from two 6000 watts (nominal) microwave tubes that are factory matched in gain and phase to offer moderate harmonic levels without added filters.

Housed in a stylish contemporary cabinet, the amplifier 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.



## SPECIFICATIONS, MODEL 10000TP8G10

**POWER (Fundamental), Peak Pulse, @ Output**

Nominal ..... 11000 watts  
 Minimum ..... 10000 watts

FLATNESS..... ±6 dB maximum

FREQUENCY RESPONSE ..... 8-10 GHz

INPUT FOR RATED OUTPUT ..... 1.0 milliwatt maximum

GAIN (at maximum setting) ..... 70 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 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.

**PULSE CAPABILITY**

Pulse Width ..... 0.07 – 40 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 65 dBm/Hz maximum; Minus 69 dBm/Hz typical  
 (pulse off) ..... Minus 140 dBm/Hz (typical)

HARMONIC DISTORTION ..... Minus 15 dBc maximum

PRIMARY POWER ..... 190-260 VAC, 50/60 Hz single phase, 2.5 KVA maximum

**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.

SIZE (W x H x D)..... 50.3 x 49 x 74 cm, 19.8 x 19 x 29 in

WEIGHT (approximate) ..... 107 kg, 235 lbs

### MODEL CONFIGURATIONS

**E Package Alternatives.** May select an alternative from the following [E1C or (E1C and E2S) and/or E3H]:

**E1C Cabinet:** Without outer enclosure for rack mounting, size (W x H x D) 49 x 45 (10U) x 74 cm, 19 x 17.5 (10U) x 29 in., Subtract approximately 16 kg, 35 lbs, for removal of outer enclosure.

**E2S Slides:** slides installed, add approximately 2 kg, 5 lbs.

**E3H Handles:** Front pull handles installed.

| Model Number       | Features        |
|--------------------|-----------------|
| <b>10000TP8G10</b> | Base model      |
| <b>M1</b>          | E1C             |
| <b>M2</b>          | E3H             |
| <b>M3</b>          | E1C & E3H       |
| <b>M4</b>          | E1C & E2S       |
| <b>M5</b>          | E1C & E2S & E3H |

Model number example: Model 10000TP8G10M2 would have option E3H front pull handles installed.