



## 6900TP2G4

- Pulse Amplifier
- M1-M11
- 6900 Watts
- 2GHz-4GHz

### Features

The Model 6900TP2G4 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier system designed for pulse applications at low to moderate duty factors where instantaneous bandwidth and high gain are required. Reliable TWT subsystems provide a conservative 6900 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.

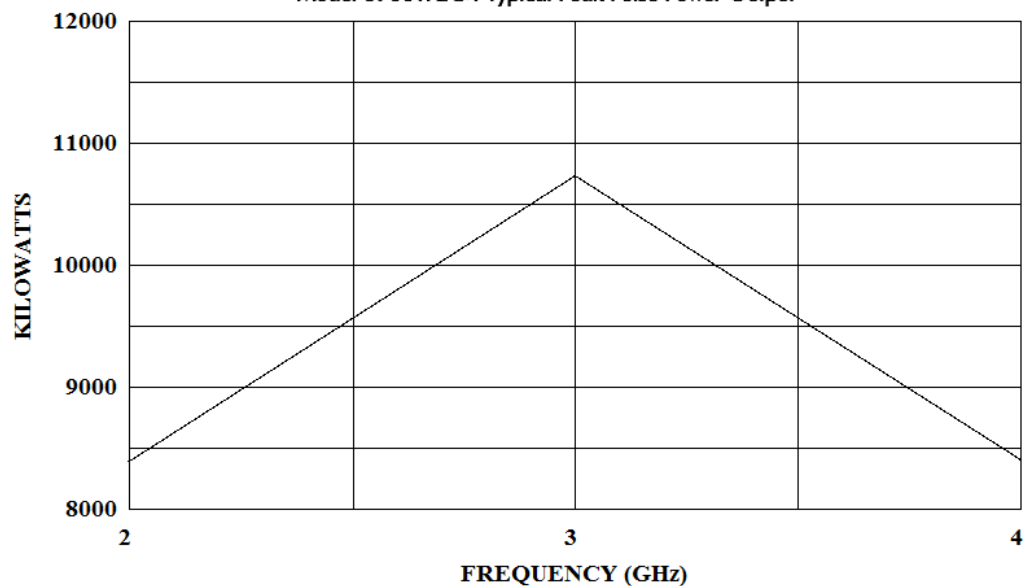
The rated power is developed by efficiently power combining the outputs from two 4500 watts (nominal) pulse TWTs that are factory matched in gain and phase, resulting in an excellent combination of wide instantaneous bandwidth with improved harmonic levels.

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.

The export classification for this equipment is 3A999.d. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

See Model Configurations for alternative packaging and prime power selection.

Model 6900TP2G4 Typical Peak Pulse Power Output



AR RF/Microwave  
Instrumentation  
160 School House Rd  
Souderton, PA 18964  
215-723-8181

For an applications engineer call: 800.933.8181

[www.arworld.us](http://www.arworld.us)



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## Specifications

**POWER (Fundamental), Peak Pulse, @ Output:** Nominal, 9000 watts; Minimum, 6900 watts

**FLATNESS:** ±8 dB maximum, ±4 dB at rated power

**FREQUENCY RESPONSE:** 2-4 GHz

**INPUT FOR RATED OUTPUT:** 1.0 milliwatt maximum

**GAIN (at maximum setting):** 68 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 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.

**PULSE CAPABILITY:**

|                        |   |
|------------------------|---|
| Pulse Width            | 0.2 – 50 microseconds.  |
| Pulse Rate (PRF)       | 100 kHz maximum   |
| Duty Cycle             | 4% maximum.   |
| RF Rise and Fall       | 70 ns max (10% to 90%).   |
| Delay                  | 500 ns maximum from pulse input to RF 90%   |
| Pulse Width Distortion | ±50 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 55 dBm/Hz (maximum); Minus 84 dBm/Hz (typical)  
 (pulse off) Minus 140 dBm/Hz (typical)

**HARMONIC DISTORTION:** Minus 15 dBc maximum

**PRIMARY POWER:** See Model Configurations

**CONNECTORS:**  
 RF input: Type N female on rear panel  
 RF output: Type DIN 7-16 female on rear panel  
 RF output sample ports (forward and reflected): 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 48 x 89 cm, 19.8 x 19 x 35 in

**WEIGHT (approximate):** 121 kg, 265 lbs

**EXPORT CLASSIFICATION:** 3A999.d

## 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 44.3 (10U) x 86 cm, 19 x 17.44 (10U) x 33.9 in., Subtract approximately 16 kg, 35 lbs, for removal of outer enclosure.

**E2S Slides:** slides installed, add approximately 5 kg, 10 lbs.

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

**P Prime Power:** Must select one primary power from the following [P1 or P2]

**P1 208V, US:** 208 VAC ± 10%, 3 phase, delta (4 wire) 50/60 Hz, 5 KVA maximum

**P2 400V, Europe:** 360-435 VAC, 3 phase, WYE (5 wire) 50/60 Hz, 5 KVA maximum. CE marked to comply with EMC European Directive 89/336/EEC for operation inside a shielded room.

**P3 190-260VAC** single phase, 50/60Hz, 5kVa max

| Model No.        | Features        |    |
|------------------|-----------------|----|
|                  | E               | P  |
| <b>6900TP2G4</b> | Base model      | P1 |
| <b>M1</b>        | E1C             | P1 |
| <b>M2</b>        | E3H             | P1 |
| <b>M3</b>        | E1C & E3H       | P1 |
| <b>M4</b>        | E1C & E2S       | P1 |
| <b>M5</b>        | E1C & E2S & E3H | P1 |
| <b>M6</b>        | –               | P3 |
| <b>M7</b>        | E1C             | P3 |
| <b>M8</b>        | E3H             | P3 |
| <b>M9</b>        | E1C & E3H       | P3 |
| <b>M10</b>       | E1C & E2S       | P3 |
| <b>M11</b>       | E1C & E2S & E3H | P3 |

Model number example: Model 6900TP2G4M2 would have option E3H front pull handles installed.