



**Model 3800TP1G2,
M1 through M7
3,800 Watt Pulse Amplifier
1GHz–2GHz**

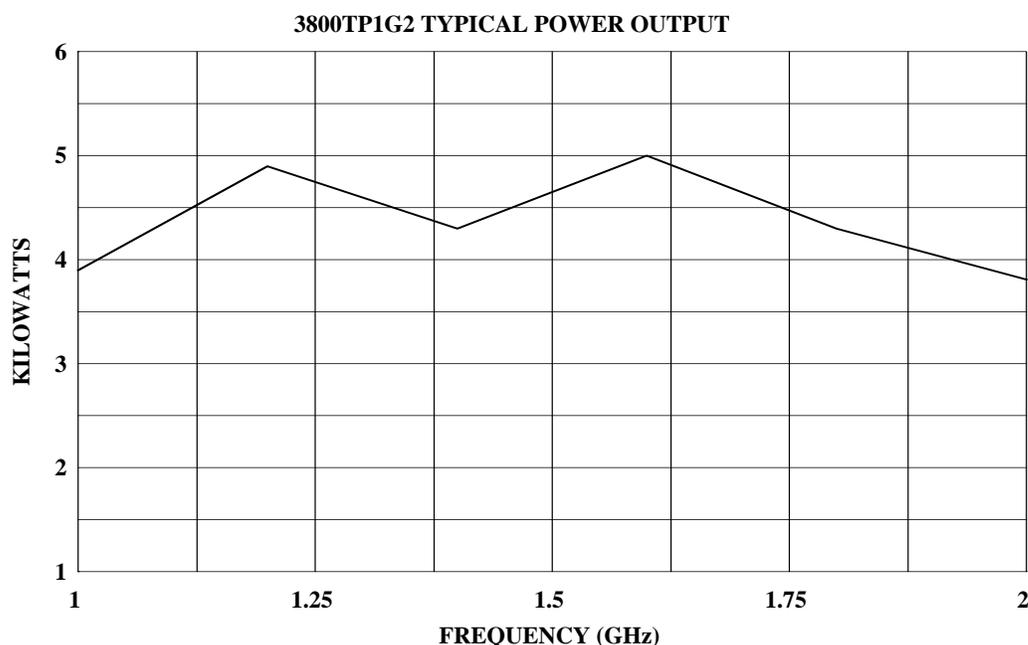
The Model 3800TP1G2 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for pulse applications at low duty factors where instantaneous bandwidth and high gain are required. A reliable TWT provides a conservative 3800 watts minimum peak RF pulse power 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.

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 amplifier is ITAR. The export of this equipment is governed by the U.S. International Traffic in Arms Regulations (ITAR). This equipment and related technical data must not be transferred to a foreign person/entity without proper authorization of the U.S. Government. Violations may result in administrative, civil or criminal penalties.

See Model Configurations for alternative packaging.



SPECIFICATIONS, MODEL 3800TP1G2

POWER (Fundamental), Peak Pulse, @ Output)

Nominal	4,500 watts
Minimum	3,800 watts

FLATNESS..... ±6 dB maximum

FREQUENCY RESPONSE 1-2 GHz

INPUT FOR RATED OUTPUT 1.0 milliwatt maximum

GAIN (at maximum setting) 66 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 1000 watts. Will operate without damage 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. See SIM special option, if applicable.

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 60 dBm/Hz maximum; Minus 65 dBm/Hz typical
(pulse off)	Minus 140 dBm/Hz (typical)

HARMONIC DISTORTION..... Minus 3 dBc maximum, minus 5 dBc typical

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 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 26 x 94 cm, 19.8 x 10.3 x 37 in

WEIGHT (approximate) 57 kg, 125 lbs

MODEL CONFIGURATIONS, 3800TP1G2

- 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 22 (5U) x 94 cm, 19 x 8.75 (5U) x 37 in., Subtract approximately 11 kg, 25 lbs, for removal of outer enclosure.
- E2S Slides:** slides installed, add approximately 2 kg, 5 lbs.
- E3H Handles:** Front pull handles installed.
- P Primary Power:** Must select one primary power from the following [P1 or P2]:
- P1** 208 VAC ±10%, 3-phase, 50/60Hz, 2 kVA maximum
- P2** 190-260 VAC, single phase, 50/60Hz, 2 kVA maximum
- S Special Feature** May select a special feature (extra cost) from the following [S1M]:
- S1M Special Mismatch Tolerance Operation:** Amplifier will permit up to 2kW reflected power at maximum 8μs pulse width and .8% duty, without VSWR trip or fold-back. Exceeding 2kW reflected power will cause the unit to truncate pulse within 2μs. For pulses beyond 8μs, exceeding 1kW will cause the unit to truncate the pulse. If exceeding .8% duty with reflected power exceeding 1kW, the amplifier will truncate the pulse within 2μs. The amplifier will continue to truncate pulses until reflected power dissipates from outside source. Operation with truncated pulses for >250mS will result in latched "Truncated Pulse Fold Back" displayed on screen and over the remote interface, including an audible alarm. Operation with truncated pulses for 5 to 10 seconds will cause "Over Reverse" fault and a shutdown of high voltage and the amplifier.

Model Number	Features		
	E	P	S
3800TP1G2	Base model	P2	
M1	E1C	P2	
M2	E3H	P2	
M3	E1C & E3H	P2	
M4	E1C & E2S	P2	
M5	E1C & E2S & E3H	P2	
M6	–	P1	S1M
M7	–	P1	–

Model number example: Model 3800TP1G2M2 would have option E3H front pull handles installed.