



**Model 1000T2G4,  
M1 through M6  
1000 Watts CW  
2 GHz–4 GHz**

The Model 1000T2G4 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for applications where instantaneous bandwidth, high gain and high power output are required. A reliable TWT provides a conservative 1000 watts minimum at the amplifier output connector. Stated power specifications are at the fundamental frequency.

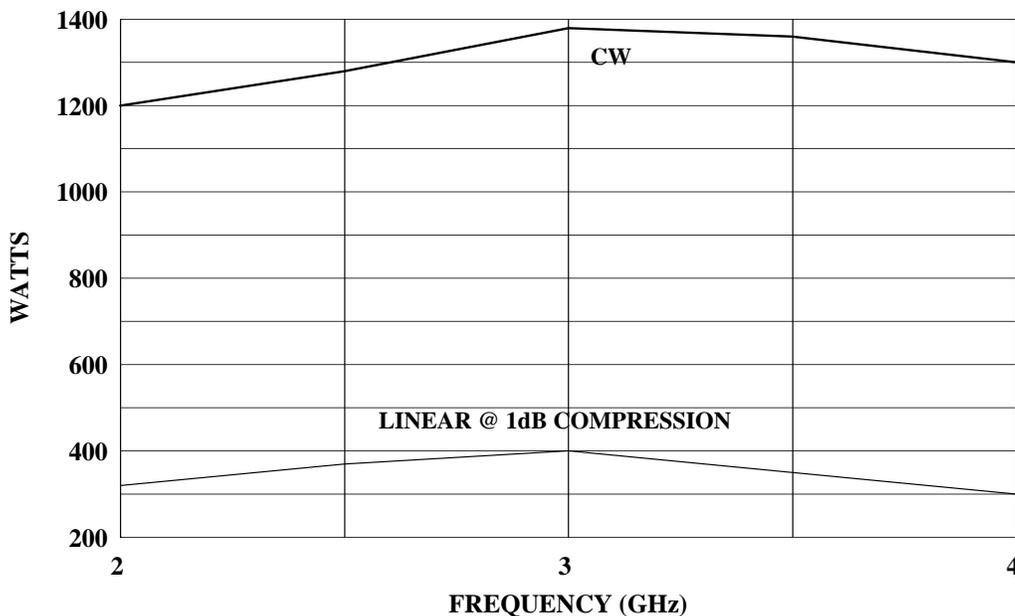
The amplifier's front panel digital display shows forward and reflected output plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess reflected power warning and remote. Standard features include a built-in IEEE-488 (GPIB) interface, OdBm input, VSWR protection, gain control, RF output sample ports, 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.

This model uses a liquid cooled TWT and includes a heat exchanger to air so that no externally supplied liquid is required. Contact AR for availability of liquid-cooled versions of this amplifier. Amplifier includes wheels, leveling feet and lifting eyes.

The Model 1000T2G4 provides readily available RF power for a variety of applications in Test and Measurement, (including EMC RF susceptibility testing), Industrial and University Research and Development, and Service applications.

Refer to the Model Configurations for package, power, prime power and other special features.

**1000T2G4 TYPICAL POWER OUTPUT**



## SPECIFICATIONS, MODEL 1000T2G4

### POWER (fundamental), CW, @ OUTPUT CONNECTOR

|                                 |                   |
|---------------------------------|-------------------|
| Nominal .....                   | 1300 watts        |
| Minimum .....                   | 1000 watts        |
| Linear @ 1 dB Compression ..... | 250 watts minimum |

FLATNESS..... $\pm 4$  dB maximum,  $\pm 3$  dB maximum at rated power

FREQUENCY RESPONSE.....2 - 4 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 2.0:1 maximum

OUTPUT IMPEDANCE.....50 ohms, VSWR 2.5:1 typical

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 70 dBm/Hz (maximum)  
Minus 77 dBm/Hz (typical)

HARMONIC DISTORTION.....Minus 6 dBc maximum, Minus 10 dBc typical

PRIMARY POWER.....See Model Configuration

### CONNECTORS

|  |                               |
|--|-------------------------------|
| RF input .....                                       | Type N female on rear panel   |
| RF output .....                                      | 1-5/8" EIA 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.

ENVIRONMENT.....0-50 degrees C operating, (derate 2 degrees C per 1000 feet above 3000 ft)

HUMIDITY.....To 95% RH without condensation

WEIGHT.....See Model Configurations

SIZE (W x H x D).....See Model Configurations

## MODEL CONFIGURATIONS, 1000T2G4

- E** Must select one enclosure type from the following [E1 or E2 or E2S]:
- E1** Removable outer enclosure, size 22.1 x 72 x 32.4 in., 56 x 183 x 82.3 cm. Add approximately 200 lbs, 91 kg, to weight of E2
- E2** Without outer enclosure, supplied in 19 inch rack mountable sub-chassis for mounting either:
- a) Two side by side rack spaces, with individual rack space not exceeding 16U or
- b) In one rack space not exceeding 32U.  
Total size when stacked 19 x 56 (32U maximum) x 30 in, 48.3 x 143 (32U maximum) x 77 cm. Total weight approximately 500 lbs, 227 kg
- E2S** Without outer enclosure, slides and front pull handles installed on each chassis, sizes same as E2. Add 28 lbs, 13 kg, to weight of E2
- P** Must select one primary power from the following [P1 or P2]
- P1** 190-255 VAC, 3 phase, delta (4 wire) 50/60 Hz, 8 KVA maximum
- P2** 360-435 VAC, 3 phase, WYE (5 wire) 50/60 Hz, 8KVA maximum. CE marked to comply with EMC European Directive 89/336/EEC for operation inside a shielded room.

- S** May select a special feature (extra cost) from the following [(S1F or (S1F and S4F)) and/or (S2C or S3C) or S5E]
- S1F** Input, forward and reflected power sample ports on front panel, not on rear panel.
- S2C** RF output WRD-200 waveguide on rear panel
- S3C** RF output connector 7/8 EIA on rear panel.
- S4F** RF Output connector on front panel, not on rear panel
- S5E** Configuration E2A, P1, intended for rack mounting, offers remote monitoring and control via Ethernet interface. GPIB interface is deleted. Ethernet connector type RJ-45 on rear panel. Prime power connector located on rear panel. Mating connector supplied.

| Model Number | Features |    |     |
|--------------|----------|----|-----|
| 1000T2G4     | E        | P  | S   |
| 1000T2G4     | E1       | P1 | -   |
| M1           | E2       | P1 | -   |
| M2           | E2S      | P1 | -   |
| M3           | E1       | P2 | -   |
| M4           | E2       | P2 | -   |
| M5           | E2S      | P2 | -   |
| M6           | E2       | P1 | S5E |