
# 300T2G8

- M1–M19
- 300 Watts CW
- 2.5GHz–7.5GHz

## Features

The Model 300T2G8 is a self-contained, forced air-cooled, broadband traveling wave tube (TWT) microwave amplifier designed for applications where instantaneous bandwidth and high gain are required. A reliable TWT provides a conservative 300 watts minimum at the amplifier output connector. Stated power specifications are at the fundamental frequency.

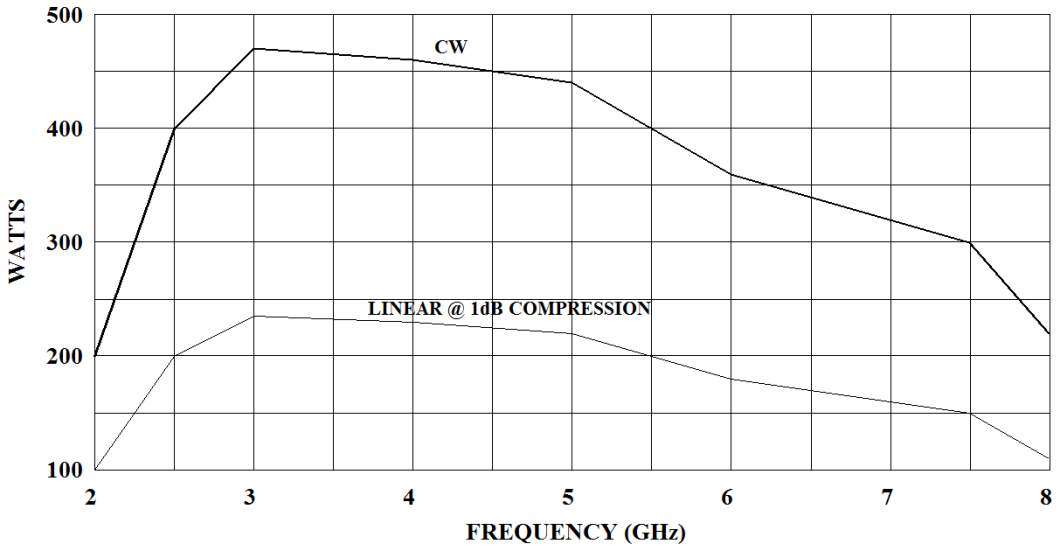
The amplifier's front panel digital display shows forward and reflected output plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess reflected power warning and remote. Standard features include a built-in IEEE-488 (GPIB) interface, 0 dBm input, VSWR protection, gain control, external video pulsing, 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. The external video pulsing feature reduces prime power use for pulse applications.

Housed in a stylish contemporary cabinet this unit is designed for benchtop use but can be removed from the cabinet for rack mounting. The Model 300T2G8 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. See Model Configuration for package alternatives and special features.

The export classification for this equipment is EAR99. 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.

**300T2G8 TYPICAL 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

# 300T2G8

- M1–M19
- 300 Watts CW
- 2.5GHz–7.5GHz

## Specifications



**POWER (fundamental), CW, @ OUTPUT CONNECTOR:**
Nominal: 350 watts
Minimum: 300 watts
Linear @ 1 dB Compression: 75 watts minimum

**FLATNESS:** ±12 dB maximum, equalized for ±5 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):** 55 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 60 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.

**VIDEO PULSE CAPABILITY:**
Pulse Width: 0.05 microseconds min
Pulse Rate (PRF): 100 kHz max
RF Rise and Fall: 30 ns max (10 % to 90%)
Delay: 300 ns max from pulse input to RF 90%
Pulse Width Distortion: ± 30 ns (50% points of output pulse width compared to 50% point of input pulse width)

**NOISE POWER DENSITY:**
(pulse on): Minus 75 dBm/Hz (maximum); Minus 80 dBm/Hz (typical)
(pulse off): Minus 140 dBm/Hz (typical)

**HARMONIC DISTORTION:** Minus 3.0 dBc maximum, Minus 4.5 dBc typical

**PRIMARY POWER:** 190-260 VAC, 50/60 Hz single phase, 3.0 KVA maximum

**CONNECTORS:**

| | |
|---|---|
| RF input | Type N female, rear |
| RF output | Type N female, rear |
| RF output sample port | Type N female, rear |
| GPIB | IEEE 488 (f), rear |
| Interlock | DB-15 (f), rear |
| Video | BNC-female, rear |

**COOLING:** Forced air (self contained fans), air entry and exit in rear.

**EXPORT CLASSIFICATION:** EAR99

## Model Configurations

**E** Must select one enclosure type from the following [E1 or E2 or E2S]:

E1 removable outer enclosure, size 19.8 x 11.7 x 27 in., 50.3 x 29.7 x 68.6 cm; add 14 kg (30 lbs) to weight of E2.

E2 without outer enclosure, size 19 x 10.5 x 27 in, 48.3 x 26.7 x 68.6 cm; weight 41 kg (90 lbs).

E2S enclosure removed for rack mounting; slides and handles installed, size same as E2; add 2 kg (5 lbs) to weight of E2.

**S** May select a special feature (extra cost) from the following [(S1R and/or S3P) or (S1R and/or S2K) or (S4P and E2)]:

S1R Reflected power port, type N female connector on rear panel. Forward and reflected sample port calibration data supplied on disk in Excel format at 51 points, evenly spaced over specified frequency response.

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 Specifications table below; add 9 kg (20 lbs).

S3P Minimum power output outside of the specified frequency range:
2.0 – 2.1 GHz, 150 watts
2.1 – 2.2 GHz, 175 watts
2.2 – 2.5 GHz, 200 watts
7.5 – 8.0 GHz, 200 watts

S4P Minimum power output outside of the specified frequency range:

| Model Number | Features | | Model Number | Features | |
|---|---|---|---|---|---|
| | E | S | | E | S |
| 300T2G8 | E1 | - | 300T2G8M10 | E1 | S2K |
| 300T2G8M1 | E2 | - | 300T2G8M11 | E2 | S2K |
| 300T2G8M2 | E2S | - | 300T2G8M12 | E2S | S2K |
| 300T2G8M3 | E1 | S1R & S3P | 300T2G8M13 | E1 | S3P |
| 300T2G8M4 | E2 | S1R & S3P | 300T2G8M14 | E2 | S3P |
| 300T2G8M5 | E2S | S1R & S3P | 300T2G8M15 | E2S | S3P |
| 300T2G8M6 | E1 | S1R | 300T2G8M16 | E1 | S1R & S2K |
| 300T2G8M7 | E2 | S1R | 300T2G8M17 | E2 | S1R & S2K |
| 300T2G8M8 | E2S | S1R | 300T2G8M18 | E2S | S1R & S2K |
| 300T2G8M9 | E2 | S4P | 300T2G8M19 | E1 | SP4 |

# 300T2G8

- M1–M19
- 300 Watts CW
- 2.5GHz–7.5GHz

## Specifications



S2K – TF TYPE FILTER SPECIFICATIONS

| Microwave Filter Model TF Type | 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TF2003N | 300T2G8 with N connector, requires two filters | 2.5-4.2 | 0.5 | 5.0-12.6 | 25 | 600 & 300 average, | N male | N female | 15 x 4 x 14<br>6.0 x 1.5 x 5.5 | 3.2, 7 | 1.3:1 | 2.5:1 |
| TF2004N | | 4.2-7.5 | 0.5 | 8.4-15 | 25 | 600 & 150 average, | | | 15 x 2.5 x 14<br>6.0 x 1.0 x 5.5 | 3.2, 7 | 1.3:1 | 2.5:1 |