

**Model 300T2G8,  
M1 through M19  
300 Watts CW  
2.5GHz–7.5GHz**

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.

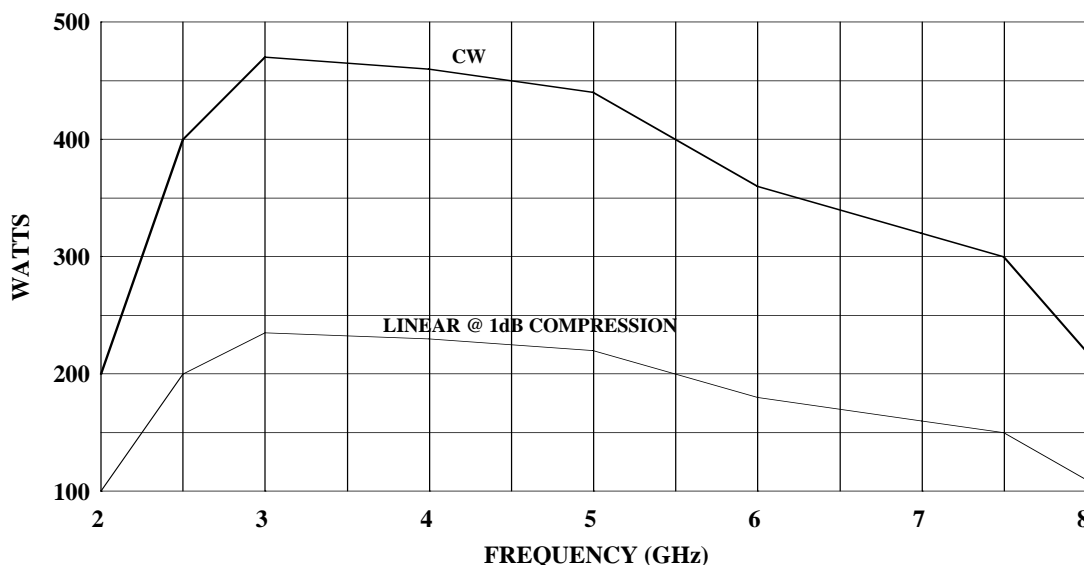
The amplifier's front panel digital display shows forward and reflected output plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess reflected power warning and remote. Standard features 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.

**300T2G8 TYPICAL POWER OUTPUT**



## SPECIFICATIONS, MODEL 300T2G8

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

Nominal .....	350 watts
Minimum .....	300 watts
Linear @ 1 dB Compression .....	75 watts minimum

FLATNESS.....  $\pm 12$  dB maximum, equalized for  $\pm 5$  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.....	$\pm 30$ ns (50% points of output pulse width compared to 50% point of input pulse width)

### NOISE POWER DENSITY

(pulse on) .....	Minus 85 dBm/Hz (maximum); Minus 90 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 on rear panel
RF output .....	Type N female on rear panel
RF output sample port .....	Type N female on rear panel
GPIB.....	IEEE 488 (f) on rear panel
Interlock .....	DB-15 (f) on rear panel
Video.....	BNC-female on rear panel

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

### Model Configurations - Model 300T2G8

- 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:  
 7.5 GHz - 8.0 GHz, 200 watts.

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

### 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)
filter 1	300T2G8 with N connector, requires two filters	2.5-4.2	0.5	5.0-8.4	25	600 & 300 average,	N male or N female plus supplied adapter	N female	15 x 4 x 14 6.0 x 1.5 x 5.5	3.2, 7	1.3:1	2.5:1
filter 2		4.2-7.5	0.5	8.4-15	25	600 & 150 average,			15 x 2.5 x 14 6.0 x 1.0 x 5.5	3.2, 7	1.3:1	2.5:1