



**Model 500T7z5G18,  
M1 through M12  
500 Watts CW  
7.5GHz–18GHz**

The Model 500T7z5G18 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for applications where instantaneous bandwidth, reduced harmonics and high gain are required. A reliable TWT subsystem provides a conservative 500 watts minimum at the amplifier output connector. Stated power specifications are at fundamental frequency.

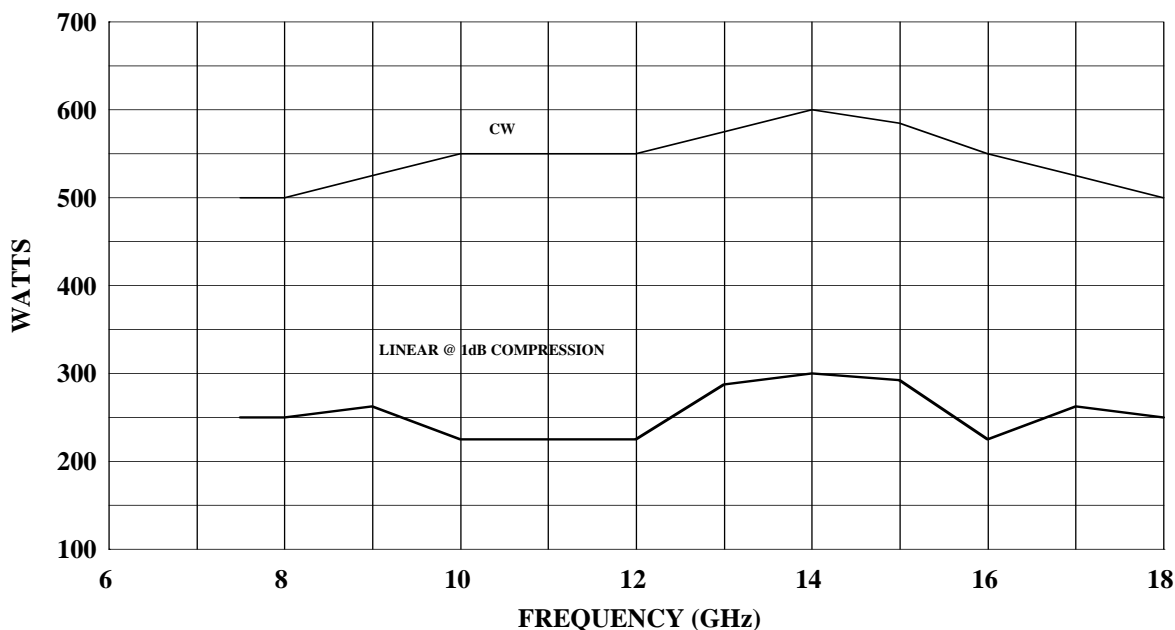
The amplifier's front panel digital display shows forward and reflected output plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess reflected power warning and remote. Standard features include a built-in IEEE-488 (GPIB) interface, 0 dBm input, VSWR protection, gain control, RF output sample port, 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 rated power is developed by efficiently power combining the outputs from two 300 watts (nominal) microwave tubes that are factory matched in gain and phase to offer moderate harmonic levels without added filters.

Housed in a stylish contemporary cabinet, this unit is designed for benchtop use, but can be removed from cabinet for rack mounting. The Model 500T7z5G18 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, alternate primary power, and special features.

**MODEL 500T7z5G18 TYPICAL POWER OUTPUT**



## SPECIFICATIONS, MODEL 500T7z5G18

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

Nominal .....	550 watts
Minimum .....	500 watts
Linear @ 1 dB Compression .....	125 watts minimum

FLATNESS..... ±11 dB maximum, equalized for ±3 dB maximum at rated power

FREQUENCY RESPONSE..... 7.5 - 18 GHz instantaneously

INPUT FOR RATED OUTPUT..... 1.0 milliwatt maximum

GAIN (at maximum setting)..... 57 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 100 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 72 dBm/Hz (typical)

HARMONIC DISTORTION..... Minus 20 dBc maximum, Minus 22 dBc typical

PRIMARY POWER..... 208 VAC ± 10% three phase 50/60 Hz 4 KVA maximum

### CONNECTORS

RF input .....	Type N precision female on rear panel
RF output .....	Type WRD-750D24 waveguide flange on rear panel
RF output sample port .....	Type N precision female on rear panel
GPIB.....	IEEE – 488 (f) on rear panel
Interlock .....	DB-15 (f) on rear panel

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

SIZE (W x H x D)..... 50.3 x 40.6 x 68.6 cm, 19.8 x 16 x 27 in

WEIGHT (approximate)..... 91 kg, 200 lb

**MODEL CONFIGURATIONS Model 500T7z5G18**

- E Package Alternatives.** May select an alternative from the following [E1C or (E1C and E2S) and/or E3H]:
- E1C Cabinet:** Without outer enclosure, two sub-assemblies, 3U and 5U, total size 48.3 x 35.6 (8U) x 68.6 cm, 19 x 14 (8U) x 27 in. Subtract approximately 18 kg, 40 lbs, for removal of outer enclosure.
- E2S Slides:** slides installed on each sub-assembly, add approximately 5 kg, 10 lbs .
- E3H Handles:** Front pull handles installed on each sub-assembly.
- P Primary Power.** May select alternate primary power from the following [P1]
- P1** 190-260 VAC single phase 50/60 Hz, 4 KVA maximum
- S Special Features:** May select a special feature (extra cost) [S1R and/or S2V]
- S1R Reflected sample port on rear panel,** type N precision female connector. Forward and reflected sample port calibration data supplied on disk in Excel format at 51 points, evenly spaced over the specified frequency range.
- S2V Video pulse capability,** to offer blanking capability to use for noise quieting or primary power reduction.  
 VIDEO PULSE CAPABILITY  
 -Pulse Width: up to CW  
 -Pulse Rate (PRF): up to 100 kHz  
 -RF Rise and Fall: 20 ns max (10% to 90%)  
 -Delay: 300 ns max from pulse input to RF90%  
 -Pulse width distortion: ±30 ns max (50% points of output pulse width compared to 50% points of input pulse width)  
 NOISE POWER DENSITY  
 -(pulse off): Minus 140 dBm/Hz (typical)  
 CONNECTOR  
 -Video: BNC-female on rear panel

Model Number	Features		
	E	P	S
<b>500T7z5G18</b>	Base model	-	-
<b>M1</b>	E1C	-	-
<b>M2</b>	E3H	-	-
<b>M3</b>	E1C & E3H	-	-
<b>M4</b>	E1C & E2S	-	-
<b>M5</b>	E1C & E2S & E3H	-	-
<b>M6</b>	-	-	S1R
<b>M7</b>	E1C	-	S1R
<b>M8</b>	E1C & E2S & E3H	-	S1R
<b>M9</b>	-	P1	-
<b>M10</b>	E1C	P1	-
<b>M11</b>	E1C & E2S & E3H	P1	-
<b>M12</b>	-	-	S2V

Model number example: Model 500T7z5G18M2 would have option E3H front handles installed.