



**Model 120T40G45,  
M1 thru M11  
120 Watts CW  
40 GHz–45 GHz**

The Model 120T40G45 is a self contained, forced air cooled, broadband traveling wave tube (TWT) microwave amplifier designed for applications where wide instantaneous bandwidth, high gain and moderate power output are required. A reliable TWT subsystem provides a conservative 125 watts minimum at the amplifier output connector. Stated power specifications are at the fundamental frequency.

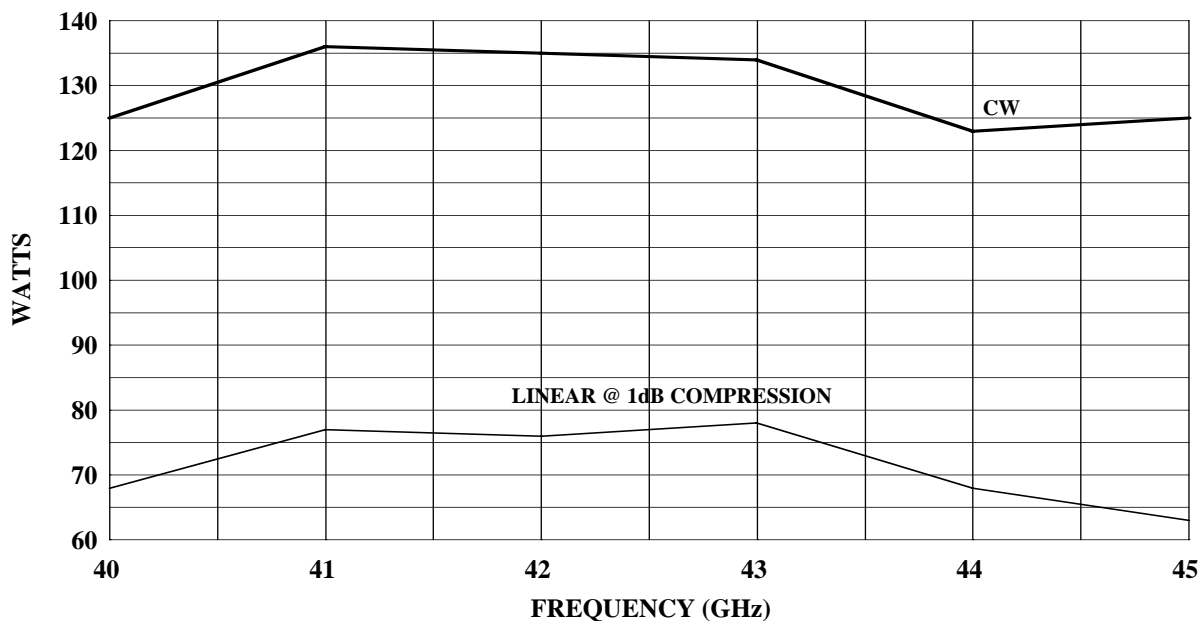
The amplifier's front panel digital display shows forward and reflected output plus extensive system status information accessed through a series of menus via soft keys. Status indicators include power on, warm-up, standby, operate, faults, excess reflected power warning and remote. Standard features include a built-in IEEE-488 (GPIB) interface, 0dBm input, VSWR protection, gain control, forward and reflected 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 rated power is developed by efficiently power combining the outputs from two 80 watts (nominal) microwave tubes that are factory matched in gain and phase.

Housed in a stylish contemporary cabinet, the unit is designed for benchtop use but can be removed from the cabinet for rack mounting. The Model 120T40G45 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. This sub-octave amplifier features moderate harmonic content.

See Model Configurations for package alternatives and special features.

**120T40G45 TYPICAL POWER OUTPUT**



## SPECIFICATIONS, 120T40G45

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

Nominal ..... 140 watts  
 Minimum ..... 120 watts  
 Linear @ 1 dB Compression ..... 30 watts minimum

FLATNESS ..... ± 5 dB maximum

FREQUENCY RESPONSE ..... 40 - 45 GHz instantaneously

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

GAIN (at maximum setting) ..... 51 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 isolator used to offer excellent mismatch tolerance up to reflected power of 120 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 75 dBm/Hz (typical)

HARMONIC DISTORTION ..... Minus 20 dBc typical

PRIMARY POWER ..... 190-260 VAC  
 50/60 Hz single phase  
 2 kVA maximum

### CONNECTORS

RF input ..... Type 2.4 mm female on rear panel  
 RF output ..... Type WR-22 waveguide flange on rear panel  
 RF output sample ports ..... Type 2.4 mm female on rear panel  
 GPIB ..... IEEE-488 on rear panel  
 Interlock ..... DB-15 female on rear panel

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

WEIGHT (approximate) ..... 105 kg, 230 lbs

SIZE (W x H x D) ..... 50.3 x 43 x 76 cm, 19.8 x 17 x 30 in.

## MODEL CONFIGURATIONS

**E** **Package Alternatives.** May select an alternative from the following [**E1C or (E1C and E2S) and/or E3H**]:

**E1C** **Cabinet:** Without outer enclosure, size 49 x 40 (9U) x 69 cm, 19 x 15.75 (9U) x 27 in., Subtract approximately 14 kg, 30 lbs, for removal of outer enclosure.

**E2S** **Slides:** slides installed, add approximately 5 lbs, 2 kg.

**E3H** **Handles:** Front handles installed.

**S** **Special feature:** May select a special feature from the following [**S1F**]

**S1F** **Front panel connectors:** Input, forward and reflected power sample ports connectors on front panel, not on rear.

### MODEL NUMBERS FOR 120T40G45

Model Number	Features		Model Number	Features	
	E	S		E	S
120T40G45	Base model		M6	-	S1F
M1	E1C		M7	E1C	S1F
M2	E3H		M8	E3H	S1F
M3	E1C & E3H		M9	E1C & E3H	S1F
M4	E1C & E2S		M10	E1C & E2S	S1F
M5	E1C & E2S & E3H		M11	E1C & E2S & E3H	S1F

Model number example: Model 120T40G45M2 would have option E3H front handles installed.