The Model 250T1G3 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 250 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, 0dBm 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 250T1G3 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 packaging alternatives and special features.
SPECIFICATIONS, MODEL 250T1G3

POWER (fundamental), CW, @ OUTPUT CONNECTOR
   Nominal ......................................................... 300 watts
   Minimum ....................................................... 250 watts
   Linear @ 1 dB Compression ............................ 70 watts minimum

FLATNESS ................................................................. ±12 dB maximum, equalized for ±5 dB maximum at rated power

FREQUENCY RESPONSE ........................................ 1-2.5 GHz instantaneously

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

GAIN (at maximum setting) .................................... 53 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 50 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) ............................................. 100KHz max
   RF Rise and Fall ........................................... 30 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 on) ..................................................... Minus 72 dBm/Hz (maximum)
   (pulse off) ..................................................... Minus 77 dBm/Hz (typical)
   Minus 140 dBm/Hz (typical)

HARMONIC DISTORTION ....................................... Minus 3 dBc maximum, Minus 4.5 dBc typical

PRIMARY POWER ................................................. 190 – 260VAC
   50/60 Hz, single phase
   2.5 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)
   Interlock ...................................................... DB-15 female on rear panel
   Video ............................................................. BNC-female on rear panel

COOLING .................................................................. Forced air (self contained fans), air entry and exit in rear.
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Weight</th>
<th>Size (W x H x D)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>250T1G3</td>
<td>With removable enclosure</td>
<td>59 kg (130 lb)</td>
<td>50.3 x 29.7 x 76.2 cm 19.8 x 11.7 x 30 in</td>
<td></td>
</tr>
<tr>
<td>250T1G3M1</td>
<td>Shipped without an outer cabinet</td>
<td>46 kg (100 lb)</td>
<td>48.3 x 26.7 x 76.2 cm 19.0 x 10.5 x 30 in</td>
<td></td>
</tr>
<tr>
<td>250T1G3M2</td>
<td>Enclosure removed for rack mounting - slides and front handles installed</td>
<td>48 kg (105 lb)</td>
<td>48.3 x 26.7 x 76.2 cm 19.0 x 10.5 x 30 in</td>
<td></td>
</tr>
<tr>
<td>250T1G3M3</td>
<td>With removable enclosure</td>
<td>59 kg (130 lb)</td>
<td>50.3 x 29.7 x 76.2 cm 19.8 x 11.7 x 30 in</td>
<td>1</td>
</tr>
<tr>
<td>250T1G3M4</td>
<td>Shipped without an outer cabinet</td>
<td>46 kg (100 lb)</td>
<td>48.3 x 26.7 x 76.2 cm 19.0 x 10.5 x 30 in</td>
<td>1</td>
</tr>
<tr>
<td>250T1G3M5</td>
<td>Enclosure removed for rack mounting - slides and front handles installed</td>
<td>48 kg (105 lb)</td>
<td>48.3 x 26.7 x 76.2 cm 19.0 x 10.5 x 30 in</td>
<td>1</td>
</tr>
</tbody>
</table>

Feature 1: 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.