1.25 kW SuperLinear® Outdoor TWTA
for Satellite Communications

Ku-Band

Model TL12UO

1250 watt Peak Power TWTA — high efficiency in an environmentally sealed compact package designed for outdoor operation

Plays in the Rain
Provides 540 watts of linear power (with optional linearizer) at the flange in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service in the 13.75 - 14.50 GHz frequency band. Ideal for transportable and fixed earth station applications.

Cost Effective and Efficient
Mounting at the antenna improves performance through minimized cable losses and saves cost in system design. Employs a high efficiency, dual-depressed collector helix traveling wave tube, reducing operating costs.

Reliable
Designed and built to survive in extremely adverse environmental conditions and features increased cooling margin for longer life.

Simple to Operate
User-friendly microprocessor-controlled logic with integrated Ethernet interface. Digital metering, pin diode attenuation and optional integrated linearizer for improved intermodulation performance.

Easy to Maintain
Modular design and built-in fault diagnostic capability via remote monitor and control.

Global Applications
Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2004/108/EC and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements.

Worldwide Support
Backed by over three decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes sixteen regional factory service centers.

satcom division

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SPECIFICATIONS, Model TL12UO

Electrical

Frequency	13.75 to 14.50 GHz
Output Power	
TWT (peak)	1250 W
Flange (peak)	1000 W
Guaranteed CW power at flange (min.)	540 W
CW power at flange (max.)	600 W
Bandwidth	750 MHz
Gain	70 dB min. at 540 W output power 70 dB min. at 50 W output power
RF Level Adjust Range	0 to 30 dB typ.
Gain Stability	
At constant drive & temp.	±0.25 dB/24hr max. (after 30 min. warmup)
Over temp., constant drive (any frequency)	±1.0 dB over oper. temp. range (typical), ±0.75 dB over ±10°C (typical)
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	
Across any 80 MHz band	1.0 dB pk-pk max.
Across the 750 MHz band	3.0 dB pk-pk max. (4.0 dB w/ linearizer)
Input VSWR	1.3:1 max.
Output VSWR	1.3:1 max.
Load VSWR	
Continuous operation	2.0:1
Full spec compliance	1.5:1
Operation without damage	Any value
Phase Noise	
IESS Phase Noise Profile	12 dB below mask
AC fundamentals	-42 dBc
Sum of spurs (370 Hz to 1 MHz)	-47 dBc
AM/PM Conversion	2.0°/dB max. for a single-carrier at 8 dB below peak power (at 3 dB backoff with optional linearizer)
Harmonic Output	-60 dBc at 540 W output power, second and third harmonics
Noise and Spurious	<-130 dBW/4 kHz, below 12.7 GHz (below 11.7 GHz w/ 12.75 GHz config. <-65 dBW/4 kHz, passband to 18.0 GHz (-60 dBW/4 kHz w/ linearizer) <-105 dBW/4 kHz, 18.0 to 26.0 GHz <-125 dBW/4 kHz, 26.0 to 40.0 GHz

Electrical (continued)

Intermodulation	-25 dBc typical with two equal carriers at total output power of 200 watts (at 500 watts with optional linearizer)
Group Delay (in any 80 MHz band)	0.01 ns/MHz linear max. 0.001 ns/MHz sq. parabolic max. 0.5 ns pk-pk ripple max.
Primary Power	
Voltage	Single phase, 208-240 VAC ±10%
Frequency	47-63 Hz
Power Consumption	1.4 kVA typ. at 100 W RF output; 2.5 kVA max.
Power Factor	0.95 min.
Inrush Current	200% max.

Environmental (Operating)

Ambient Temperature	-40°C to +55°C operating (option to 60°C); -40°C to +75°C non-operating
Relative Humidity	100% condensing
Altitude	10,000 ft. with standard adiabatic derating of 2°C/1000 ft., operating; 50,000 ft., non-operating
Shock and Vibration	20 G peak, 11 msec, 1/2 sine; 2.1 G rms, 5 to 500 Hz.
Acoustic Noise	70 dBA typ. (as measured at 3 ft.)
Heat Dissipation	1800 W max.

Mechanical

Cooling (TWT)	Forced air with integral blower
Computer Interface	Ethernet Connector
RF Input Connection	Type N Female
RF Output Connection	WR-75 waveguide flange, grooved, threaded UNC 2B 6-32
RF Output Monitor	Type N female
Dimensions (W x H x D)	12.75 x 11.5 x 22.25 in. (324 x 293 x 562 mm)
Weight	79 lbs (35.9 kg) typ.

OPTIONS:

- *Integral Linearizer*
- *Remote Control Panel*
- *Serial Interface*
- *Redundant and Hybrid Power Combined Systems*
- *Integrated 1:1 Switch Control and Drive*
- *External Receive Band Reject Filter (Increases loss by a minimum of 50 dB up to 13.5 GHz)*
- *L-Band Block Up Converter (BUC) --- for specifications see MKT-90B or TD-104*
- *Inlet Air Filter*

ISO 9001 Certificate Number: 30515

For more detailed information, please refer to the corresponding CPI Technical Description.

Note: *Specifications may change without notice as a result of additional data or product refinement.*

Please contact CPI before using this information for system design.

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