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 or 12.75 to 14.50 GHz frequency bands. 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. CAN-Bus architecture improves noise immunity and reliability.

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 over twenty regional factory service centers.

Communications & Power Industries
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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 11.7 GHz)*
- *L-Band Block Up Converter (BUC) --- for specifications see MKT-90B or TD-104*
- *Inlet Air Filter*
- *SNMP Compatibility*

SPECIFICATIONS, Model TL12UO

Electrical

Output Frequency	13.75 to 14.50 GHz (12.75 to 14.50 GHz optional)
Output Power	
TWT (peak)	1250 W
Flange (peak)	1100 W
Guaranteed CW power at flange (min.)	540 W (57.32 dBm)
CW power at flange (max.)	600 W (57.80 dBm)
Bandwidth	750 MHz or 1750 MHz
Gain	70 dB min.
RF Level Adjust Range	0 to 30 dB typ.
Gain Stability	
At constant drive & temp.	±0.25 dB/24hr max. (after 30 min. warmup at 50.4 dBm Pout)
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. at 50.4 dBm Pout
Small Signal Gain Variation	(at 50.4 dBm Pout)
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)
Across 1750 MHz (option)	4.0 dB pk-pk max. (6.0 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	10 dB below mask
AC fundamentals	-42 dBc
Sum of spurs (370 Hz to 1 MHz)	-50 dBc
AM/PM Conversion	2.0°/dB max. for a single-carrier at 52.32 dBm Pout (at 57.32 dBm Pout with optional linearizer)
Harmonic Output	-60 dBc at 57.32 dBm output power, second and third harmonics
Noise and Spurious	<-150 dBW/4 kHz, 10.0 to 12.2 GHz (10.0 to 11.2 GHz with wideband option); <130 dBW/4 kHz, 12.2 to 12.7 GHz (11.2 to 12.7 GHz with wideband option); <-65 dBW/4 kHz, passband (-60 dBW/4 kHz w/ linearizer)
Noise Power Ratio	19 dB at 56.5 dBm with linearizer

Electrical (continued)

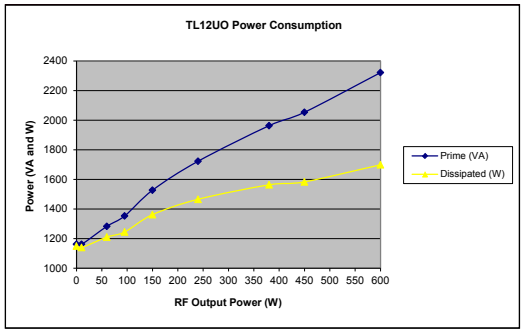
Intermodulation	-25 dBc max. with two equal carriers at total output power of 540 W with linearizer (57.3 dBm); 270 W without linearizer (54.3 dBm)
Group Delay (in any 80 MHz band)	0.01 ns/MHz linear max. 0.001 ns/MHz sq. parabolic max. 0.5 ns pk-pk ripple max.
Primary Power	
Voltage	Single phase, 208-240 VAC ±10%
Frequency	47-63 Hz
Power Consumption	2.2 kVA typ. at 540 W output; 1.35 kVA typ. at 100 W output power; 1.18 kVA typ. at small signal (see graph below)
Power Factor	0.95 min.
Inrush Current	200% max.

Environmental (Operating)

Ambient Temperature	-40°C to +55°C operating (less 5° for solar loading); -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	1600 W typ. at 500 W output pwr

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	80 lbs (36 kg) typ.



CE

Quality Management System - ISO 9001:2008

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.

MKT 257, ISSUE 23 JUN 14 PDF

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