

Built for Satellite Communications Uplink Applications

Provides up to 540 watts of linear power (with linearizer) in a rugged and compact weatherproof package, digital ready, for satellite uplinks in the Ku-band frequency range. Ideal for transportable or fixed earth station applications.

Cost Effective and Efficient

CPI SuperLinear® TWTA's are among the most power efficient in the industry. This amplifier is optimized for maximum efficiency at linear output operating levels.

Reliable

Designed and built to survive in extremely adverse environmental conditions and features increased cooling margin for longer life. CAN-Bus architecture improves reliability and noise immunity. Optional LifeExtender™ significantly increases TWT lifetime.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated Ethernet computer interface. Digital metering, pin diode attenuation and optional integrated linearizer for improved intermodulation performance. SNMP (v1, v2, or v3) facilitates high level M&C integration.

Easy to Maintain

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



CPI 1.25 kW Ku-band SuperLinear outdoor TWTA,
Model TL12UO-L1

OPTIONS:

- 1 RU remote control panel
- Serial interface
- Redundant and power combined systems
- Integrated 1:1 switch control and drive
- Integral linearizer
- Integral block upconverter (BUC) - contact CPI for specifications
- External receive band reject filter (increases loss by a minimum of 50 dB up to 11.7 GHz)
- TWT LifeExtender/LifePredictor extends TWT life by up to 50%
- Air cooling - see CPI doc. MKT-257

Quality Management
System - ISO 9001:2015



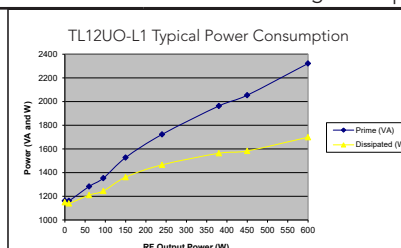
Meets Global Requirements

Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2014/30/EU and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements. CE Marked.

Worldwide Support

Backed by over 40 years of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes more than 20 regional factory service centers.

Specification	CPI Model TL12UO-L1 Liquid Cooled 1.25 kW TWTA		
Output Frequency	13.75 to 14.50 GHz	12.75 to 14.50 GHz	13.75 to 14.80 GHz
Output Power TWT Peak Power Flange Peak Power Guaranteed CW Power Maximum CW Power	1250 W (60.97 dBm) min. 1100 W (60.41 dBm) min. 540 W (57.32 dBm) min. at the flange 600 W (57.80 dBm) max. at the flange		
Note on Output Power	This amplifier guarantees 540 W of CW power at the flange. The peak power specifications are provided so that desired backoff may be more easily calculated.		
Gain	70 dB min.		
RF Level Adjust Range	0 to 30 dB (via PIN diode attenuator) typ, 0.1 dB steps		
Gain Stability Over temp, constant drive	±0.25 dB/24 hour max,max. at constant drive and temperature, after 30 minute warmup ±1.0 dB typ. over operating temperature range		
Small Signal Gain Slope	±0.02 dB/MHz max.		
Small Signal Gain Variation	1.0 dB pk-pk max. across any 80 MHz 3.0 dB pk-pk max. across 750 MHz (4.0 dB pk-pk with optional linearizer)	1.0 dB pk-pk max. across any 80 MHz 3.5 dB pk-pk max. across 1750 MHz (4.5 dB pk-pk with optional linearizer)	1.0 dB pk-pk max. across any 80 MHz 3.5 dB pk-pk max. across 1050 MHz (4.5 dB pk-pk with optional linearizer)
Input/Output VSWR	1.3:1 max.		
Load VSWR	2.0:1 continuous operation; 1.5:1 for full spec. compliance; any value operation without damage		
Phase Noise	10 dB below IESS-308/309 phase noise profile		
AM/PM Conversion	2.5°/dB max. for a single-carrier at 53.3 dBm output power (at 57.32 dBm with optional linearizer)		
Harmonic Output	-60 dBc at rated power, second and third harmonics		
Noise Density	<-70 dBW/4 kHz passband		
Intermodulation - with respect to each of 2 equal carriers 5 MHz apart	-25 dBc 270 watts output power; (-25 dBc at 540 watts output power with optional linearizer)		
Group Delay	0.01 ns/MHz linear max; 0.001 ns/MHz ² parabolic max; 0.5 ns pk-pk ripple max.		
Primary Power	Voltage: Single phase, 208 - 240 VAC ±10%; Frequency: 47-63 Hz		
Power Consumption	1.95 kVA typ. at 540 W output power; 1.1 kVA typ. at 100 W output power; 0.9 kVA typ. at 10 W output power		
Power Factor	0.95 min; 0.99 typ.		
Inrush Current	200% max.		
Ambient Temperature	-40°C to +55°C in direct sunlight; -40°C to +60°C out of direct sunlight; -54°C to +71°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 ms (1/2 sine pulse); 2.1 g rms, 5 to 500 MHz non-operating		
Cooling	Liquid cooled: 1 gallon per minute of water, 60°C max. at inlet		
Connections	RF Input: Type N Female; RF output: WR-75G waveguide flange; RF output monitor: Type N Female		
M&C Interface	RJ45 Ethernet, includes embedded GUI control; RS422/485, RS232 serial interface optional		
Dimensions, W x H x D	12.75 x 10.06 x 22.25 inches (324 x 255 x 562 mm)		
Weight	72 lbs (32.7 kg) typ.		
Heat Dissipation	1350 watts typ. at 500 W output power		
Acoustic noise	No cooling fan required		



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. 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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