

Built for Satellite Communications Uplink Applications

Provides up to 100 watts of linear power at the flange in a rugged and compact weatherproof package, digital ready, for satellite uplinks in the 13.75 to 14.00 GHz frequency range. Ideal for transportable or fixed earth station applications.

Cost Effective and Efficient

CPI SuperLinear® TWTAs 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.

Simple to Operate

User-friendly microprocessor-controlled logic with integral Ethernet computer interface. Digital metering, pin diode attenuation and optional integral 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 250 W Ku-band SuperLinear outdoor TWTA, Model TL02UO

OPTIONS:

- 1 RU remote control panel
- Redundant and hybrid power combined systems
- External receive band reject filter (increases loss by a minimum of 50 dB up to 11.7 GHz)
- Integral 1:1 switch control and drive

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 certified.

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	TL02UO, 40 W CW Version	TL02UO, 100 W CW Version
Output Frequency	14.00 to 14.50 GHz or 13.75 to 14.50 GHz	13.75 to 14.50 GHz
Input Frequency	950 to 1450 MHz or 950 to 1700 MHz	950 to 1700 MHz
Output Power (min.) TWT Flange Peak Power CW Power at Flange	250 W peak (53.98 dBm) 200 W min. (53.00 dBm) 40 W min. (46.02 dBm)	250 W peak (53.98 dBm) 200 W min. (53.00 dBm) 100 W min. (50.00 dBm)
Note on Output Power	These amplifiers provide 40 W or 100 W of output power at the flange, depending on configuration. The peak power specifications are provided so that desired backoff may be more easily calculated.	
Small Signal Gain	60 dB min, 70 dB max.	
RF Level Adjust Range	0 to 30 dB (via PIN diode attenuator) typ, 0.1 dB steps	0 to 30 dB (via PIN diode attenuator) min, 0.1 dB steps
Gain Stability Over temp, constant drive	±0.25 dB/24 hour max. at constant drive and temperature, after 30 minute warmup ±1.0 dB typ. over operating temperature range	
Small Signal Gain Slope	±0.04 dB/MHz max.	
Small Signal Gain Variation	1.0 dB pk-pk max. across any 80 MHz; 3.5 dB pk-pk max. across passband	1.0 dB pk-pk max. across any 80 MHz; 3.0 dB pk-pk max. across passband
Input VSWR	1.5:1 max.	
Output VSWR	2.2:1 max.	
Load VSWR	2.0:1 continuous operation; 1.2:1 for full spec. compliance; any value operation without damage	
Phase Noise	3 dB below IESS 308/309 profile; -36 dBc AC fundamental; -41 dBc (370 Hz to 1 MHz) sum of all spurs	
AM/PM Conversion	2°/dB max. for a single-carrier up to rated power	2°/dB max. for a single-carrier up to 4 dB below rated power
Harmonic Output	-60 dBc at rated power, second and third harmonics	
Noise Density	-70 dBW/4 kHz max. in passband; -150 dBW/4 kHz max. up to 12.75 GHz	-66 dBW/4 kHz max. in passband -150 dBW/4 kHz max. up to 12.75 GHz
Intermodulation	-25 dBc max. at output power level of 40 W with regard to the sum of both carriers	-25 dBc max. at output power level 100 W with regard to the sum of both carriers
Spectral Regrowth	-30 dBc at 1 symbol rate at 40 W output power	-30 dBc at 1 symbol rate at 100 W output power
Group Delay	0.02 ns/MHz linear max; 0.003 MHz ² parabolic max; 1.5 ns pk-pk max. in any 80 MHz	
Primary Power	Voltage: Single phase, 90 to 264 VAC; Frequency: 47-63 Hz	
Power Consumption	550 VA max.	
Power Factor	0.95 min; 0.99 typ.	
Inrush Current	200% max.	
Ambient Temperature	-40°C to +60°C operating out of direct sunlight (to 55°C operating in 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; 2.1 g _{rms} , 5 to 500 Hz (non-operational)	
Cooling	Forced Air with integral blower	
Connections	RF Input: Type N Female; RF output: WR75 grooved waveguide flange; RF output monitor: Type N Female	
M&C Interface	RJ45 Ethernet, includes embedded GUI control and SNMP	
Dimensions, W x H x D	8.5 x 8.5 x 15 inches (216 x 216 x 381 mm)	
Weight	25.41 lbs (11.5 kg) typ.	
Heat Dissipation	400 watts max.	
Acoustic noise	68 dBA (as measured at 3 ft.) nom.	



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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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