550 Watt Peak TWTA

Ka-Band

CPI Ka-Band Liquid Cooled TWTA for Satellite Uplink Communications

Provides 550 watts of peak power in a rugged and compact weatherproof package, digital ready, for wideband single and multi-carrier satellite service over up to 4.0 GHz within the Ka-band frequency band. Ideal for fixed earth station applications.

CPI 550 W liquid cooled Ka-band TWTA, provides up to 257 watts of linear power at the flange

Cost Effective and Efficient

Employs a high efficiency helix traveling wave tube, reducing operating costs. Both single and multi-band BUCs are available. The multi-band BUC allows users to switch between two pre-selected frequency ranges with up to 1 GHz of bandwidth each.

Rugged and Easy to Maintain

Built-in fault diagnostic capability via remote monitor and control. Easy access enclosure for improved serviceability. CAN-Bus architecture improves reliability and improves noise immunity.

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 and licensed for import in Brazil, Russia and China.

Worldwide Support

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

FEATURES:

- Ethernet interface with integral web server for easy monitoring and control
- SNMP interface (v1, v2, or v3)

OPTIONS:

- LifeExtender™/LifePredictor
- Remote control panel
- Internal switch control and drive
- Redundant or power combined subsystems
- Integral L-Band Block Upconverter (BUC) - contact CPI or consult document TD-173 for specifications when BUC is included
- 500 W CW option: see model T05KO
- Uplink Power Control (UPC)
- Integral Linearizer
- RS-422/485 serial interface
- Harmonic Filter - lowers harmonic output-to -60 dBc max (reduces CW and peak-power by 0.1 dB)

Quality Management System - ISO 9001:2015

CE

Specification	550 W Peak Power Ka-Band TWTA			
Output Frequency	Up to 4000 MHz instantaneous bandwidth within the 27.0 to 31.0 GHz frequency band (multi-band BUC option allows for two different, factory-set frequency ranges, each up to 1 GHz - contact CPI for more information)			
Peak TWT Flange Power (rated)[1]	550 W	550 W	550 W	550 W
Peak Amplifier Flange Power[1]	450 W	450 W	450 W	450 W
Rated CW Amplifier Flange Power	420 W	350 W	290 W	250 W
Intermodulation - with respect to the sum of two carriers	-26 dBc max. at total output power of 49.6 dBm (-28 dBc at 52.6 dBm with optional linearizer)			
Intermodulation - with respect to each of 2 equal carriers 20 MHz apart	-23 dBc max. at total output power of 49.6 dBm (-25 dBc at 52.6 dBm with optional linearizer)			
NPR (with linearizer option)	-19 dB at 52.6 dBm flange output power; -25 dB at 50.6 dBm flange output power			
Gain	70 dB min. at rated output, 70 dB typ. at small signal			
RF Level Adjust Range	0 to 30 dB (via PIN diode attenuator) typ., 0.1 dB steps			
Gain Stability	±0.25 dB/24-hour max. at constant drive and temperature, after 30-minute warmup ±0.75 dB max. from ±10˚C; ±1.0 dB typ. over operating temperature range			
Small Signal Gain Slope	±0.04 dB/MHz max.			
Small Signal Gain Variation	1.2 dB pk-pk max. across any 500 MHz segment; 2.5 dB pk-pk max. across 1 GHz segment			
Input/Output VSWR	1.3:1 max.			
Load VSWR	1.5:1 max. full spec. compliance; 2.0:1 max. continuous; any value for operation without damage;			
Phase Noise	-15 dB below IESS-308 continuous mask (-3 dB below with BUC); -47 dBc AC fundamental; -50 dBc sum of all spurs			
Spurious	-60 dBc max.			
AM/PM Conversion	2.5º/dB max. for a single-carrier up to 7 dB OBO (2.0º/dB max. up to 4 dB OBO with optional linearizer)			
Harmonic Output	-12 dBc max. at rated power (-60 dBc with optional filter)			
Noise Density	<-150 dBW/4 kHz below 21.2 GHz; <-70 dBW/4 kHz max. in passband; <-80 dBW/4 kHz typ. in passband;			
Group Delay (over 40 MHz)	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, 100-240 VAC ±10%; Frequency: 47-63 Hz			
Power Consumption	1200 VA max; 950 VA typ.			
Power Factor	0.95 min; 0.99 typ.			
Amplitude and Phase Linearity	Exceeds MIL-STD-188-164A			
Ambient Temperature	-40ºC to +50ºC operating in direct sunlight (to +60ºC out of direct sunlight); -54ºC to +71ºC non-operating			
Relative Humidity	100% condensing			
Altitude	10,000 ft. with standard adiabatic derating of 2ºC/1000 ft. operating; 50,000 ft. non-operating			
Shock and Vibration	20 G peak, 11 ms 1/2 sine; 2.1 grms, 5 to 500 Hz (non-operational)			
Cooling	Liquid cooled - minimum 1 gallon (3.79 liters) per minute of water (up to 50% glycol), +60ºC max. at inlet			
Connections	RF Input: WR-28F (WR-34F optional); RF output: WR-34G (WR-28G optional); RF output monitor: 2.9mm SMA Female			
M&C Interface	Ethernet (RS422/485 serial optional)			
Dimensions, W x H x D	10.25 x 9.33 x 22.25 inches (261 x 237 x 566 mm)			
Weight	62 lbs (28.2 kg) with no options			
Heat Dissipation	910 W max. - 150 W max. radiated into hub			
Acoustic noise	No cooling fans required			
Note 1	**Customer must select desired peak/output power and frequency range at time of purchase. These options are TWT dependent and are not field changeable. Peak power specs are provided so that desired backoff can more easily be calculated. The amplifier's actual output at the flange, CW power, is 250 W, 290 W, or 340 W, depending on selection. CW and peak power are both reduced by 0.1 dB with harmonic filter option.**			

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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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