

### CPI Ka-Band TWTA for Satellite Uplink Communications

Provides 500 watts of CW power at the TWT 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 both TT&C, transportable and fixed earth station applications.

#### Cost Effective and Efficient

Employs a high efficiency helix traveling wave tube, reducing operating costs. A block upconverter is available, saving the need for an external unit.

#### 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.

#### 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.



CPI Model T05KO-A1, 500 W Ka-band TWTA, provides up to 425 watts of CW power at the flange

#### 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-166 for specifications when BUC is included
- 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)
- Liquid cooling - contact CPI for specifications

Quality Management  
System - ISO 9001:2015



Specification	CPI Model T05KO-A1 500 W CW Ka-Band Outdoor TWTA
Output Frequency	Up to 4000 MHz of instantaneous bandwidth within the 27.0 to 31.0 GHz frequency band
TWT Output Power	500 W (57.0 dBm)
Flange Output Power (CW)	425 W (56.28 dBm) min. (subtract 0.1 dB of power for inclusion of optional harmonic filter)
Intermodulation - with respect to the sum of two carriers	-25 dBc max. at 5.58 dB OBO typ; -25 dBc max. at 2.58 dB OBO with optional linearizer
Intermodulation - with respect to each of two equal carriers	-25 dBc max. at total output power of 7 dB OBO min; -25 dBc max. at total output power of 4 dB OBO min. with optional linearizer
Noise Power Ratio (NPR)	19 dB at 4 dB OBO from rated power with optional linearizer
Spectral Regrowth	-30 dBc with optional linearizer at 4 dB OBO, in QPSK or OQPSK at 1 symbol offset, 5 Msps
Gain	70 dB min.
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; 2.0 dB pk-to-pk max. from -20°C to +50°C, at 49.2 dBm output
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. continuous operation, any value operation without damage; 2.0:1 max. continuous
Phase Noise	-15 dB below IESS-308 continuous mask (-3 dB below with BUC); -42 dBc AC fundamental; -50 dBc sum of all spurs
Amplitude and Phase Linearity	Exceeds MIL-STD-188-164A
Spurious	-60 dBc max.
AM/PM Conversion	2.5°/dB max. for a single-carrier up to 7 dB OBO from rated output power (2.0°/dB max. for a single-carrier up to 4 dB OBO from rated output power with optional linearizer)
Harmonic Output	-12 dBc max. at rated power (-60 dBc with optional filter)
Noise Density	<-70 dBW/4 kHz max. in passband
Group Delay (over 40 MHz)	0.01 ns/MHz linear max; 0.001 ns/MHz <sup>2</sup> parabolic max; 0.5 ns pk-pk ripple max.
Primary Power	Voltage: Single phase, 100-240 VAC ±10%; Frequency: 47-63 Hz
Power Consumption	1400 VA max; 1200 VA typ.
Power Factor	0.95 min; 0.99 typ.
Ambient Temperature	-40°C to +50°C operating in direct sunlight (to +55°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 at 11 ms (1/2 sine pulse in non-operating condition); 2.1 g rms, 5 to 500 MHz
Cooling	Forced Air with integral blower
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 10.5 x 22.25 inches (261 x 267 x 566 mm)
Weight	65 lbs (29.5 kg) with no options
Heat Dissipation	975 W max.



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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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