

CPI Ka-Band TWTA for Satellite Uplink Communications

Provides 100 or 145 watts of CW power in a rugged and compact weatherproof package, digital ready, for wideband single- and multi-carrier satellite service over up to 3.5 GHz within the Ka-band frequency band. Ideal for both transportable and fixed earth station applications.

Cost Effective, Efficient, Rugged

Employs a high efficiency helix traveling wave tube, reducing operating costs. Rugged construction allows for operation in extreme environments.

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 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 T02KO, 250 W Peak Power Ka-band TWTA, provides up to 145 watts of CW power at the flange

OPTIONS:

- Remote control panel
- Integral switch control and drive
- Redundant or power combined subsystems
- Integral L-Band Block Upconverter (BUC) - contact CPI or consult document MKT-218 for specifications when BUC is included
- Integral Linearizer
- Ethernet interface
- Harmonic Filter

Quality Management
System - ISO 9001:2015



Specification	T02KO 175 W avg power	T02KO - 125 W avg power
Output Frequency	Up to 3500 MHz instantaneous bandwidth within the 27.5 to 31.0 GHz frequency band ¹	
Output Power (min.) Average Power (TWT) CW Power (Flange)	250 W (53.98 dBm) peak 175 W (52.4 dBm) min. 145 W (51.6 dBm) min. ²	250 W (53.98 dBm) peak 120 W (50.8 dBm) min. 100 W (50.0 dBm) min. ²
Intermodulation - with respect to each of two carriers	-23 dBc or better with 2 equal carriers at total power level 50 W CW (-24 dBc at 100 W output power with linearizer) ²	
Noise Power Ratio	12 dB at 7 dB backoff from rated power; ² 18 dB at 4 dB backoff from rated power with linearizer ²	
Spectral Regrowth	30 dB at 7 dB backoff from rated power; 30 dB at 4 dB backoff from rated power with linearizer ²	
Gain	70 dB min. at rated output, 75 dB min. at small signal (70 dB min. with linearizer)	
RF Level Adjust Range	0 to 25 dB (via PIN diode attenuator) min, 0.1 dB steps	
Gain Stability	±0.25 dB/24 hour max,max. at constant drive and temperature, after 30 minute warmup ±1.0 dB max. over operating temperature range	
Small Signal Gain Slope	±0.025 dB/MHz max.	
Small Signal Gain Variation	0.5 dB pk-pk max. across any 40 MHz segment; 2.5 dB pk-pk max. across 1 GHz segment	
Input/Output VSWR	1.3:1 max. / 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	12 dB below IESS-308 continuous mask; -50 dBc AC fundamental; -47 dBc sum of all spurs	
Spurious	-60 dBc max.	
AM/PM Conversion	2.5°/dB max. for a single-carrier up to 6 dB OBO (1.0°/dB max. up to 3 dB OBO with optional linearizer)	
Harmonics	-12 dBc at rated power (-60 dBc at rated power with harmonic filter option) ²	
Noise Density	<-150 dBW/4 kHz below 21.2 GHz; <-70 dBW/4 kHz max. in passband; <-65 dBW/4 kHz max. in passband with linearizer option	
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	750 VA typ, 800 VAC max.	650 VA typ, 700 VAC max.
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 _{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: 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 9.5 x 20.0 inches (261 x 242 x 508 mm)	
Weight	52 lbs (23.6 kg) with no options	
Heat Dissipation	600 W typ.	500 W typ.
Acoustic noise	65 dBA (as measured at 3 ft.) nom.	
Note 1	Customer must select desired frequency range at time of purchase. This decision is TWT dependent and is not field changeable.	
Note 2	Addition of harmonic filter option reduces HPA flange power, as well as linear power, by 0.3 dB.	



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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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