

500 W CW Ka-Band TWTA

Built for Outdoor Applications

Mounting at the antenna improves performance through minimized cable losses and saves cost in system design. Employs a high efficiency helix traveling wave tube, reducing operating costs.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated Ethernet interface. Digital metering and TWT input drive monitoring are standard.

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 2004/108/EC and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements.

Worldwide Support

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



Model T05K0

500 watt CW Ka-band outdoor TWTA for **satellite uplink applications**

OPTIONS

- Remote control panel
- Internal switch control and drive
- Redundant or power combined subsystems
- Integral single- or multi-band L-Band Block Upconverter (BUC) - contact CPI or consult document TD-173 for specifications when BUC is included
- Integral linearizer
- RS-422/485 serial interface
- Harmonic Filter - lowers harmonic output to -60 dBc max (reduces CW power by 10 W)



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500 W CW Ka-Band TWTA

Specification	Model T05KO
Output Frequency	2500 MHz or more 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)
TWT Output Power	500 W (57.0 dBm)
Flange Output Power (CW)	425 W (56.28 dBm) min; 415 W min. (56.18 dBm) with optional harmonic filter
Intermodulation - with respect to the sum of two carriers	-25 dBc max. at total output power of 117 W (50.7 dBm) typ; -25 dBc max. at total output power of 234 W (53.7 dBm) typ. with optional linearizer
Intermodulation - with respect to each of 2 equal carriers 5 MHz apart	-25 dBc max. at total output power of 83 W (49.2 dBm) min; -25 dBc max. at total output power of 166 W (52.2 dBm) min. with optional linearizer
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,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 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; -47 dBc AC fundamental; -50 dBc sum of all spurs
Spurious	-60 dBc max.
AM/PM Conversion	2.5°/dB max. for a single-carrier up to 7 dB OBO (2.0°/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; <-65 dBW/4 kHz max. in passband with linearizer option
NPR (with linearizer option)	-19 dB at 4 dB OBO typical; -20 dB at 4.3 dB OBO typical
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	1400 VA max; 1200 VA typ.
Power Factor	0.95 min; 0.99 typ.
Amplitude and Phase Linearity	Exceeds MIL-STD-188-164A
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	60 lbs (27.2 kg) with no options
Heat Dissipation	950 W max.
Acoustic noise	65 dBA (as measured at 3 ft.) nom.