

Built for Satellite Communications Uplink Applications

Provides 400 watts of power in a rugged and compact weatherproof package, digital ready, for satellite uplinks in the Ku-band frequency range. Ideal for transportable or fixed earth station applications.

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. Optional LifeExtender significantly increases TWT lifetime.

Simple to Operate

User friendly microprocessor-controlled logic with integrated Ethernet computer interface. Digital metering, pin diode attenuation and integrated linearizer for improved intermodulation performance. Standard SNMP facilitates high-level M&C integration.

Easy to Maintain

Modular design and built-in fault diagnostic capability via remote monitor and control.

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.



CPI's 400 W Ku-band outdoor TWTA, Model T04UO-A1

OPTIONS:

- 1 RU and 3 RU remote control panels
- Serial interface
- Redundant and hybrid power combined systems
- Integrated 1:1 switch control and drive
- Integral linearizer
- Integral block upconverter (BUC)
- External receive band reject filter (increases loss by a minimum 50 dB up to 12.7 GHz)
- Inlet air filter
- LifeExtender/LifePredictor to extend TWT life

Quality Management
System - ISO 9001:2015



Worldwide Support

Backed by over 40 years of satellite communications experience, and CPI's global 24-hour customer support network, including regional factory service centers located worldwide.

Specification	CPI Model T04UO-A1 400 W Ku-Band TWTA
Output Frequency	13.75 to 14.50 GHz
Output Power TWT Power Saturated (Psat, CW)	400 W (56.02 dBm) min. 350 W (55.44 dBm) min.
Gain	70 dB min. rated, 75 dB min. at small signal
RF Level Adjust Range	0 to 30 dB (via PIN diode attenuator) typ, 0.1 dB steps
Gain Stability Over temperature Over $\pm 10^{\circ}\text{C}$	± 0.25 dB/24 hour max,max. at constant drive and temperature, after 30 minute warmup ± 1.0 dB max. at any frequency from -40°C to $+60^{\circ}\text{C}$, constant drive ± 0.75 dB typ. constant drive
Small Signal Gain Slope	± 0.02 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk max. across any 80 MHz 4.5 dB pk-pk max. across 750 MHz (4.5 dB with optional linearizer)
Input/Output VSWR	1.3:1 max.
Load VSWR	2.0:1 continuous operation; 1.5:1 for full spec. compliance; any value operation without damage
Phase Noise	10 dB below IESS-308/309 phase noise profile; -42 dBc AC fundamentals; -47 dB sum of spurs (130 Hz to 1 MHz)
AM/PM Conversion	2.5°/dB max. for a single-carrier at 7 dB below rated power (at 3 dB below with optional linearizer)
Harmonic Output	-60 dBc at rated power, second and third harmonics
Noise Density (passband)	<-70 dBW/4 kHz max. with no options, or IPA only <-65 dBW/4 kHz max. with BUC, linearizer or BUC + linearizer
Intermodulation - with respect to each of 2 equal carriers 5 MHz apart	-24 dB max. at 7 dB OBO (at 4 dB OBO with optional linearizer)
Noise Power Ratio (NPR)	19 dB at 4 dB OBO with optional linearizer (18 dB at 7 dB OBO without optional linearizer)
Spectral Regrowth	-30 dB at 6 dB OBO (at 4 dB OBO with linearizer)
Group Delay (over any 80 MHz)	0.01 ns/MHz linear max; 0.002 ns/MHz ² parabolic max; 0.5 ns pk-pk ripple max.
Primary Power	Voltage: Single phase, 110 - 240 VAC $\pm 10\%$; Frequency: 47-63 Hz
Power Consumption	1.35 kVA typ, 1.5 kVA max.
Power Factor	0.95 min.
Inrush Current	200% max.
Ambient Temperature	-40°C to $+60^{\circ}\text{C}$ operating, including solar loading; -54°C to $+71^{\circ}\text{C}$ non-operating
Relative Humidity	100% condensing
Altitude	10,000 ft. with standard adiabatic derating of $2^{\circ}\text{C}/1000$ ft. operating; 50,000 ft. non-operating
Shock and Vibration	20 g peak, 11 ms (1/2 sine pulse)
Cooling	Forced air with integral blower
Connections	RF Input: Type N Female; RF output: WR75G grooved waveguide flange with 6-32 threaded holes; RF output monitor: Type N Female
M&C Interface	RJ45 Ethernet, includes embedded GUI control and SNMP; RS422/485, RS232 serial interface optional
Dimensions, W x H x D	10.25 x 10.5 x 20.5 inches (260 x 267 x 521 mm)
Weight	55 lbs (25 kg) typ.
Acoustic noise	68 dBA nom, as measured at 3 feet