CPI 2.25 kW C-Band Rack-Mount TWTA

C-Band

Built for Satellite Communications Uplink Applications

Provides 2250 watts of CW power in a compact nine rack-unit package, digital ready, for wideband, single and multi-carrier satellite service in C-band. Ideal for transportable and fixed earth station applications where space and prime power are at a premium.

CPI 2250 W C-band rack-mount TWTA, Model T22CI

Cost Effective and Efficient
Employs a high efficiency dual-depressed collector helix traveling wave tube backed by many years of field-proven experience in airborne and military applications. The collector design is optimized for cool operation and full CW power.

Reliable
Designed and built to survive in extremely adverse environmental conditions. CAN-Bus architecture improves reliability and noise immunity. Optional LifeExtender™ significantly increases TWT lifetime.

Simple to Operate
User-friendly microprocessor-controlled logic with integrated computer interface, digital metering, pin diode attenuation, optional integrated linear-izer for improved intermodulation performance, and BUC option for use with C-band modems.

Easy to Maintain
Modular design and built-in fault diagnostic capabilitywith convenient and clearly visible indicators for easy maintainability in the field.

OPTIONS:

- Remote control panel
- Redundant and hybrid power combined systems
- Integrated 1:1 switch control and drive
- Integral linearizer
- Integral block upconverter (BUC) - see CPI document TD-189 for specifications.
- TWT LifeExtender/LifePredictor significantly extends TWT life
- Ethernet interface
- Receive band reject filter

Quality Management System - ISO 9001:2015

CE

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 40 years of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes more than 20 regional factory service centers.

Specification	CPI Model T22CI, 2.25 kW C-Band Rack-Mount TWTA
Output Frequency	5.85 to 6.65 GHz or 5.850 to 6.725 GHz
Output Power (min.) TWT CW Power Flange CW Power	 2250 W (63.54 dBm) min. 2000 W (63.00 dBm) min.
Instantaneous Bandwidth	800 MHz (1225 MHz optional)
Gain	75 dB min. at rated power, 78 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 temp, constant drive	±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	±0.02 dB/MHz max.
Small Signal Gain Variation	0.5 dB pk-pk max. over any 40 MHz (1.0 dB pk-pk max. with linearizer); 3.0 dB pk-pk max. across 800 MHz (4.0 dB pk-pk max. with linearizer)
Input/Output VSWR	1.25:1 max.
Load VSWR	1.7:1 for full spec. compliance; any value operation without damage
Phase Noise	10 dB below IESS-308/309 phase noise profile; -50 dBc AC fundamentals related; -47 dBc sum of spurs; Prime power AC line unbalance not to exceed 3%. Excess imbalance may cause an increase in residual RF noise (AM, FM and PM). Phase noise increase is typically 2.5 dB/% imbalance.
AM/PM Conversion	6°/dB max. With optional linearizer, can be tuned to 2°/dB max.
Harmonic Outputs	-60 dBc max.
Noise Density	<-150 dBW/4 kHz from 3.7 to 4.2 GHz; <-65 dBW/4 kHz from 4.2 to 12 GHz (<-60 dBW/4 kHz passband with linearizer option); -110 dBW/4 kHz from 12.0 to 40.0 GHz
Intermodulation - with respect to each of two equal carriers 5 MHz apart	-23.0 dBc max, 5.850 – 6.425 GHz at 315 W output power without linearizer (-25 dBc max. at 890 W output power with linearizer); -22 dBc max., 6.425 – 6.650 GHz (or to 6.725 GHz) at 315 W output power without linearizer (-24 dBc max. at 890 W output power with linearizer)
Group Delay	0.01 ns/MHz linear max; 0.001 ns/MHz^2 parabolic max; 0.5 ns pk-pk ripple max.
Primary Power	All ratings are ±10%, 47-63 Hz, 5-wire, 3-phase with neutral and ground: 200 to 240 VAC (with or w/o neutral), or 380 to 415 VAC. AC current harmonic content: less than 20%, primarily fifth and seventh harmonics. Harmonics must be considered when choosing UPS sources.
Power Consumption	7.0 kVA max; 6.7 kVA typ. at 2000 W output power; 3.9 kVA typ. at 400 W output power; 2.9 kVA typ. at 0 W at DC
Power Factor	0.90 min; 0.95 typ.
Ambient Temperature	-10°C to +50°C operating; -54°C to +71°C non-operating
Relative Humidity	95% non-condensing
Altitude	10,000 ft. with standard adiabatic derating of 2°C/1000 ft. operating; 50,000 ft. non-operating
Shock and Vibration	Designed for normal transportation environment per Section 514.4 MIL-STD-810E. Designed to withstand 20g at 11 ms (1/2 sine pulse) in non-operating condition
Cooling	Forced air with integral blower. Maximum external pressure loss allowable: 0.25 inch water gauge.
Connections	RF Input: Type N Female; RF output: CPR-137G waveguide flange, grooved, threaded, UNF 2B 10-32; RF output monitor: Type N Female
M&C Interface	RS-232 and RS-422/485 (4-wire) (Ethernet optional)
Weight and Dimensions	155 lbs (70.5 kg) max. / 19 W x 15.75 H x 24 D inches (483 W x 400 H x 610 D mm)

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