

### Built for Satellite Communications Uplink Applications

Provides 2000 watts CW power (1000 watts linear) in a compact, nine rack-unit package, digital ready, for wideband, single- and multi-carrier satellite service in X-band. Designed to operate at up to 2000 watts CW power for multi-carrier uplinks.

#### Cost Effective and Efficient

CPI TWTAs are one of the industry's most power-efficient amplifiers. Optimized for maximum performance at linear output operating levels.

#### Simple to Operate

User-friendly microprocessor-controlled logic with integrated computer interface, digital metering, pin diode attenuation, integrated linearizer for improved intermodulation performance, and an optional BUC for use with L-band modems.

#### Easy to Maintain

Modular design and built-in fault diagnostic capabilities, with convenient and clearly visible indicators for easy maintainability in the field.

#### Meets Global Requirements

Meets International Safety Standard EN-60215 and Electromagnetic Compatibility 2014/30/EU to satisfy worldwide requirements. CE marked.



CPI 2250 W X-band TWT, Model T22XI-B

#### FEATURES

- Integral linearizer
- Ethernet, Serial, SNMP, and USB
- Touchscreen user interface

#### OPTIONS

- Remote control panel
- SIM switch control
- Redundant and hybrid power combined systems
- Integral block upconverter (BUC): Contact CPI for specifications.
- External receive band reject filter
- LifeExtender/LifePredictor technology to significantly extend TWT life

Quality Management  
System - ISO 9001:2015



#### Worldwide Support

CPI satcom amplifiers are backed by over 40 years of satellite communications experience, and CPI's global customer support network, including regional service centers located worldwide.

| Specification                                                                    | CPI Model T22XI-B, 2.25 kW X-Band TWTA                                                                                                                        |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Frequency                                                                 | 7.9 to 8.4 GHz                                                                                                                                                |
| Output Power (min.)<br>TWT CW Power<br>Flange CW Power<br>Linear Power at Flange | 2250 W (63.54 dBm) min.<br>2000 W (63.00 dBm) min.<br>1000 W (60.00 dBm) min.                                                                                 |
| Note on Output Power                                                             | This amplifier guarantees 1000 W of linear power at the flange.                                                                                               |
| 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,max. at constant drive and temperature, after 30 minute warmup                                                                           |
| Small Signal Gain Slope                                                          | ±0.02 dB/MHz max.                                                                                                                                             |
| Small Signal Gain Variation                                                      | 1.0 dB pk-pk max. across any 40 MHz;<br>4.0 dB pk-pk max. across the 500 MHz band                                                                             |
| Input/Output VSWR                                                                | 1.3:1 max.                                                                                                                                                    |
| Load VSWR                                                                        | 1.5:1 for full spec. compliance; 2.0:1 max. continuous; 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;                                                          |
| AM/PM Conversion                                                                 | 2.5°/dB max up to 1000 W                                                                                                                                      |
| Harmonic Outputs                                                                 | -60 dBc max.                                                                                                                                                  |
| Noise Density                                                                    | <-70 dBW/4 kHz in passband                                                                                                                                    |
| Intermodulation - with respect to the sum of two equal carriers 5 MHz apart      | -25 dBc max. at rated power (1000 W)                                                                                                                          |
| Group Delay                                                                      | 0.02 ns/MHz linear max; 0.002 ns/MHz <sup>2</sup> parabolic max; 0.5 ns pk-pk ripple max.                                                                     |
| Primary Power                                                                    | Voltage: Three phase with neutral and ground, 208 VAC ±10% with or without neutral OR 380 to 415 VAC;<br>Frequency: 47-63 Hz ±10% five wire;                  |
| Power Consumption                                                                | 8.6 kVA max. at 2000 W output power;<br>6.75 kVA typ. at 1000 W output power                                                                                  |
| Power Factor                                                                     | 0.90 min; 0.95 typ.                                                                                                                                           |
| Ambient Temperature                                                              | 0°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-112 waveguide flange, grooved, threaded, UNC 2B 8-32;<br>RF output monitor: Type N Female                             |
| M&C Interface                                                                    | RJ45 Ethernet, includes embedded GUI control; RS422/485 serial interface                                                                                      |
| Weight and Dimensions                                                            | 165 lbs (74.8 kg) max. / 19 W x 15.75 H x 24 D inches (483 W x 400 H x 610 D mm)                                                                              |