

### CPI V-Band TWTA for Satellite Uplink Communications

Provides 80 watts of minimum power in a rugged and compact weatherproof package, digital ready, for wideband single- and multi-carrier satellite service over a 4.2 GHz bandwidth (5.2 GHz bandwidth optional) within the V-band frequency band. Ideal for fixed earth station applications.

#### Cost Effective and Efficient

Mounting at the antenna improves performance by reducing IFL losses and saves cost in system design. Provides 80 W of linear power at the amplifier flange.

#### 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. User-friendly microprocessor-controlled logic with integrated Ethernet computer interface.

#### 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 certified. SNMP enabled.

#### Worldwide Support

Backed by over four decades of satellite communications experience, and CPI's global customer support network, including regional service centers located worldwide.



CPI 250 W V-band liquid cooled TWTA, provides up to 80 watts of linear power at the flange

#### FEATURES:

- Ethernet interface with integral web server for easy monitoring and control
- SNMP interface (v1, v2, or v3)
- EMC Directive 2014/30/EU
- Harmonic Standard EN-61000-3-2

#### OPTIONS:

- 5.2 GHz operation - from 47.2 to 52.4 GHz (contact CPI for specifications)
- Remote control panel
- Integral linearizer
- Integral 1:1 switch control and drive
- Air cooling (please refer to CPI doc. MKT-422 for dimensions and specifications)
- Redundant systems
- Harmonic filter
  - standard on 52.4 GHz version
  - optional for 51.4 GHz version
- Serial interface (RS232/422)
- Uplink Power Control

Quality Management  
System - ISO 9001:2015



| Specification                                                           |                   | CPI TL02VO-L1 - 250 W Peak Power V-Band TWTA                                                                |                                                                        |
|-------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| ELECTRICAL SPECIFICATIONS                                               |                   |                                                                                                             |                                                                        |
| Output Frequency                                                        |                   | 47.2 to 51.4 GHz                                                                                            | 47.2 to 52.4 GHz                                                       |
| Peak TWT Flange Power                                                   |                   | 250 W (53.97 dBm)                                                                                           |                                                                        |
| Peak Amplifier Flange Power                                             |                   | 200 W (53.00 dBm)                                                                                           |                                                                        |
| Rated Linear Amplifier Flange Power                                     |                   | 80 W (49.03 dBm)                                                                                            |                                                                        |
| Intermodulation - with respect to the sum of two carriers               |                   | -28 dBc max. at total output power of 80 W with linearizer                                                  |                                                                        |
| Intermodulation - with respect to each of 2 equal carriers 20 MHz apart |                   | -25 dBc max. at total output power of 80 W with linearizer                                                  |                                                                        |
| NPR (with linearizer option)                                            |                   | 19 dB at 80 W output power<br>(75 W with optional harmonic filter)                                          | 19 dB at 75 W output power                                             |
| Spectral Regrowth                                                       |                   | -30 dBc max. at rated CW power with linearizer                                                              |                                                                        |
| Gain                                                                    |                   | 60 dB min; 64 dB typ. at 3 dB backoff from rated CW power                                                   |                                                                        |
| 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. at constant drive and temperature, after 30-minute warmup                             |                                                                        |
| Small Signal Gain Variation                                             |                   | 4 dB pk-pk max. across the 4.2 GHz band                                                                     | 5 dB pk-pk max. across the 5.2 GHz band                                |
|                                                                         |                   | 2.5 dB max. over any 1 GHz band;<br>1 dB pk-pk max. over any 250 MHz                                        | 3.0 dB max. over any 1 GHz band;<br>1.5 dB pk-pk max. over any 250 MHz |
| Input/Output VSWR                                                       |                   | 1.3:1 max.                                                                                                  |                                                                        |
| Load VSWR                                                               |                   | 2.0:1 max. operational; any value for operation without damage                                              |                                                                        |
| Phase Noise                                                             |                   | -15 dB below IESS-308 continuous mask; -50 dBc AC fundamental; -45 dBc sum of all spurs                     |                                                                        |
| AM/PM Conversion                                                        |                   | 2.5°/dB max. for a single-carrier up to 4 dB OBO from rated CW power (at rated CW power with linearizer)    |                                                                        |
| Harmonic Output                                                         |                   | -60 dBc with harmonic filter option                                                                         | -60 dBc                                                                |
| Noise Density                                                           |                   | <-150 dBW/4 kHz below 31.4 GHz; <-150 dBW/4 kHz from 37.5 to 42.5 GHz; <-70 dBW/4 kHz max. in passband      |                                                                        |
| Primary Power                                                           |                   | Voltage: Single phase, 100-240 VAC ±10%; Frequency: 47-63 Hz                                                |                                                                        |
| Power Consumption                                                       |                   | 900 VA max                                                                                                  |                                                                        |
| Power Factor                                                            |                   | 0.95 min; 0.99 typ.                                                                                         |                                                                        |
| MECHANICAL SPECIFICATIONS                                               |                   |                                                                                                             |                                                                        |
| Cooling                                                                 |                   | Liquid cooled: minimum 1 gallon (3.79 liters) per minute of water (up to 50% glycol), +60°C max. at inlet   |                                                                        |
| Connections                                                             | RF input*         | WR22 cover flange waveguide with alignment pins<br>(WR19 optional)                                          | WR19 cover flange waveguide with alignment pins                        |
|                                                                         | RF output*        | WR22 grooved flange waveguide with alignment pins<br>(WR19 optional)                                        | WR19 grooved flange waveguide with alignment pins                      |
|                                                                         | RF output monitor | 1.85 mm coaxial, female                                                                                     |                                                                        |
| M&C Interface                                                           |                   | Ethernet (serial interface optional - RS232/422)                                                            |                                                                        |
| Dimensions, W x H x D                                                   |                   | 10.25 x 10.02 x 22.25 inches (261 x 255 x 566 mm)                                                           |                                                                        |
| Weight                                                                  |                   | 67 lbs (30.4 kg) nominal                                                                                    |                                                                        |
| ENVIRONMENTAL SPECIFICATIONS                                            |                   |                                                                                                             |                                                                        |
| Ambient Temperature                                                     |                   | -40°C to +55°C operating in direct sunlight (to +60°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 <sub>peak</sub> , 11 ms 1/2 sine; 2.1 g <sub>rms</sub> , 5 to 500 Hz (non-operational)                 |                                                                        |
| Heat Dissipation                                                        |                   | 750 W max. - 125 W max. radiated into hub                                                                   |                                                                        |
| Acoustic noise                                                          |                   | Minimal acoustic noise, as this amplifier has no fans                                                       |                                                                        |

\* Outline drawing available upon request