

CPI Ka-Band TWTA for Satellite Uplink Communications

Provides 550 watts of peak power in a rugged and compact weatherproof package, digital ready, for wideband single- and multi-carrier satellite service over up to 4.0 GHz within the Ka-band frequency band. Ideal for both transportable and fixed earth station applications.

Cost Effective and Efficient

Employs a high efficiency helix traveling wave tube, reducing operating costs. Both single and multi-band BUCs are available. The multi-band BUC allows users to switch between two pre-selected frequency ranges with up to 1 GHz of bandwidth each.

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 2014/30/EU and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements. CE Marked and licensed for import in Brazil, Russia and China.

Worldwide Support

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



CPI Model TL05KO-A1, 550 W Ka-band TWTA, provides up to 257 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)

OPTIONS:

- LifeExtender/LifePredictor technology to extend TWT lifespan
- Remote control panel
- Internal switch control and drive
- Redundant or power combined subsystems
- Integral L-Band block upconverter (BUC) - Contact CPI for specifications
- 500 W CW option: see model T05KO, MKT-251
- Uplink Power Control (UPC)
- RS-422/485 serial interface
- Harmonic Filter - lowers harmonic output to -60 dBc max (reduces CW and peakpower by 0.1 dB)
- Liquid cooling - see MKT-427 or contact CPI for specifications

Quality Management
System - ISO 9001:2015



| Specification | TL05KO-A1 - 550 W peak power TWTA |
|---|---|
| Output Frequency | Up to 4000 MHz instantaneous bandwidth within the 27.0 to 31.0 GHz frequency band |
| TWT Peak/CW Power ¹ | 550 W/500 W (57.40/57.00 dBm) 550 W/400 W (57.40/56.02 dBm) 550 W/300 W (57.40/54.77 dBm) |
| Flange Peak/CW Power ¹ | 450 W/425 W (56.53/56.28 dBm) 450 W/340 W (56.53/55.31 dBm) 450 W/250 W (56.53/53.98 dBm) |
| Intermodulation - with respect to the sum of two carriers | -28 dBc max. at total output power of 52.6 dBm |
| Intermodulation - with respect to each of 2 equal carriers 20 MHz apart | -25 dBc max. at total output power of 52.6 dBm |
| NPR | -19 dB at 52.6 dBm flange output power; -25 dB at 52.6 dBm flange output power |
| 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 ±0.75 dB max. from ±10°C; ±1.0 dB typ. over operating temperature range |
| Small Signal Gain Slope | ±0.04 dB/MHz max. |
| Small Signal Gain Variation | 1.5 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. full spec. compliance; 2.0:1 max. continuous; any value for operation without damage; |
| Phase Noise | -15 dB below IESS-308 continuous mask (-3 dB below with BUC); -47 dBc AC fundamental; -50 dBc sum of all spurs |
| Spurious | -60 dBc max. |
| AM/PM Conversion | 2.0°/dB max. for a single-carrier up to 4 dB OBO |
| 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; |
| 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 | 1300 VA max; 1050 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 +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 _{peak} , 11 ms 1/2 sine; 2.1 g _{rms} , 5 to 500 Hz (non-operational) |
| 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. |
| Note 1 | Customer must select desired peak/output power and frequency range at time of purchase. These options are TWT dependent and are not field changeable. Peak power specs are provided so that desired backoff can more easily be calculated. The amplifier's actual output at the flange, CW power, is 250 W, 340 W or 425 W, depending on selection. CW and peak power are both reduced by 0.1 dB with harmonic filter option. |



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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