

500/550 W Peak Power Outdoor TWTAs

Built for Outdoor Applications

Provides 500 or 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 3.5 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 2004/108/EC 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 three decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes more than 20 regional factory service centers.



Model TL05KO

500 or 550 watt Ka-band outdoor TWTAs for **satellite uplink applications**

OPTIONS

- Remote control panel
- Internal switch control and drive
- Redundant or power combined subsystems
- Integral single- or multi-band L-Band Block Upconverter (BUC) - contact CPI or consult document TD-173 for specifications when BUC is included
- MIL-STD-461 EMI External Filter
- 500 W CW option: see model T05KO
- Integral Linearizer
- RS-422/485 serial interface
- Harmonic Filter - lowers harmonic output to -60 dBc max (reduces CW and peak power by 10 W)
- Liquid cooling (contact CPI for details)



811 Hansen Way, PO Box 51625
Palo Alto, CA 94303 USA
tel: +1 (650) 846-3803
fax: +1 (650) 424-1744
e-mail: satcommarketing@cpii.com
website: www.cpii.com/satcom

500 and 550 W Peak Power Ka-Band Outdoor TWTAs

Specification	Model TL05K0	
Output Frequency	Up to 3500 MHz instantaneous bandwidth within the 27.0 to 31.0 GHz frequency band (multi-band BUC option allows for two different, factory-set frequency ranges, each up to 1 GHz - contact CPI for more information)	
TWT Peak/CW Power ¹	500 W/400 W (56.99/56.02 dBm) 500 W/350 W (56.99/55.44 dBm) 500 W/300 W (56.99/54.77 dBm) 500 W/250 W (56.99/54.00 dBm)	550 W/400 W (57.40/56.02 dBm) 550 W/350 W (57.40/55.44 dBm) 550 W/300 W (57.40/54.77 dBm)
Flange Peak/CW Power ¹	415 W/340 W (56.18/55.31 dBm) 415 W/290 W (56.18/54.62 dBm) 415 W/250 W (56.18/53.98 dBm) 415 W/209 W (56.18/53.20 dBm)	450 W/340 W (56.53/55.31 dBm) 450 W/290 W (56.53/54.62 dBm) 450 W/250 W (56.53/53.98 dBm)
Intermodulation - with respect to the sum of two carriers	-26 dBc max. at total output power of 49.2 dBm (-28 dBc at 52.2 dBm with optional linearizer)	-26 dBc max. at total output power of 49.6 dBm (-28 dBc at 52.6 dBm with optional linearizer)
Intermodulation - with respect to each of 2 equal carriers 20 MHz apart	-23 dBc max. at total output power of 49.2 dBm (-25 dBc at 52.2 dBm with optional linearizer)	-23 dBc max. at total output power of 49.6 dBm (-25 dBc at 52.6 dBm with optional linearizer)
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	1.0 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; -47 dBc AC fundamental; -50 dBc sum of all spurs	
Spurious	-60 dBc max.	
AM/PM Conversion	2.5°/dB max. for a single-carrier up to 7 dB OBO (2.0°/dB max. up to 4 dB OBO with optional linearizer)	
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; <-65 dBW/4 kHz max. in passband with linearizer option	
NPR (with linearizer option)	-19 dB at 4 dB OBO typical; -20 dB at 4.3 dB OBO typical	
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 +55°C out of direct sunlight); -54°C to +75°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 at 11 ms (1/2 sine pulse in non-operating condition); 2.1 g rms, 50 to 500 MHz	
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, 290 W, or 340 W, depending on selection. CW and peak power are both reduced by 10 W with harmonic filter option.	