500W SuperLinear® Outdoor TWTA with BUC

for Satellite Communications

X-Band

The TL05XO

500 Watt Peak Power TWTA with BUC — high efficiency and linearity in an environmentally sealed compact package designed for outdoor operation

Plays in the Rain

Provides 100 or 200 watts linear power at the flange in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service in the 7.9 to 8.4 GHz frequency band. An L-Band Block Upconverter is included as standard. Ideal for transportable and fixed earth station applications.

Cost Effective and Efficient

Mounting at the antenna improves performance through minimized cable losses and saves cost in system design. Employs a high efficiency, dual-depressed collector helix traveling wave tube, reducing operating costs.

Reliable

Designed and built to survive in extremely adverse environmental conditions and features increased cooling margin for longer life.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated Ethernet computer interface. Digital metering, pin diode attenuation and optional integrated linearizer for improved intermodulation performance.

Easy to Maintain

Modular design and built-in fault diagnostic capability via remote monitor and control.

Global Applications

Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2004/108/EC and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements.

Worldwide Support

Backed by over two decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes sixteen regional factory service centers.

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X-Band

500W SuperLinear® Outdoor TWTA with BUC

SPECIFICATIONS, TL05XO BUC

Electrical

Frequency	950 MHz to 1450 MHz (input) 7.9 to 8.4 GHz (output)
Output Power	
TWT Peak Power*	500 W min. (56.99 dBm) min.
Flange Peak Power*	450 W min. (56.53 dBm) min.
CW Power at flange	200 W min. (53.00 dBm)
Max. Power at flange	250 W max. (53.98 dBm)
Linear Power at flange	100 W min. (50.00 dBm), 125 W typ. (50.97 dBm) 200 W min. (53.00 dBm) with linearizer

**This amplifier does not provide 450 W of CW power at the flange. This number is provided so that user can more easily calculate desired backoff levels. For CW power level, see the CW power specification above.*

Bandwidth	500 MHz
Gain	72 dB min.
Gain Stability	±0.25 dB/24hr max. (at constant drive and temp.)
Small Signal Gain Slope	±0.04 dB/MHz max.
Small Signal Gain Variation	1.5 dB pk-pk across any 120 MHz band; 3.0 dB pk-pk across the 500 MHz band
RF Level Adjust Range	30 dB typ.
Input VSWR	1.3:1 max.
Output VSWR	2.2:1 max.
Load VSWR	2.0:1 max. continuous operation; any value for operation without damage
Phase Noise	1 dB below MIL-STD-188-164A
Spurious	-60 dBc max. at 100 W output
AM/PM Conversion	2.0°/dB max. for a single carrier up to 100 W
Harmonic Output	-60 dBc
Noise Density (at maximum gain)	<-70 dBW/4 kHz, passband 7.25 to 8.40 GHz
Spectral Regrowth	-30 dBc max. @ 1.0 S.R.

Electrical (continued)

Intermodulation	-25 dBc max. with respect to the sum of both carriers at total output power of 100 W (at 200 W with linearizer option)
Primary Power	100-240 VAC ±10% single phase, 47-63 Hz
Power Consumption	1100 VA max, 850 VA typ.
Power Factor	0.95 min.
Amplitude and Phase Linearity	Exceeds MIL-STD-188-164A

Environmental (Operating)

Ambient Temperature	-40°C to +60°C operating, including solar loading; -40°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	20 g pk, 11 ms, 1/2 sine
Vibration	2.1 g_{rms}, 5 to 500 Hz
Acoustic Noise	65 dBA @ 3 ft. from amplifier

Mechanical

Cooling	Forced air with integral blower
L-Band Input Connection	Type N female
RF Output Connection	CPR-112 waveguide flange, grooved with UNC 2B 10-32 threaded holes
RF Output Monitor	Type N female, 45 dB nom.
Dimensions (W x H x D)	10.5 x 8.5 x 17.0 in. max. (267 x 216 x 432 mm)
Weight	32 lbs (14.5 kg)

OPTIONS:

- *Remote Control Panel*
- *External Receive Band Reject Filter (Increases loss by a minimum 60 dB from 7.25 to 7.75 GHz)*
- *Integral Linearizer*

ISO 9001 Certificate Number: 30515

For more detailed information, please refer to the corresponding CPI Technical Description.

Note: *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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