

# 125W SuperLinear® Outdoor TWTA

for Satellite Uplink Applications

**Ka-Band**

## The TL01KO Series

*Highly Efficient Ka-band TWT Amplifier — provides 25 W or 50 W of linear power at the flange. Environmentally sealed compact design for outdoor operation*



### Plays in the Rain

Rugged, compact and lightweight amplifier designed for outdoor use. Provides up to 50 W of linear power at the flange.

### Efficient and Cost Effective

Mounting at the antenna improves performance through minimized cable losses and saves cost in system design. Employs a high efficiency helix traveling wave tube, reducing operating costs. A block upconverter (BUC) is available as an option.

### Simple to Operate

User-friendly microprocessor-controlled logic with integrated Ethernet computer interface. Digital metering is standard.

### Easy to Maintain

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

### Global Applications

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

### Worldwide Support

Backed by over three 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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**125W SuperLinear Outdoor TWT Amplifier**

## OPTIONS:

- *1 RU Remote Control Panel*
- *WR-34 Output waveguide*
- *Block Upconverter (BUC) --- Note: for specifications with BUC option, please consult CPI document TD-183*
- *Integral Linearizer*
- *Serial Interface*

## SPECIFICATIONS, TL01KO

### Electrical

Frequency	27.5 to 30.0 GHz or 30.0 to 31.0 GHz
<b>Output Power</b>	
TWT Peak Power	125 W min. (50.97 dBm)
Flange Peak Power	100 W (50.00 dBm);
Linear Power at Flange	25 W (43.98 dBm), 50 W (47 dBm) with optional linearizer
Maximum CW power	55 W (47.4 dBm)
<i>Note: This amplifier does NOT provide 100 W of CW power at the flange. The number (100 W) is provided only as a point of reference so that desired backoff levels can be more easily calculated. The actual output power at the flange is provided above under "Linear Power at Flange" and "Maximum CW Power."</i>	
Bandwidth	1000 or 2500 MHz, depending on desired frequency range
Gain	70 dB min.
Gain Stability	±0.25 dB/24hr max. (after 30 min. warmup) (at constant drive and temp.) ±1.0 dB over temperature range
Attenuator Step Size	0.1 dB
Small Signal Gain Slope	±0.04 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk across any 10 MHz in passband; 3.0 dB pk-pk across any 1000 MHz band
RF Level Adjust Range	30 dB typ.
Input VSWR	1.3:1 max.
Output VSWR	1.3:1 max.
Load VSWR	1.5:1 max; no degradation; any value for operation without damage
L-Band Input	Depends on desired frequency range
Phase Noise	12 dB below IESS 308 continuous mask -47 dBc AC Fundamental -45 dBc Sum of all Spurs
Spurious	-60 dBc max. at 25 W output (at 40 W with linearizer option)
AM/PM Conversion	2.0°/dB max. for a single carrier up to 25 W output power (40 W with linearizer)
Harmonic Output	-60 dBc max. at 25 W output power
Noise Density (at maximum gain)	<-150 dBW/4 kHz, below 21.2 GHz <-70 dBW/4 kHz, in passband <-65 dBW/4 kHz, in passband (w/linearizer)

### Electrical (continued)

Intermodulation	-25 dBc max. with respect to the sum of both carriers at total output power of 25 W at the flange (at 50 W with linearizer option)
Group Delay (in any 40 MHz band)	0.01 ns/MHz linear max. 0.001 ns/MHz <sup>2</sup> parabolic max. 1.5 ns pk-pk ripple max.
Primary Power	100-240 VAC ±10%, single phase 47-63 Hz
Power Consumption	300 VA typ. at 40 W output 400 VA max.
Power Factor	0.95 min.

### Environmental (Operating)

Ambient Temperature	-40°C to +55°C operating, in direct sunlight, -40°C to +60°C out of direct sunlight; -50°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 msec, 1/2 sine
Vibration	3 g <sub>rms</sub>
Acoustic Noise	65 dBA @ 3 ft. from amplifier
Heat Dissipation	250 W typ.

### Mechanical

Cooling	Forced air with integral blower
RF Input Connection	Type N Female
RF Output Connection	WR-28G wave guide flange w/ grooved, threaded UNC-2B 4-40 WR-34G optional
RF Output Monitor	2.9 mm Female
Computer Interface	Ethernet
Dimensions (W x H x D)	10 x 8.55 x 17 inches max. (254 x 218 x 432 mm)
Weight	29 lbs (13.2 kg) max.

**Mounting hardware is provided with each amplifier.**



**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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