

# 175 W Outdoor TWT Power Amplifier

for Satellite Communications

**Ka-Band**

## The T01KO Series

175 Watt Ka-Band  
TWT Power Amplifiers —  
Environmentally sealed  
compact design for  
outdoor operation



### Plays in the Rain

Rugged, compact and lightweight amplifier designed for outdoor use.

### 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.

### Simple to Operate

User-friendly microprocessor-controlled logic with integrated RS422/485 computer interface (Ethernet optional). Digital metering is standard.

### 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/EEC 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 twenty regional factory service centers.

**satcom**  **products**

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**Ka-Band**

**175 W Outdoor TWT Power Amplifier**

## SPECIFICATIONS

175 W Ka-band Outdoor LPA

### SPECIFICATIONS, T01KO Series

#### Electrical

Frequency	Various frequencies between 27.5 and 31.0 GHz
Output Power	
TWT	175 W (52.4 dBm) min.
Flange	145 W (51.6 dBm) min.
Bandwidth	Up to 3500 MHz
Gain	70 dB min. at rated power output; 75 dB typ. at small signal (70 dB min. with optional linearizer)
Gain Stability	±0.25 dB/24hr max. (at constant drive and temp.), ±1.0 dB over temperature range
Small Signal Gain Slope	±0.025 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk across any 40 MHz segment; 2.5 dB pk-pk across 1000 MHz
RF Level Adjust Range	0 to 25 dB
Attenuator Step Size	0.1 dB
Input and Output VSWR	1.3:1 max.
Load VSWR	1.5:1 max. continuous operation; any value for operation without damage; 2.0:1 max continuous
Phase Noise	12 dB below IESS 308 continuous mask
Spurious	-60 dBc max.
AM/PM Conversion	2.5°/dB max. for a single carrier up to 6 dB OBO (1.0°/dB max. up to 3 dB OBO with linearizer option)
Residual AM	-50 dBc below 10 kHz -20 [1.5 + log F(kHz)] dBc, 10 kHz to 500 kHz -85 dBc, above 500 kHz
Harmonic Output	-12 dBc max. at rated power (-60 dBc with harmonic filter option)
Noise Density	<-150 dBW/4 kHz, below 21.2 GHz, <-115 dBW/12.5 MHz, below 21.2 GHz typ. <-70 dBW/4 kHz max, transmit band (<-80 dBW/4 kHz typ. in transmit band) <-65 dBW/4 kHz max, transmit band with linearizer option
Noise Power Ratio	-18 dB at 4 dB OBO (with linearizer option)

#### Electrical (continued)

Group Delay (over any 40 MHz)	
Linear	0.01 nsec/MHz max.
Parabolic	0.001 nsec/MHz <sup>2</sup> max.
Ripple	0.5 nsec pk-pk typ.
Intermodulation	-24 dBc max. or better with two equal carriers at total output flange power of 7 dB below rated single carrier output (at 4 dB below with optional linearizer)
Primary Power	100-240 VAC ± 10% single phase, 47-63 Hz
Power Consumption	800 VA max.
Power Factor	0.95 min.

#### Environmental (Operating)

Ambient Temperature	-40°C to +50°C operating, in direct sunlight; -40°C to +55°C operating, 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	20 g pk, 11 ms, 1/2 sine
Vibration	2.1 grms, 5 to 500 Hz
Acoustic Noise	65 dBA typ. @ 3 ft. from amplifier
Heat Dissipation	825 W max.

#### Mechanical

Cooling	Forced air with integral blower
RF Input Connection	WR-28F (WR-34F optional)
RF Output Connection	WR-34G (WR-28G optional)
Remote Interface	RS422/485 and RS232 serial (Ethernet interface optional)
RF Output Monitor	2.9 mm SMA Female
Dimensions (W x H x D)	10.25 x 9.5 x 20.0 in. (261 x 242 x 508 mm), not including handle
Weight	55 lbs (25 kg) with no options

#### OPTIONS:

- 1 RU Remote Control Panel
- Integral 1:1 Switch Control and Drive
- Redundant and Power Combined Subsystems
- Integral Linearizer
- Block Upconverter (refer to T01KO B-Series TWTA)
- Internal Filter (21.2 to 25 GHz)
- Other Frequency Ranges Within the Ka-band

**Note 1: Please consult CPI representative to confirm that desired bandwidth is available over desired frequency range.**

**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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