250 W Outdoor TWT Power Amplifier

for Satellite Communications

Ka-Band

The T02KO Series

250 watt peak power TWT Amplifier—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. 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/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 twenty regional factory service centers.

satcom products

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SPECIFICATIONS
T02KO Series

Electrical

Frequency	User-specified frequency range within the 27.5 to 31.0 GHz band, as limited by bandwidth capability of amplifier[1]
Output Power	250 W (53.98 dBm) peak
Average Power (TWT)	120 W (50.8 dBm) or 175 W (52.4 dBm)
CW Power (Flange)	100 W (50.0 dBm) or 145 W (51.6 dBm)
Bandwidth	1000 - 2500 MHz, depending on desired frequency range[1]
Gain	
at rated power	70 dB min.
at small signal	75 dB min. (see options for removal of SSIPA or for low noise option); 70 dB min. with linearizer option
RF Level Adjust Range	0 to 25 dB
Attenuator Step Size	0.1 dB
Small Signal Gain Slope	±0.025 dB/MHz max.
Small Signal Gain Variation	0.5 dB pk-pk max. across any 40 MHz segment; 2.5 dB pk-pk max. over any 1000 MHz
Gain Stability (at constant	± 0.25 dB/24 hours max. (after 30 minute warm-up)
drive and temperature)	±1.0 dB over temperature range
VSWR	
Input	1.3:1
Output	1.3:1
Load	1.5:1 max. full spec. compliance; 2.0:1 max. continuous; any value for operation without damage
Phase Noise	12 dB below IESS 308 continuous mask
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 optional linearizer)
Noise Density	<-150 dBW/4 kHz, below 21.2 GHz
	<-70 dBW/4 kHz, transmit band (see options for low noise, and note 2 for other options)
Intermodulation	-23 dBc or better with 2 equal carriers at total power level 50 W CW (100 W with linearizer)
Group Delay	In any 40 MHz band
Linear	0.01 nsec/MHz max.
Parabolic	0.001 nsec/MHz sq. max.
Ripple	0.5 nsec pk-pk max.
Primary Power	100-240 VAC ±10%, single phase, 47-63 Hz
Power Consumption	800 VA max., 650 VA typ.
Power Factor	0.95 min.

Environmental (operating)

Ambient Temperature	-40° to +60° C, with extra margin for solar loading
Relative Humidity	100% condensing
Altitude	10,000 ft with standard adiabatic derating of 2° C/1000 ft
Shock and Vibration	20 g pk, 11 msec, 1/2 sine / 2.1 g_{rms}, 5 to 500 Hz

Mechanical

Cooling	Forced air with integral blower
RF Input Connection	WR-28F
RF Output Connection	WR-34G (WR-28G optional)
RF Output Monitor	2.9 mm SMA Female
Dimensions (WxHxD)	10.25 x 9.5 x 20 inches (261 x 242 x 508 mm)
Weight	52 lbs. (23.6 kg) max.

Heat and Acoustic

Heat Dissipation	500 W max.
Acoustic	65 dBA typ. (as measured at 3 feet from unit)

OPTIONS:

- *1 RU Remote Control Panel*
- *Internal Switch Control and Drive*
- *Redundant or Power Combined Subsystems*
- *Linearizer*
- *Integral Block Upconverter (see MKT-218 for specifications)*
- *Ethernet Interface*
- *Low Noise (Reduces Gain by 10 dB; Reduces NPD to -87 dBW/4 kHz)*
- *Remove SSIPA (Lowers Gain by 25 dB)*

Note 1. Please consult CPI representative to confirm that desired bandwidth is available over desired frequency range.
Note 2. Add 5 dBW/4 kHz for inclusion of BUC or linearizer. Add 5 dBW/4 kHz total for inclusion of both BUC and linearizer.
Mounting hardware is provided with each amplifier.

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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