

250W CW Outdoor TWT Power Amplifier for Satellite Communications

Ka-Band

The T03KO Series

250 watt CW
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. 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 89/336/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 fifteen regional factory service centers.

satcom division

811 Hansen Way
P.O. Box 51625, Palo Alto, CA 94303

tel: +1 (650) 846-3803
fax: +1 (650) 424-1744

e-mail: satcommarketing@cpil.com
www.cpii.com/satcom

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250W CW TWT Outdoor Power Amplifier

SPECIFICATIONS, Ka-band Outdoor LPA

Electrical

Model Number	T03KO
Frequency	User-specified frequency range within the 27.5 to 31.0 GHz band, as limited by bandwidth specification ¹
Output Power	
TWT	250 W (54.0 dBm)
Flange	215 W (53.3 dBm)
Bandwidth	1000 to 2500 MHz, depending on desired frequency range ¹
RF Level Adjust Range	0 to 25 dB
Attenuator Step Size	0.1 dB
Gain	
at rated power	70 dB min.
at small signal	75 dB min.
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	0.5 dB pk-pk across any 40 MHz segment within the passband; 2.5 dB pk-pk across the passband
Gain Stability (at constant drive and temperature)	±0.25 dB/24 hours max. (after 30 minute warm-up) ±1.0 dB over temperature range
VSWR	
Input	1.3:1
Output	1.3:1
Load	1.5:1 max.; no degradation, infinite VSWR 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 below rated power (1.0°/dB up to 3 dB OBO with linearizer)
Noise and Spurious (at rated gain)	<-150 dBW/4 kHz, below 21.2 GHz <-70 dBW/4 kHz, passband; <-65 dBW/4 kHz, passband with linearizer
Intermodulation	-24 dBc or better with two equal carriers at total output power level 7 dB below rated single carrier output (at 4 dB OBO 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	Single phase, 100-240 VAC ± 10%, 47-63 Hz
Power Consumption	650 VA typ, at saturated RF output power; 750 VA max.
Power Factor	0.95 min.

Environmental (operating)

Ambient Temperature	-40°C 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 peak, 11 msec, 1/2 sin; 2.1 g _{rms} , 5 to 500 Hz

Mechanical

Cooling	Forced air with integral blower
RF Input Connection	WR-28F (WR-34 optional)
RF Output Connection	WR-34G (WR-28 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	450 W typ.
Acoustic	65 dBA typ.

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

Mounting hardware is provided with each amplifier.

OPTIONS :

- 1 RU Remote Control Panel
- Internal Switch Control and Drive
- Redundant and Power Combined Subsystems
- Integral Linearized SSIPA
- Block Up Converter (BUC) - Refer to T03KO B-Series



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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.