

250 W Peak Power Outdoor TWT BUC for Satellite Uplink Communications

Ka-Band

The T02KO B-Series

*250 Watt Ka-band TWT
High Power Amplifier with
Block Up Converter—
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. Includes integral block upconverter (BUC) as standard.

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 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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Ka-Band

250 W Peak Power Outdoor TWT Amplifier

SPECIFICATIONS, 250 W Ka-band Outdoor LPA

Electrical

Model Number	T02K0 B Series (includes Block Upconverter as standard)
Frequency	User-specified frequency range within the 27.5 to 31.0 GHz band, as limited by bandwidth capability of amplifier ¹
Output Power	
TWT	250 W peak power (54.0 dBm), options for 125 W average (51.0 dBm) or 175 W average (52.3 dBm)
at Flange (CW) ²	200 W peak power (53.0 dBm), options for 100 W average (50.0 dBm) or 145 W average (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, 70 dB min. with linearizer option
RF Level Adjust Range	0 to 25 dB
Attenuator Step Size	0.1 dB
Small Signal Gain Slope	±0.04 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk (across any 40 MHz segment within the passband) 4.5 dB pk-pk (across any 1000 MHz)
Gain Stability (at constant drive and temperature)	±0.4 dB/24 hours max. (after 30 minute warm-up) ±3.0 dB from -5°C to +60°C
VSWR	1.3:1 Input; 1.3:1 Output; 1.5: 1 max. Load --- no degradation, infinite VSWR without damage
Phase Noise	3 dB below IESS 308 continuous mask; AC Fundamentals -36 dBc; Sum of All Spurs -41 dBc
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)
Noise Density	<-150 dBW/4 kHz, below 21.2 GHz
(at rated gain)	<-65 dBW/4 kHz, passband
Spectral Regrowth	-30 dBc at 7.0 dB backoff (at 4.0 dB backoff with linearizer option)
Intermodulation	-24 dBc or better with two equal carriers at total output power level 7.0 dB below rated single carrier output (-23 dBc or better at 4.0 dB backoff with linearizer option)
Group Delay	(in any 40 MHz band)
Linear	0.02 nsec/MHz max.
Parabolic	0.007 nsec/MHz sq. max.
Ripple	1.0 nsec pk-pk max.
Primary Power	100 - 240 VAC ± 10%, 47-63 Hz
Power Consumption	750 VA typ, at saturated RF output power; 800 VA max.
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 peak, 11 msec, 1/2 sin; 2.1 g _{rms} , 5 to 500 Hz

Mechanical

Cooling	Forced air with integral blower
RF Connection	Type N Female
RF Output Monitor	2.9 mm SMA Female
Dimensions (WxHxD)	13.25 x 9.5 x 20 inches with BUC option (337 x 242 x 508 mm)
Weight	58 lbs (26.4 kg)

Heat and Acoustic

Heat Dissipation	600 W typ.
Acoustic	65 dBA typ.

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

Note 2. This amplifier does not provide 200 W of power at the flange. The peak power specification is provided so that the desired backoff level can be more easily calculated.

Mounting hardware is provided with each amplifier.

OPTIONS:

- *1 RU Remote Control Panel*
- *Integrated 1:1 Switch Control*
- *Redundant and Power Combined Subsystems*
- *Integral Linearizer*



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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