120/150/175 W Outdoor TWT Amplifiers

for Satellite Uplink Communications

Ka-Band

The T01KO B-Series

Ka-band TWT High Power Amplifiers with Block Up Converter at power levels from 120 to 175 W — 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.

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@cpii.com
www.cpii.com/satcom

Ka-Band

120/150/175 W Outdoor TWT Amplifiers

SPECIFICATIONS,
120/150/175 W Ka-band Outdoor TWTAs

Electrical

Model Number	T01KO 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	120, 150 or 175 W (50.79, 51.76 or 52.43 dBm)
at Flange	100, 125 or 145 W (50.00, 50.97 or 51.61 dBm)
Bandwidth	1000 - 2500 MHz, depending on desired frequency range[1]
Gain	
at rated power	70 dB min.
at small signal	75 dB min.
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)
	5.0 dB pk-pk (across any 1000 MHz)
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	1.3:1 Input; 1.3:1 Output; 1.5: 1 max. Load --- no degradation, infinite VSWR without damage
Phase Noise	-60 dBc/Hz @100 Hz offset; -70 dBc/Hz @1 kHz; -80 dBc/Hz @10 kHz; -90 dBc/Hz @100 kHz
AM/PM Conversion	2.5˚ /dB max. for a single carrier up to 7 dB OBO (1.0˚ /dB max. up to 3 dB OBO with linearizer option)
Noise and Spurious	<-145 dBW/4 kHz, below 21.2 GHz
(at rated gain)	<-65 dBW/4 kHz, passband
Spectral Regrowth	-30 dBc at 7.5 dB backoff (at 3.5 dB with linearizer option)
Intermodulation	-25 dBc or better with two equal carriers at total output power level 7.5 db below rated single carrier output (3.5 dB below with linearizer option)
Group Delay	(in any 40 MHz band)
Linear	0.01 nsec/MHz max.
Parabolic	0.001 nsec/MHz sq. max.
Ripple	2.0 nsec pk-pk max.
Primary Power	100 - 240 VAC ± 10%, 47-63 Hz
Power Consumption	120 W: 600 VA typ., 700 VA max.; 150 W: 650 VA typ., 750 VA max.; 175 W: 700 VA typ., 800 VA max.
Power Factor	0.95 min.

Environmental (operating)

Ambient Temperature	-40˚ to +60˚ C operating with extra margin for solar loading
Relative Humidity	100% condensing
Rain	100 mm/hr
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 input and output
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.

Mounting hardware is provided with each amplifier.

OPTIONS:

- *1 RU Remote Control Panel*
- *Integrated 1:1 Switch Control*
- *Redundant and Power Combined Subsystems*
- *Integral Linearized Solid State IPA*
- *Integral Harmonic Filter*
- *Ethernet Interface*
- *Circuit Breaker Package*

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.

MKT 239, ISSUE 3 04/11 PDF

Communications & Power Industries

satcom division