Ku-Band

400 W Outdoor TWT Amplifier

Plays in the Rain

Provides 400 watts of power in a rugged and compact weatherproof package, digital ready, for wideband, single- and multicarrier satellite service in the 13.75 to 14.50 GHz or 12.75 to 14.50 GHz frequency band. Ideal for transportable and fixed earth station applications.

Cost Effective and Efficient

Mounting at the antenna improves performance through minimized waveguide losses and saves cost in system design. Employs a high efficiency, dual depressed collector helix traveling wave tube, reducing operating costs.

Reliable

Designed and built to survive in extremely adverse environmental conditions and features increased cooling margin for longer life.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated RS422/485 computer interface. Digital metering, pin diode attenuation and optional integrated linearizer for improved intermodulation performance. Ethernet interface optional.

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 2014/30/EU and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements.

Worldwide Support

Backed by over two decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes more than twenty regional factory service centers.

Model T04UO

400 Watt Outdoor TWT Amplifier for **satellite communications**

OPTIONS

- 1 RU Remote Control Panel
- Extended Frequency (12.75-14.5 GHz)
- Redundant and Power Combined Subsystems
- Additional External Receive Band Reject Filter (increases loss by a minimum 70 dB up to 12.7 GHz)
- SSIPA with Variable Attenuator (provides RF Level Adjust Range of 0 to 30 dB)
- Integral Linearizer (requires SSIPA with attenuator option)
- Integrated 1:1 switch control and drive
- Ethernet Interface
- Higher Operating Temperature Limit (+60˚C)
- L-Band Block Upconverter (BUC --- requires SSIPA option) This data sheet does not provide amplifier specifications for when the BUC is included. Consult CPI for details.

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400 W Outdoor TWT Amplfier

Specification	Model T04UO
Frequency	13.75 to 14.50 GHz (12.75 to 14.50 GHz optional)
Output Power TWT Flange	 400 W min. (56.02 dBm) 350 W min. (55.44 dBm)
Bandwidth	750 MHz (1750 MHz with ext. band option)
Gain	46 dB min. at rated power output (70 dB with SSIPA); 52 dB min. at small signal (75 dB with SSIPA)
Gain Stability At constant drive and temp. Over temp. constant drive	 ±0.25 dB/24hr max. (after 30 min. warmup) ±1.0 dB over operating temp. range (any freq.); ±0.75 dB over ±10ºC
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk across any 80 MHz band; 2.5 dB pk-pk across any 750 MHz band (4.5 with linearizer); 4.0 dB pk-pk across 1750 MHz band (6.0 dB with linearizer)
RF Level Adjust Range	0 to 30 dB typ. (SSIPA option required)
Attenuator Step Size	0.1 dB (SSIPA option required)
Input/Output VSWR	1.3:1 max., 1.3:1 max.
Load VSWR	2.0 max. continuous operation; any value for operation without damage
Phase Noise AC fundamental Sum of all spurs	10 dB below IESS 308 continuous mask -42 dBc -47 dBc
AM/PM Conversion	2.5º/dB max. for a single carrier up to 7 dB below rated power (2.5º/dB max. at 3 dB below rated with linearizer)
Harmonic Output	-60 dBc at rated power
Noise and Spurious (at rated gain)	<-150 dBW/4 KHz from 10.9 to 12.7 GHz (to 11.7 GHz with extended frequency option); <-100 dBW/4 kHz, 11.7 to 12.2 GHz (ext. freq. option only); <-70 dBW/4 kHz transmit band to 18.0 GHz (<-65 dBW/4 kHz transmit band to 18.0 GHz with optional linearizer) <-105 dBW/4 kHz from 18.0 to 26.0 GHz <-125 dBW/4 kHz from 26.0 to 40.0 GHz
Intermodulation	-24 dBc max. with two equal carriers at total output power 7 dB below rated single-carrier output (at 4 dB OBO with optional integral linearizer)
Noise Power Ratio (NPR)	19 dB at 4 dB OBO with linearizer option (18 dB at 7 dB OBO without linearizer)
Group Delay	In any 80 MHz band: 0.01 ns/MHz linear max; 0.02 ns/MHz^2 parabolic max; 0.5 ns pk-pk ripple max.
Primary Power	100-240 VAC ±10%, 47-63 Hz
Power Consumption	1.35 kW typ, 1.5 kW max.
Power Factor	0.95 min.
Ambient Temperature	-40ºC to +55ºC operating, including solar loading; -54º to +71ºC non-operating`
Relative Humidity	100% condensing
Altitude	10,000 ft. (3,048 m) with standard adiabatic derating of 2ºC/1000 ft. (305 m) operating; 50,000 ft. (15,240 m) non-operating
Shock and Vibration	20 g pk at 11 msec (1/2 sine)
Acoustic Noise	65 dBA @ 3 ft. from amplifier
Cooling (TWT)	Forced air with integral blower
RF Input Connection	Type N Female
RF Output Connection	WR-75 waveguide flange grooved with UNC 2B 6-32 threaded holes
RF Output Monitor	Type N Female
M&C Controls	RS-422/485 or RS-232 serial interface (Ethernet optional)
Dimensions (W x H x D)	10.25 x 10.5 x 20.5 in. (260 x 267 x 521 mm)
Weight	55 lbs (25.0 kg) max., with no options

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CE

Quality Management System - ISO 9001:2008

For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. 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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