C-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 5.85 to 6.65 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 T04CO

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

OPTIONS

- 1 RU Remote Control Panel
- Integrated 1:1 Switch Control and Drive
- Redundant and Power Combined Subsystems
- SSIPA with Variable Attenuator (provides RF Level Adjust Range of 0 to 30 dB)
- Integral Linearizer (Requires SSIPA option)
- Extended Frequency Range (to 7.10 GHz)
- Additional External Receive Band Reject Filter (increases loss by a minimum 65 dB up to 4.8 GHz)
- Ethernet Interface
- Higher Operating Temperature Limit (+60˚)
- 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.

Communications & Power Industries

Communications & Power Industries Canada, Inc.
45 River Drive
Georgetown, Ontario, Canada L7G 2J4
tel: +1 (905) 702-2228
fax: +1 (905) 877-5327
e-mail: marketing@cmp.cpii.com
website: www.cpii.com/emc

400 W Outdoor TWT Amplfier

Specification	Model T04CO
Frequency	5.85 - 6.65 GHz (5.85 - 7.10 GHz optional)
Output Power TWT Flange	 400 W min. (56.02 dBm) 350 W min. (55.44 dBm)
Bandwidth	800 MHz (1250 MHz optional)
Gain	46 dB min. at rated power output (70 dB with SSIPA); 49 dB min. at small signal (73 dB with SSIPA)
Gain Stability	±0.25 dB/24hr max. (after 30 min. warmup), at constant drive and temp. ±1.0 dB over operating temp. range; ±0.75 dB over ±10˚C, any freq.
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	0.5 dB pk-pk across any 40 MHz band; 2.5 dB pk-pk across 800 MHz band (4.0 dB pk-pk with linearizer option); 4.0 dB pk-pk across 1250 MHz band (6.0 dB pk-pk with linearizer option)
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	2.0:1 max. continuous operation; any value for operation without damage
Phase Noise IESS-308/309 phase noise continuous AC fundamentals related Sum of spurs (370 Hz to 1 MHz)	 10 dB below mask -42 dBc -47 dBc
AM/PM Conversion	2.5˚/dB max. for a single carrier at 7 dB below rated power (2.5˚/dB max. at 3 dB below rated with linearizer)
Harmonic Output	-60 dBc at rated power
Noise Density (at rated gain)	<-150 dBW/4 KHz, 3.4 to 4.2 GHz; <-70 dBW/4 kHz, passband to 18.0 GHz (<-65 dBW/4 kHz, passband to 18 GHz with linearizer option); <-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 below with optional integral linearizer)
Group Delay	In any 40 MHz band: 0.01 ns/MHz linear max., 0.002 ns/MHz^2 parabolic max., 0.5 ns pk-pk ripple max.
Primary Power	100-240 ±10% volts AC, single phase, 47-63 Hz
Power Consumption	1350 W typ., 1500 W max.
Power Factor	0.95 min.
Inrush Current	200% max.
Ambient Temperature	-40˚C to +50˚C operating, in direct sunlight; -40˚C to +55˚C operating, out of direct sunlight; -54 to +71˚C non-operating
Relative Humidity	100% condensing
Altitude	10,000 ft. (3,048 m) with standard adiabatic derating of 2˚C/1000 ft. (305 m) operating; 50,000 ft. (15,240 m) non-operating
Shock and Vibration	Designed for normal transportation environment per Section 514.4 MIL-STD-810E. Designed to withstand 20g at 11 ms (1/2 sine pulse) in non-operating configuration.
Acoustic Noise	65 dBA @ 3 ft. from amplifier
Heat Dissipation	1100 W max.
Cooling	Forced air with integral blower
RF Connectors	RF Input: Type N Female; RF Output: CPR137 G waveguide flange, grooved with UNC 2B 10-32 threaded holes
M&C Controls	RS-422/485 or RS-232 serial interface (Ethernet optional)
RF Output Monitor	Type N Female
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

CPI Communications & Power Industries

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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