# **400W Outdoor TWT Amplifier**

for Satellite Communications

## The T04CO Series

400 Watt TWT Amplifier

— high efficiency in an
environmentally sealed
compact package
designed for outdoor
operation



# Plays in the Rain

Provides 400 watts of power in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service in the 5.85 - 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 cable 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.

### **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 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 twenty regional factory Service Centers.



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#### **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.

### SPECIFICATIONS, T04CO Series **Electrical**

5.85 - 6.65 GHz (5.85 - 7.10 GHz optional) Frequency **Output Power** TWT 400 W min. (56.02 dBm) Flange 350 W min. (55.44 dBm) Bandwidth 800 MHz (1250 MHz optional) 46 dB min. at rated power output Gain (70 dB with SSIPA) 49 dB min. at small signal (73 dB with SSIPA)

Gain Stability

At constant drive and temp ±0.25 dB/24hr max. (after 30 min. warmup) Any frequency ±1.0 dB over operating temp. range;  $\pm 0.75$  dB over  $\pm 10^{\circ}$ C

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 the 800 MHz band

> (4.0 dB pk-pk with linearizer option); 4.0 dB pk-pk across the 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 VSWR 1.3:1 max. Output VSWR 1.3:1 max.

Load VSWR 2.0:1 max. continuous operation; any value for operation without damage

10 dB below mask

Phase Noise

IFSS-308/309

phase noise continuous AC fundamentals related -42 dBc

Sum of spurs (370 Hz to 1 MHz) -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 <-150 dBW/4 kHz, 3.4 to 4.2 GHz (at rated gain)

<-70 dBW/4 kHz, passband to 18.0 GHz <-105 dBW/4 kHz from 18.0 to 26.0 GHz

<-125 dBW/4 kHz from 26.0 to 40.0 GHz

### **Electrical (continued)**

Intermodulation -24 dBc max. with two equal carriers at total output power

7 dB (4 dB with optional integral linearizer) below rated

single-carrier output Group Delay 0.01 ns/MHz linear max.

(in any 40 MHz band) 0.002 ns/MHz<sup>2</sup> 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. 200% max. Inrush Current

## **Environmental (Operating)**

**Ambient Temperature** -40°C to +50°C operating,

in direct sunlight; -40°C to +55°C operating. out of direct sunlight; -40°C to +75°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.

Mechanical

Cooling Forced air with integral blower

**RF Input Connection** Type N female

RF Output Connection CPR-137 G waveguide flange.

grooved with UNC 2B 10-32

threaded holes

**RF Output Monitor** Type N female

Dimensions (WxHxD) 10.25 x 10.5 x 20.5 in.

(260 x 267 x 521 mm)

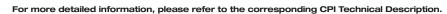
55 lbs (25.0 kg) with Weight

no options, max.









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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