

400W Outdoor TWT Medium Power Amplifier for Satellite Communications

C-Band

The T04CO Series

400 Watt TWT Medium Power 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 89/336/EEC 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 twelve regional factory Service Centers.

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SPECIFICATIONS, T04CO Series

Electrical

Frequency	5.85 - 6.65 GHz
Output Power	
TWT	400 W min. (56.02 dBm)
Flange	350 W min. (55.44 dBm)
Bandwidth	800 MHz
Gain	47 dB min. at rated power output (73 dB with SSIPA) 52 dB min. at small signal (78 dB with SSIPA)
Gain Stability	±0.25 dB/24hr max. (at constant drive and temp.)
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
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
Residual AM	-50 dBc below 10 kHz -20[1.5 + log F (kHz)] dBc, 10 kHz to 500 kHz -85 dBc above 500 kHz
Phase Noise	
IESS-308/309	12 dB below mask
phase noise continuous	
AC fundamentals related	-50 dBc
Sum of spurs (370 Hz to 1 MHz)	-47 dBc
AM/PM Conversion	2.0°/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 and Spurious (at rated gain)	<-150 dBW/4 kHz, 3.4 to 4.2 GHz <-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
Noise Figure	35 dB max., 10 dB max. with SSIPA
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

Electrical (continued)

Group Delay	0.01 ns/MHz linear max. (in any 40 MHz band) 0.001 ns/MHz ² parabolic max. 0.5 ns pk-pk ripple max.
Primary Power	90-264 volts AC, single phase 47-63 Hz
Power Consumption	1350 W typ. 1500 W max.
Power Factor	0.95 min.

Environmental (Operating)

Ambient Temperature	-40°C to +50°C operating -40°C to +75°C non-operating
Relative Humidity	100% condensing
Altitude	10,000 ft. with standard adiabatic derating of 2°C/1000 ft., operating; 50,000 ft., 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 (W x H x D)	10.25 x 10.4 x 20.5 in. (260 x 264 x 521 mm)
Weight	55 lbs (25.0 kg) with no options, max.

OPTIONS:

- Remote Control Panel
- Integrated 1:1 Switch Control and Drive
- Redundant and Power Combined Subsystems
- Solid State Intermediate Power Amplifier (SSIPA)
- SSIPA with Variable Attenuator (provides RF Level Adjust Range of 0 to 30 dB)
- Integral Linearizer (Requires SSIPA w/ Attenuator options)
- Extended Frequency Range



KEEPING YOU ON THE AIR
not up in the air

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.



Communications & Power Industries

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