

270W Outdoor TWT Amplifier for Satellite Communications

DBS-Band

The T03DO Series

270 Watt Outdoor
TWT Amplifier — high
efficiency in an
environmentally sealed
compact package
designed for outdoor
operation



Plays in the Rain

Provides 270 watts of power in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service in the 17.3-18.4 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 two decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes sixteen regional factory service centers.

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DBS-Band

270W Outdoor TWT Amplifier

SPECIFICATIONS, T03DO

Electrical

Frequency	17.3 to 18.4 GHz
Output Power	
TWT	270 W min. (54.31 dBm)
Flange	235 W min. (53.71 dBm)
Bandwidth	1100 MHz
Gain	42 dB min. at rated power output (70 dB with SSIPA); 47 dB min. at small signal (75 dB with SSIPA)
Gain Stability	±0.25 dB/24hr max. (at constant drive and temp.)
Small Signal Gain Slope	±0.04 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk across any 80 MHz band; 3.0 dB pk-pk across the 1100 MHz band
RF Level Adjust Range	30 dB typ.
Input VSWR	1.3:1 max.
Output VSWR	1.3:1 max.
Load VSWR	2.0 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	12 dB below IESS-308 continuous mask
AC Fundamentals Related	-50 dBc
Sum of Spurs	-47 dBc (370 Hz to 1 MHz)
AM/PM Conversion	2.5°/dB max. for a single carrier up to 7 dB below rated power (2.5°/dB max. at 4 dB below rated with linearizer)
Harmonic Output	-60 dBc at rated power
Noise and Spurious (at rated gain)	<-150 dBW/4 kHz below 12.75 GHz <-70 dBW/4 kHz from 17.3 to 18.4 GHz <-65 dBW/4 kHz from 17.3 to 18.4 GHz (with optional linearizer) <-105 dBW/4 kHz from 18.9 to 26.0 GHz <-125 dBW/4 kHz from 26.0 to 40.0 GHz
Noise Figure	35 dB max., 10 dB 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

Mounting hardware is provided with each amplifier.

Electrical (continued)

Group Delay	0.01 ns/MHz linear max. (in any 80 MHz band) 0.001 ns/MHz ² parabolic max. 0.5 ns pk-pk ripple max.
Primary Power	90-264 VAC, single phase; 47-63 Hz
Power Consumption	1.25 kW, typ. 1.5 kW, max.
Power Factor	0.95 min.

Environmental (Operating)

Ambient Temperature	-40°C to +55°C operating (including solar loading) -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	20 g pk, 11 msec, 1/2 sine
Acoustic Noise	65 dBA @ 3 ft. from amplifier

Mechanical

Cooling	Forced air with integral blower
RF Input Connection	Type SMA female
RF Output Connection	WR 62 waveguide flange, grooved with UNC 2B 6-32 threaded holes
RF Output Monitor	Type SMA female
Dimensions (W x H x D)	10.25 x 10.5 x 20.5 in. (260 x 267 x 521 mm)
Weight	54 lbs (24.6 kg) max., with no options

OPTIONS:

- Remote Control Panel
- Redundant and Power Combined Subsystems
- External Receive Band Reject Filter
- SSIPA with Variable Attenuator (provides RF Level Adjust Range of 0 to 30 dB)
- Integral Linearizer (requires SSIPA option)
- Integrated 1:1 switch control and drive
- L-Band Block Up Converter (requires SSIPA option)
- Ethernet Interface



NASDAQ
GLOBAL SELECT



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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.