

# 1.25 kW SuperLinear<sup>®</sup> Outdoor TWT Amplifier

## Plays in the Rain

Guarantees 550 watts of linear power in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service within the 17.3 to 18.4 GHz frequency band.

## Cost Effective and Efficient

Mounting at the antenna improves performance through minimized waveguide losses and saves cost in system design. Both TWT and amplifier are optimized for outstanding efficiency and low power consumption.

## Reliable

Designed and built to survive in extremely adverse environmental conditions and features increased cooling margin for longer life. CAN-Bus architecture improves reliability and noise immunity.

## Simple to Operate

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

## Plug and Play Upgrade

This amplifier is 100% electrically and mechanically compatible with 750 W model T07DO. When upgrading to TL12DO, T07DO may serve as the backup in a redundant system.

## 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 35 years of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes more than 20 regional factory service centers.



### Model TL12DO

1250 watt DBS-band (17.3 to 18.4 GHz) Outdoor/Hubmount TWTA for satellite uplink applications

#### OPTIONS

- Remote control panel
- Integral linearizer
- L-Band block upconverter (contact CPI for specifications)
- Redundant and hybrid power combined systems
- Integral 1:1 or 1:2 switch control and drive
- Computer interface: Ethernet interface (standard) or RS422/485 (optional)
- Liquid cooling for better MTBF and a quieter acoustic environment (contact CPI for details)



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## 1.25 kW DBS-band Outdoor TWTA

Specification	Model TL12DO
Frequency	17.3 to 18.4 GHz
Output Power (min.) TWT Peak Power Flange Peak Power Guaranteed min. CW power Maximum CW power	1250 watts (60.97 dBm) min. 1100 watts (60.42 dBm) min. 552 watts (57.42 dBm) min. 600 watts (57.78 dBm) max.
Bandwidth	1100 MHz
Gain	70 dB min.
Gain Stability	±0.25 dB/24 hours max. (after 30 minute warmup); ±0.75 dB over any 10°C
RF Level Adjust Range	30 dB typ. in 0.1 dB steps
Small Signal Gain Slope	±0.04 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk max. across any 80 MHz segment; 3.0 dB pk-pk max. across 1100 MHz (4.0 dB pk-pk with linearizer option)
Input VSWR	1.3:1 max.
Output VSWR	1.3:1 max.
Load VSWR	2.0:1 max. continuous operation; 1.5:1 full spec compliance; any value for operation without damage
Phase Noise	12 dB below IESS-308/309 mask; -47 dBc AC Fundamental; -50 dBc Sum of Spurs (130 Hz to 1 MHz)
AM/PM Conversion	2.5°/dB for a single carrier at 7 dB backoff from rated peak power (at 3 dB backoff with optional linearizer)
Harmonic Output	-60 dBc at rated power, second and third harmonics
Spurious Output	-60 dBc max.
Noise Density (at max. gain)	<-150 dBW/4 kHz, 10.00 - 12.75 GHz; <-70 dBW/4 kHz, transmit band with linearizer; <-105 dBW/4 kHz, 18.9 to 20.0 GHz
Intermodulation with linearizer	-25 dBc with respect to each of two carriers at 550 W (57.4 dBm) output power, from 17.3 to 18.4 GHz
Noise Power Ratio	-19 dBc @440 watts output power (56.43 dBm)
Group Delay	0.02 ns/MHz linear max, 0.002 ns/MHz <sup>2</sup> parabolic max, 1.5 ns pk-pk ripple max. in any 80 MHz band
Prime Power	208 to 240 VAC single phase, ±10%; 47-63 Hz
Power Consumption	3.1 kVA max; 2.8 kVA typ.
Power Factor	0.95 min.
Ambient Temperature	-40°C to +60°C operating (to +55°C including solar loading); -54°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 peak, 11 ms, 1/2 sine; 21 grms, 5 to 500 Hz
Acoustic Noise	68 dBA at spatial average of 3 feet from amplifier
Heat Dissipation	2300 W max.
Cooling	Forced air with integral blower
M&C Port	Ethernet Interface (RS-422/485 Serial optional)
RF Input Connection	Type SMA female
RF Output Connection	WR-62 waveguide flange, grooved, threaded with UNC 2B 6-32
RF Output Monitor	Type SMA female
Dimensions	12.75 x 11.5 x 22.25 in. (324 x 292 x 566 mm)
Weight	95 lbs (43 kg) with no options