

## Built for Satellite Communications Uplink Applications

Provides up to 552 watts of linear power (with linearizer) in a rugged and compact weatherproof package, digital ready, for satellite uplinks from 17.3 to 18.4 GHz. Ideal for transportable or fixed earth station applications.

### Cost Effective and Efficient

CPI SuperLinear® TWTAs are among the most power efficient in the industry. This amplifier is optimized for maximum efficiency at linear output operating levels.

### 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. Optional LifeExtender significantly increases TWT lifetime.

### 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 (v1, v2, or v3) facilitates high level M&C integration. Serial interface optional.

### Easy to Maintain

Modular design and built-in fault diagnostic capability via remote monitor and control.



CPI 1.25 kW DBS-Band SuperLinear Outdoor TWTA, Model TL12DO-A1

### OPTIONS:

- 1 RU remote control panel
- Serial interface
- Redundant and hybrid power combined systems
- Integral 1:1 or 1:2 switch control and drive
- Integral linearizer
- Integral block upconverter (BUC) - see TD-199 for specifications
- Liquid cooling for better MTBF and a quieter acoustic environment (contact CPI for details)
- TWT LifeExtender/LifePredictor substantially extends TWT life
- Inlet air filter

Quality Management System - ISO 9001:2015



### Meets Global Requirements

Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2014/30/EU and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements. CE Marked.

### Worldwide Support

Backed by over 40 years of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes more than 20 regional factory service centers.

Specifications	CPI Model TL12DO-A1 1250 W DBS-Band Outdoor Amplifier
<b>ELECTRICAL SPECIFICATIONS</b>	
Frequency	17.3 to 18.4 GHz
Output Power TWT Peak Power Flange Peak Power Guaranteed Min. CW power Max. CW power	1250 W (60.97 dBm) min. 1100 W (60.42 dBm) min. 552 W (57.42 dBm) min. 700 W (58.45 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 across 1100 MHz 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
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.
<b>LINEAR PERFORMANCE</b>	
Intermodulation with linearizer	-25 dBc with respect to each of two carriers at 440 W (56.43 dBm) output power, from 17.3 to 18.4 GHz; -26 dBc with respect to the sum of both carriers at 550 W (57.40 dBm) output power, from 17.3 to 18.4 GHz
Noise Power Ratio	-19 dBc @440 watts output power (56.43 dBm), with linearizer option.
Spectral Regrowth	30 dBc at 1x symbol rate with linearizer, at 3 dB backoff from rated flange peak power
<b>MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS</b>	
Ambient Temperature	-40°C to +60°C operating out of direct sunlight, -40°C to +55°C operating in direct sunlight; -54°C to +71°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 <sub>peak</sub> , 11 ms 1/2 sine; 2.1 grms, 5 to 500 Hz (non-operational)
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/Output Connections	Input: Type SMA female; Output: 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



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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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