

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® TWTA's 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
ELECTRICAL SPECIFICATIONS	
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 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 ² 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.
LINEAR PERFORMANCE	
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
MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS	
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 _{peak} , 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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