

# 1.25 kW SuperLinear® TWTA Amplifier

## Compact and Efficient

Provides up to 540 watts of linear power in a 5 rack unit package, digital ready, for wideband, single- and multi-carrier satellite service in the 13.75 to 14.50, 12.75 to 14.50 or 13.75 to 14.80 GHz frequency range. Ideal for transportable and fixed earth station applications where space and prime power are at a premium. CAN-Bus architecture improves noise immunity and reliability.

## Touchscreen Graphical Interface

State of the art touchscreen interface with both amplifier and/or system level control capabilities. Includes fault logs, parameter trending and scopescreen for monitoring performance. Internal switch control eliminates need for external controllers.

## Global Applications

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

## Easy to Maintain

Modular design and built-in fault diagnostic capability with convenient and clearly visible indicators for easy maintainability in the field. A USB port is available for uploading new firmware and system configurations, and downloading logs and system configurations for cloning to other units. SNMP enabled (v1, v2, or v3).

## Worldwide Support

Backed by four decades of satellite communications experience, and CPI's worldwide 24-hour customer support network which includes more than 20 regional factory service centers.



**Model T5UI**

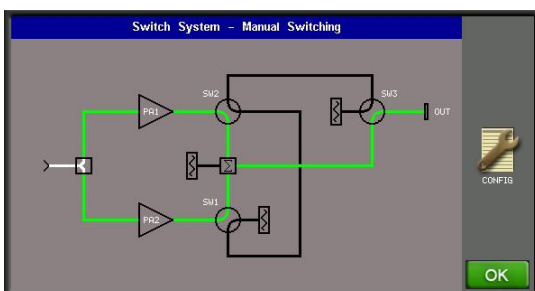
1.25 kW Ku-band touchscreen SuperLinear TWTA for **satellite uplink applications**

### FEATURES

- Touch Screen User Interface
- Ethernet Interface with integral web server for easy monitoring and control
- SNMP interface (v1, v2, or v3)
- Redundant switch controller
- Serial Interface (compatible with CHPA).
- EMC Directive 2014/30/EU
- Harmonic Standard EN-61000-3-2

### OPTIONS

- Integral linearizer
- Remote control panel
- Redundant and power combined sub-systems
- External receive band reject filter (increases loss by a minimum of 75 dB up to 12.75 GHz)
- LifeExtender™/LifePredictor
- High altitude/temperature kit
- L-band block upconverter (BUC) --- specifications for when BUC is included are not contained in this document. Contact CPI for details.
- Multi-band block upconverter (BUC) --- specifications for when BUC is included are not contained in this document. Contact CPI for details.



Touchscreen TWTA Sample Redundancy System Schematic Display; Various Configurations Available



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## 1.25 kW Ku-Band Touchscreen SuperLinear® TWTA

T5UI-12 Specifications	Standard Band	Extended Band	High Ku-Band
Output Frequency	13.75 to 14.50 GHz	12.75 to 14.50 GHz	13.75 to 14.80 GHz
Output Power (min.) TWT Peak Power Flange Peak Power Guaranteed CW Power at Flange Maximum CW Power at Flange	1250 W (60.97 dBm) min. 1100 W (60.41 dBm) min. 540 W (57.33 dBm) min. 600 W (57.78 dBm) max.		
Note on Output Power	This amplifier guarantees 540 W of CW power at the flange. The peak power specifications are provided so that desired backoff may be more easily calculated.		
Gain	70 dB min.		
RF Level Adjust Range	0 to 30 dB (via PIN diode attenuator), 0.1 dB steps		
Gain Stability Over temp, constant drive Over $\pm 10^{\circ}\text{C}$ , constant drive	$\pm 0.25$ dB/24 hour max, max. at constant drive and temperature, after 30 minute warmup 2.0 dB pk-pk max. at 48 dBm output power 1.5 dB pk-pk max. at 48 dBm output power		
Small Signal Gain Slope	$\pm 0.02$ dB/MHz max.		
Small Signal Gain Variation	1.0 dB pk-pk max. over any 80 MHz (1.5 dB pk-pk max. with linearizer); 3.0 dB pk-pk max. across 750 MHz (4.0 dB pk-pk max. with linearizer)	1.0 dB pk-pk max. over any 80 MHz (1.5 dB pk-pk max. with linearizer); 4.0 dB pk-pk max. across 1750 MHz (6.0 dB pk-pk max. with linearizer)	1.0 dB pk-pk max. over any 80 MHz (1.5 dB pk-pk max. with linearizer); 3.5 dB pk-pk max. across 1050 MHz (5.0 dB pk-pk max. with linearizer)
Input/Output VSWR	1.3:1 max.		
Load VSWR	2.0:1 continuous operation; 1.5:1 for full spec. compliance; any value operation without damage		
Phase Noise	12 dB below IESS-308/309 profile; -47 dBc AC harmonic (100/120 Hz); -50 dBc AC fundamental (50/60 Hz); -47 dB sum of spurs (370 Hz to 1 MHz)		
AM/PM Conversion	2.5°/dB max. for a single-carrier at 57 dBm output power with optional linearizer (6°/dB without linearizer)		
Harmonic Output	-60 dBc at rated power, second and third harmonics		
Noise Density	<-150 dBW/4 kHz from 10.7 to 12.7 GHz; <-70 dBW/4 kHz, transmit band (<-65 dBW/4 kHz with linearizer option); <-105 dBW/4 kHz, 18 to 26 GHz; <-125 dBW/4 kHz, 26 to 40 GHz	<-150 dBW/4 kHz from 10.0 to 11.7 GHz; <-70 dBW/4 kHz, transmit band (<-65 dBW/4 kHz with linearizer option); <-105 dBW/4 kHz, 18 to 26 GHz; <-125 dBW/4 kHz, 26 to 40 GHz	<-150 dBW/4 kHz from 10.7 to 12.7 GHz; <-70 dBW/4 kHz, transmit band (<-65 dBW/4 kHz with linearizer option); <-105 dBW/4 kHz, 18 to 26 GHz; <-125 dBW/4 kHz, 26 to 40 GHz
NPR	-19 dB at 4 dB OBO (wrt flange) with optional linearizer		
Intermodulation	-25 dBc or better at 54.3 dBm output power (270 W), with respect to each of two equal carriers; -25 dBc or better at 57.3 dBm output power (540 W) with optional linearizer, with respect to each of two equal carriers		
Group Delay	0.01 ns/MHz linear max; 0.001 ns/MHz <sup>2</sup> parabolic max; 0.5 ns pk-pk ripple max.		
Primary Power	Voltage: Single phase, 200-240 VAC $\pm 10\%$ ; Frequency: 47-63 Hz, 15 A max.		
Power Consumption	2.3 kVA typ. at 540 W output power		
Power Factor	0.95 min; 0.99 typ.		
Inrush Current	200% max.		
Ambient Temperature	-10°C to +60°C operating, -54°C to +71°C non-operating		
Relative Humidity	95% non-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-810G. Designed to withstand 20G at 11 ms (1/2 sine pulse in non-operating condition)		
Cooling	Forced Air with integral blower. Rear air intake and exhaust. Maximum external pressure loss allowable: 0.5" water column		
Connections	RF Input: Type N Female; RF output: WR-75 grooved waveguide flange; RF output monitor: Type N Female		
M&C Interface	RJ45 Ethernet, includes embedded GUI control; RS422/485, RS232 serial interface		
USB Port	Download/Upload software, logs		
Dimensions, W x H x D	19 x 8.75 x 24 inches (483 x 222 x 610 mm)		
Weight	78 lbs (35 kg) nom.		
Heat Dissipation	1,450 watts to duct; 350 watts to room		
Acoustic noise	68 dBA (as measured at 3 ft.) nom.		