

# 750 W SuperLinear® Outdoor TWT Amplifier

## Built for Outdoor Applications

Provides up to 315 watts of linear power in a rugged and compact weatherproof package, digital ready, for satellite uplinks in the 13.75 - 14.50 and 12.75 - 14.50 GHz frequency bands.

## Cost Effective and Efficient

CPI SuperLinear® TWTAs are among the most power efficient in the industry. Also employs a high efficiency, dual-depressed collector helix traveling wave tube, further reducing operating costs.

## 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. Optional SNMP facilitates high level M&C integration.

## Easy to Maintain

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

## Meets Global Requirements

Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2004/108/EC and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements. CE certified.

## Worldwide Support

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



### Model TL07UO

750 watt Ku-band SuperLinear® ODU for **satellite uplink applications**

### OPTIONS

- 1 RU remote control panel
- Serial interface
- Extended frequencies: 12.75 to 14.50, 12.75 to 13.25 and 13.0 to 14.8 GHz\* (\*contact CPI for specifications)
- Redundant and hybrid power combined sub-systems
- Integrated 1:1 switch control and drive
- Single or multiband L-band block upconverters (BUCs) --- specifications for when BUC is included are not contained in this document. Contact CPI for details.
- Integral linearizer
- External receive band reject filter (increases loss by a minimum of 60 dB up to 12.7 GHz)
- SNMP capability



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## 750 W Ku-Band SuperLinear® Outdoor TWT Amplifier

Specification	Model TL07U0
Output Frequency	13.75 to 14.50 GHz or 12.75 to 14.50 GHz
Output Power (min.) TWT Flange Peak Power Maximum Power at Flange CW Power at Flange	750 W (58.75 dBm) min. 650 W (58.13 dBm) min. 350 W (55.44 dBm) min. 325 W (55.12 dBm) min.
Note on Output Power	This amplifier guarantees 325 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) typ, 0.1 dB steps
Gain Stability Over temp, constant drive	±0.25 dB/24 hour max, max. at constant drive and temperature, after 30 minute warmup ±1.0 dB typ. over operating temperature range
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk max. across any 80 MHz (1.5 dB pk-pk max. with BUC option); 3.5 dB pk-pk max. across 750 MHz (4.5 dB pk-pk max. across 750 MHz with linearizer); 4.5 dB pk-pk max. across 1750 MHz; (5.5 dB pk-pk max. across 1750 MHz with linearizer)
Input/Output VSWR	1.5:1 max.
Load VSWR	2.0:1 continuous operation; 1.2:1 for full spec. compliance; any value operation without damage
Phase Noise	10 dB below IESS-308/309 phase noise profile
AM/PM Conversion	2.0°/dB max. for a single-carrier at 8 dB below rated power (at 3 dB OBO with optional linearizer)
Harmonic Output	-60 dBc at rated power, second and third harmonics
Noise Density	<-130 dBW/4 kHz, 10.70 to 12.75 GHz; <-65 dBW/4 kHz passband; <-60 dBW/4 kHz passband with linearizer option
Intermodulation - with respect to each of 2 equal carriers 5 MHz apart	-25 dBc or better at output level of 51 dbm (at 55 dBm output power with optional linearizer)
Group Delay	0.01 ns/MHz linear max; 0.001 ns/MHz <sup>2</sup> parabolic max; 0.5 ns pk-pk ripple max. (1.5 ns pk-pk ripple max. with BUC option)
Primary Power	Voltage: Single phase, 120 VAC ±10%; Frequency: 47-63 Hz
Power Consumption	1.5 kVA typ; 1.8 kVA max.
Power Factor	0.95 min; 0.99 typ.
Inrush Current	200% max.
Ambient Temperature	-40°C to +60°C operating, -40°C to +70°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 at 11 ms (1/2 sine pulse in non-operating condition); 2.1 G rms, 5 to 500 MHz
Cooling	Forced Air with integral blower
Connections	RF Input: Type N Female; RF output: WR-75 waveguide flange; RF output monitor: Type N Female
M&C Interface	RJ45 Ethernet, includes embedded GUI control; RS422/485, RS232 serial interface optional
Dimensions, W x H x D	10.25 x 10.5 x 20.5 inches (260 x 267 x 521 mm)
Weight	55 lbs (25.0 kg) typ.
Heat Dissipation	1300 watts max.
Acoustic noise	68 dBA (as measured at 3 ft.) nom.