750W Peak Power Outdoor TWT Amplifier

for Satellite Uplink Applications

Ku-Band

The TL07UO

750 watt Peak Power TWT Amplifier — high efficiency in an environmentally sealed compact package designed for outdoor operation

Plays in the Rain

Provides up to 325 watts of linear power in a rugged and compact weatherproof package, digital ready, for satellite uplinks in the 13.75 - 14.50 GHz frequency band.

Cost Effective and Efficient

Mounting at the antenna improves performance through minimized cable losses and saves cost in system design. Employs a high efficiency, dual-depressed collector helix traveling wave tube, reducing operating costs.

Reliable

Designed and built to survive in extremely adverse environmental conditions and features increased cooling margin for longer life. Operating temperature of up to 60°C in direct sunlight.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated RS422/485 computer interface. Digital metering and pin diode attenuation for improved intermodulation performance. An Ethernet option with simple web browser interface is also available.

Easy to Maintain

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

Global Applications

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

Worldwide Support

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

satcom products

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OPTIONS:

- *1 RU Remote Control Panel*
- *Ethernet Interface*
- *Redundant and Hybrid Power Combined Systems*
- *Integrated 1:1 Switch Control and Drive*
- *Integral L-Band Block Up Converter (BUC)*
- *Integral Linearizer*
- *External Receive Band Reject Filter (Increases loss by a minimum of 60 dB up to 12.7 GHz)*

SPECIFICATIONS, TL07UO

Electrical

Frequency	13.75 - 14.50 GHz (12.75 - 14.50 GHz optional)
Output Power	
TWT	750 W min. (58.8 dBm)
Flange Peak Power*	650 W min. (58.1 dBm)
Maximum at Flange	350 W max. (55.44 dBm)
Minimum at Flange	325 W min. (55.12 dBm)

**note: this amplifier does not provide 650 W of power at the flange. The 650 W figure is provided so that desired backoff from peak power may be more easily calculated. See minimum output power at flange above for CW power at flange.*

Bandwidth	750 MHz (1750 MHz optional)
Gain	70 dB min.
RF Level Adjust Range	0 to 30 dB typ.
Gain Stability	
At constant drive & temp.	±0.25 dB/24hr max. (after 30 min. warmup)
Over temp., constant drive	±1.0 dB over oper. temp. range (typical)
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	
Across any 80 MHz band	1.0 dB pk-pk max. (1.5 dB pk-pk max. with BUC option)
Across the 750 MHz band	3.5 dB pk-pk max. (4.5 dB pk-pk max. with optional linearizer)
Across the 1750 MHz band	4.5 dB pk-pk max. (5.5 dB pk-pk max. with optional linearizer)
Input VSWR	1.5:1 max.
Output VSWR	1.5:1 max.
Load VSWR	
Continuous operation	2.0:1
Full spec compliance	1.2:1
Operation without damage	Any value
Phase Noise	10 dB below IESS 308/309 mask
AM/PM Conversion	2.0°/dB max. for a single-carrier at 8 dB below rated flange peak power (at 3 dB below 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, 13.75 to 15.40 GHz

Electrical (continued)

Intermodulation	-24 dBc or better with two equal carriers at total output power level of 51 dBm (at 55 dBm output power with optional linearizer)
Group Delay (in any 80 MHz band)	0.01 ns/MHz linear max; 0.001 ns/MHz sq. parabolic max; 0.5 ns pk-pk ripple max. (1.5 ns pk-pk ripple max. with BUC option)
Primary Power	
Voltage	200 to 240 VAC ±10% single phase
Frequency	47-63 Hz
Power Consumption	1.5 kVA typ. 1.8 kVA max.
Power Factor	0.95 min.
Inrush Current	200% max.

Environmental (Operating)

Ambient Temperature	-40°C to +60°C including solar loading; -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 peak, 11 msec, 1/2 sine; 2.1 G rms, 5 to 500 Hz.
Acoustic Noise	68 dBA (as measured at 3 ft.)
Heat Dissipation	950 W max.

Mechanical

Cooling (TWT)	Forced air with integral blower
RF Input Connection	Type N Female
RF Output Connection	WR-75 waveguide flange, grooved, threaded UNC 2B 6-32
RF Output Monitor	Type N female
Dimensions (W x H x D)	12.75 x 11.5 x 22.25 in. (324 x 292 x 566 mm)
Weight	75 lbs (34.1 kg) typ.

CE

ISO 9001 Certificate Number: 30515

For more detailed information, please refer to the corresponding CPI Technical Description.

Note: *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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