

Low Power SuperLinear™ Outdoor TWTA for Satellite Uplink Applications

Ka-Band

The TL01KO Series

Highly Efficient Ka-band TWT Amplifier — provides 25 W or 40 W of linear power at the flange. Environmentally sealed compact design for outdoor operation



Plays in the Rain

Rugged, compact and lightweight amplifier designed for outdoor use. Provides up to 40 W of linear power at the flange.

Efficient and Cost Effective

Mounting at the antenna improves performance through minimized cable losses and saves cost in system design. Employs a high efficiency helix traveling wave tube, reducing operating costs. A block upconverter (BUC) is available as an option.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated Ethernet computer interface. Digital metering is standard.

Easy to Maintain

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

Global Applications

Meets 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 fifteen regional factory service centers.

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Low Power SuperLinear Outdoor TWT Amplifier

OPTIONS:

- *1 RU Remote Control Panel*
- *WR-34 Output*
- *Block Upconverter (BUC)*
- *Harmonic Filter*
- *Integral Linearizer*

SPECIFICATIONS, TL01KO

Electrical

| | |
|--|--|
| Frequency | 27.5 to 30.0 GHz or 30.0 to 31.0 GHz |
| Output Power | |
| TWT | 50 W avg. |
| Linear power at flange | 25 W (43.98 dBm); 40 W (46.00 dBm) with linearizer option |
| Max. CW at flange | 50 W |
| Bandwidth | 1000 or 2500 MHz, depending on desired frequency range |
| Gain | 70 dB min. |
| Gain Stability | ±0.25 dB/24hr max. (after 30 min. warmup) (at constant drive and temp.) ±1.0 dB over temperature range |
| Attenuator Step Size | 0.1 dB |
| Small Signal Gain Slope | ±0.04 dB/MHz max. |
| Small Signal Gain Variation | 1.0 dB pk-pk across any 10 MHz in passband; 3.0 dB pk-pk across any 1000 MHz band |
| RF Level Adjust Range | 30 dB typ. |
| Input VSWR | 1.3:1 max. |
| Output VSWR | 1.3:1 max. |
| Load VSWR | 1.5:1 max; no degradation; any value for operation without damage |
| L-Band Input | Depends on desired frequency range |
| MUXed External 10 MHz Reference Phase Noise Required (BUC option only) | -120 dBc/Hz at 10 Hz -140 dBc/Hz at 100 Hz -145 dBc/Hz at 1 kHz -155 dBc/Hz at ≥10 kHz (Level -3 to +7 dBm) |
| Single Sideband Phase Noise (continuous mask) (BUC option only) | -63 dBc at 100 Hz offset -73 dBc at 1 kHz offset -83 dBc at 10 kHz offset -93 dBc at 100 kHz offset -103 dBc at 1 MHz offset -113 dBc at ≥10 MHz offset |
| Spurious | -60 dBc max. at 25 W output (at 40 W with linearizer option) |
| AM/PM Conversion | 2.0°/dB max. for a single carrier up to 25 W output power (40 W with linearizer) |
| Harmonic Output | -60 dBc max. at 25 W output power with harmonic filter option (at 40 W with linearizer option and harmonic filter) |
| Noise Power Density (at maximum gain) | <-150 dBW/4 kHz, below 21.2 GHz <-70 dBW/4 kHz, in passband <-65 dBW/4 kHz, in passband (w/linearizer) |

Mounting hardware is provided with each amplifier.

Electrical (continued)

| | |
|-------------------|--|
| Intermodulation | -25 dBc max. with respect to the sum of both carriers at total output power of 25 W at the flange (at 40 W with linearizer option) |
| Primary Power | 120 VAC ±10%, single phase; 47-63 Hz |
| Power Consumption | 300 VA typ. at 40 W output 400 VA max. |
| Power Factor | 0.95 min. |

Environmental (Operating)

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|---------------------|--|
| Ambient Temperature | -40°C to +60°C operating, including solar loading; -50°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 | 20 g pk, 11 msec, 2 sine |
| Vibration | 3 gms |
| Acoustic Noise | 65 dBA @ 3 ft. from amplifier |
| Heat Dissipation | 250 W typ. |

Mechanical

| | |
|------------------------|---|
| Cooling | Forced air with integral blower |
| RF Input Connection | WR-28F waveguide flange (L-Band with MUX reference, N Type Female w/BUC option) |
| RF Output Connection | WR-28G wave guide flange w/ grooved, threaded UNC-2B 4-40 |
| RF Output Monitor | 2.9 mm Female |
| Dimensions (W x H x D) | 10 x 8.55 x 17 inches max. (254 x 218 x 432 mm) |
| Weight | 29 lbs (13.2 kg) max. |



Communications & Power Industries



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.