# 150W Outdoor TWT Power Amplifier

for Satellite Communications

## The T01KO Series

150 watt
Ka-band TWT
Power Amplifiers —
Environmentally sealed
compact design for
outdoor operation



#### Plays in the Rain

Rugged, compact and lightweight amplifier designed for outdoor use.

#### **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.

#### **Simple to Operate**

User-friendly microprocessor-controlled logic with integrated RS422/485 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 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.



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**OPTIONS:** • 1 RU Remote Control Panel • Integral 1:1 Switch Control · Redundant and Power Combined Subsystems • Linearizer

• Block Upconverter (refer to T01KO B-Series TWTA)

#### SPECIFICATIONS, **Ka-band Outdoor LPA**

| SPECIFICATIONS, T01KO Series<br>Electrical |   | Electrical (continued)                                    |   |
|--|---|---|---|
| Frequency Output Power TWT                 | Various frequencies between 27.5 and 31.0 GHz 150 W (51.8 dBm) min.   | Group Delay (over any 40<br>Linear<br>Parabolic<br>Ripple | 0 MHz)<br>0.01 nsec/MHz max.<br>0.001 nsec/MHz² max.<br>0.5 nsec pk-pk typ  |
| Flange                                     | 125 W (51.0 dBm) min.   | Intermodulation   | -24 dBc max. or better with two   |
| Bandwidth                                  | Up to 3500 MHz  |   | equal carriers at total output flange<br>power of 7 dB below rated single<br>carrier output (at 4 dB below with<br>optional linearizer) |
| Gain                                       | 70 dB min. at rated power output; 75 dB typ. at small signal (70 dB min.                                    |   |   |
| Gain Stability                             | with optional linearizer)  ±0.25 dB/24hr max. (at constant drive and temp.), ±1.0 dB over temperature range | Primary Power   | 100-240 VAC $\pm$ 10% single phase, 47-63 Hz  |
|  |   | Power Consumption   | 780 VA max.   |
| Small Signal Gain Slope                    | ±0.025 dB/MHz max.  | Power Factor  | 0.95 min.   |
| Small Signal Gain Variation                | 1.0 dB pk-pk across any 40 MHz segment;<br>2.5 dB pk-pk across 1000 MHz                                     | Environmental (Operating)                                 |   |
|  |   | Ambient Temperature                                       | -40°C to +50°C operating,   |
| RF Level Adjust Range                      | 0 to 25 dB  |   | in direct sunlight;<br>-40°C to +55°C operating,  |
| Attenuator Step Size                       | 0.1 dB  |   | out of direct sunlight;   |
| Input and Output VSWR                      | 1.3:1 max.  |   | -54°C to +75°C non-operating  |
| Load VSWR                                  | 1.5:1 max. continuous operation;<br>any value for operation without damage;<br>2.0:1 max continuous         | Relative Humidity   | 100% condensing   |
|  |   | Altitude  | 10,000 ft. with standard adiabatic derating of 2°C/1000 ft., operating;   |
| Phase Noise                                | 12 dB below IESS 308 continuous mask  |   | 50,000 ft., non-operating   |

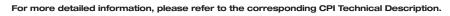
| Load VSWR         | 1.5:1 max. continuous operation;<br>any value for operation without damage;<br>2.0:1 max continuous | Relative Humidity<br>Altitude |
|-------------------|---|-------------------------------|
| Phase Noise       | 12 dB below IESS 308 continuous mask  |                               |
| Spurious          | -60 dBc max.  | Shock                         |
| AM/PM Conversion  | 2.5°/dB max. for a single carrier up to   | Vibration                     |
|                   | 6 dB OBO (1.0°/dB max. up to 3 dB OBO with linearizer option)                                       | Acoustic Noise                |
| Residual AM       | -50 dBc below 10 kHz<br>-20 [1.5 + log F(kHz)] dBc,<br>10 kHz to 500 kHz<br>-85 dBc, above 500 kHz  | Heat Dissipation              |
| nesiuudi Aivi     |   | Mechanical                    |
|                   |   | Cooling                       |
|                   |   | RF Input Connection           |
| Harmonic Output   | -12 dBc max. at rated power (-60 dBc with harmonic filter option)                                   | RF Output Connection          |
| Noise Density     | <-150 dBW/4 kHz, below 21.2 GHz, <-115 dBW/12.5 MHz, below 21.2 GHz typ.                            | Remote Interface              |
|                   | <-70 dBW/4 kHz max, transmit band   | RF Output Monitor             |
|                   | (<-80 dBW/4 kHz typ. in transmit band) <-65 dBW/4 kHz max, transmit band with linearizer option     | Dimensions (WxHxD)            |
| Noise Power Ratio | -18 dB at 4 dB OBO (with linearizer option)   | Weight                        |

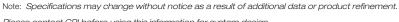
Note 1: Please consult CPI representative to confirm that desired bandwidth is available over desired frequency range. Mounting hardware is provided with each amplifier.

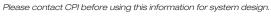
Weight













20 g pk, 11 mS, 1/2 sine 2.1 grms, 5 to 500 Hz

825 W max.

65 dBA typ. @ 3 ft. from amplifier

Forced air with integral blower WR-28F (WR-34F optional) WR-34G (WR-28G optional) RS422/485 and RS232 serial (Ethernet interface optional) 2.9 mm SMA Female 10.25 x 9.5 x 20.0 in. (261 x 242 x 508 mm) not including handle or connectors

55 lbs (25 kg) with no options