200W Outdoor TWT Amplifier

for Satellite Communications

Ku-Band

The T02UO Series

200 Watt TWT Amplifier — high efficiency in an environmentally sealed compact package designed for outdoor operation

Plays in the Rain

Provides 200 watts of power in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service in the 13.75-14.50 GHz frequency band. Ideal for transportable and fixed earth station applications.

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.

Simple to Operate

User-friendly microprocessor-controlled logic with integrated RS422/485 computer interface. Digital metering, pin diode attenuation and optional integrated linearizer for improved intermodulation performance.

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 89/336/EEC and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements.

Worldwide Support

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

satcom division

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OPTIONS:

- *Remote Control Panel*
- *Extended Frequency (12.75-14.5 GHz)*
- *Redundant and Power Combined Subsystems*
- *External Receive Band Reject Filter (Increases loss by a minimum 60 dB up to 12.7 GHz)*
- *Solid State Intermediate Power Amplifier (SSIPA)*
- *SSIPA with Variable Attenuator (provides RF Level Adjust Range of 0 to 30 dB)*
- *Integral Linearizer (requires SSIPA w/ attenuator option)*
- *Integrated 1:1 switch control and drive*
- *Forward Power Detection over CIF*
- *L-Band Block Up Converter (BUC --- requires SSIPA)*

SPECIFICATIONS, T02UO

Electrical

Frequency	13.75 to 14.50 GHz
Output Power	
TWT	200 W min. (53.01 dBm)
Flange	175 W min. (52.43 dBm)
Bandwidth	750 MHz
Gain	35 dB min. at rated power output (70 dB with SSIPA); 41 dB min. at small signal (75 dB with SSIPA)
Gain Stability	±0.25 dB/24hr max. (at constant drive and temp.)
Small Signal Gain Slope	±0.04 dB/MHz max.
Small Signal Gain Variation	1.0 dB pk-pk across any 80 MHz band; 2.5 dB pk-pk across the 750 MHz band
RF Level Adjust Range	30 dB typ.
Input VSWR	1.3:1 max.
Output VSWR	2.2:1 max. (1.3:1 max. with optional output circulator)
Load VSWR	2.0 max. continuous operation; any value for operation without damage
Residual AM	-50 dBc below 10 kHz -20 [1.5 +log F(kHz)] dBc, 10 kHz to 500 kHz -85 dBc above 500 kHz
Phase Noise	12 dB below IESS-308 continuous mask
AM/PM Conversion	2.0°/dB max. for a single carrier up to 7 dB OBO (2.0°/dB up to 4 dB OBO with linearizer option)
Harmonic Output	-60 dBc at rated power
Noise Power Density (at maximum gain)	<-150 dBW/4 kHz, below 12.7 GHz <-70 dBW/4 kHz, passband to 18.0 GHz
Noise Figure	35 dB max., 10 dB with SSIPA
Intermodulation	-24 dBc max. with two equal carriers at total output power 7 dB (4 dB with optional integral linearizer) below rated single-carrier output

Electrical (continued)

Group Delay (in any 80 MHz band)	0.01 ns/MHz linear max. 0.005 ns/MHz^2 parabolic max. 0.5 ns pk-pk ripple max.
Primary Power	99-264 VAC, single phase; 47-63 Hz
Power Consumption	800 VA max. 850 VA max.
Power Factor	0.95 min.

Environmental (Operating)

Ambient Temperature	-40°C to +55°C operating, including solar loading; -40°C to +75°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 pk, 11 msec, 2 sine
Acoustic Noise	65 dBA @ 3 ft. from amplifier

Mechanical

Cooling	Forced air with integral blower
RF Input Connection	Type N female
RF Output Connection	WR-75 waveguide flange, grooved with UNC 2B 6-32 threaded holes
RF Output Monitor	Type N female
Dimensions (W x H x D)	8.6 x 8.6 x 15.75 in. (219 x 219 x 400 mm)
Weight	35 lbs (16 kg) max., with no options

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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