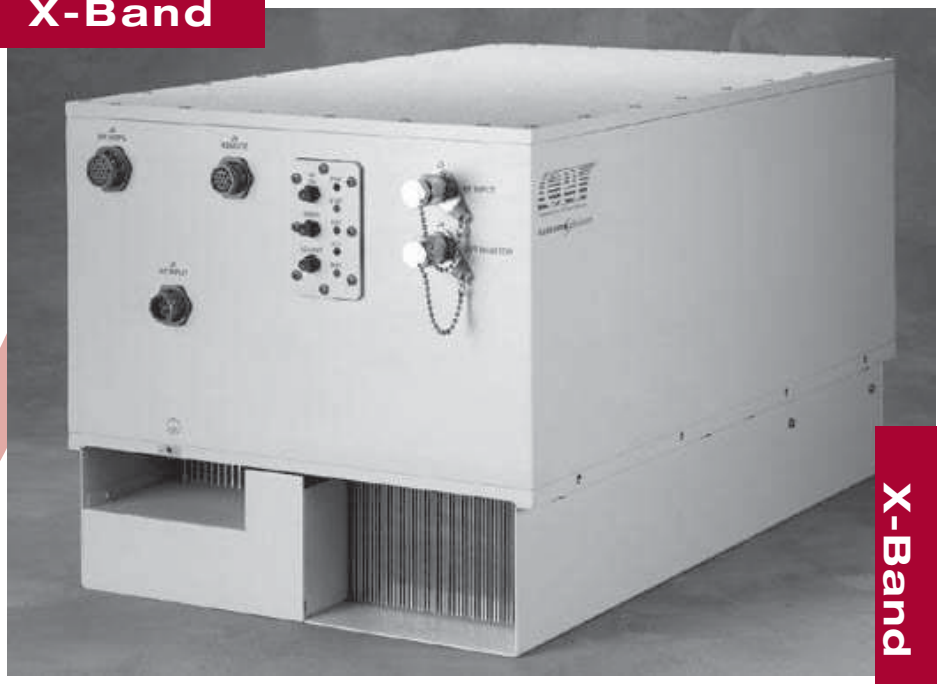
# 750W Outdoor TWT Medium Power Amplifier

for Satellite Communications

**X-Band**



**The VZX-6987V7**

*750 Watt TWT Medium Power Amplifier — high efficiency in an environmentally sealed compact package designed for outdoor operation*

## Plays in the Rain

Provides 750 watts of power in a rugged and compact weatherproof package, digital ready, for wideband, single- and multi-carrier satellite service in the 7.9 - 8.4 GHz frequency band. Ideal for transportable and fixed satcom uplink 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 three decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes fourteen regional factory service centers.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X-Band

750W Outdoor TWT Medium Power Amplifier

## SPECIFICATIONS, VZX-6987V7

### Electrical

| | |
|---|---|
| Frequency | 7.9 - 8.4 GHz |
| Output Power | |
| TWT | 750 W min. (58.75 dBm) |
| Flange | 650 W min. (58.13 dBm) |
| Bandwidth | 500 MHz |
| Gain | 70 dB min. at rated power, 88 dB max.<br>75 dB min. at small signal, 90 dB max. |
| RF Level Adjust Range | 0 to 30 dB typ. (via PIN diode attenuator) |
| Gain Stability | |
| At constant drive & temp. | ±0.25 dB/24 hrs. max.<br>(after 30 min. warmup) |
| Over temp., constant drive (any frequency) | ±1.0 dB over oper. temp. range<br>±0.75 dB over ±10°C |
| Small Signal Gain Slope | ±0.02 dB/MHz max. |
| Small Signal Gain Variation | |
| Across any 40 MHz band | 0.5 dB pk-pk max. |
| Across the 500 MHz band | 2.5 dB pk-pk max. |
| Across 500 MHz, with linearizer option | 3.5 dB pk-pk max. |
| Input VSWR | 1.3 max. |
| Output VSWR | 1.3 max. |
| Load VSWR | |
| Continuous operation | 2.0:1 |
| Full spec compliance | 1.5:1 |
| Operation without damage | Any value |
| Residual AM, max. | -50 dBc below 10 kHz<br>-20[1.5 +log F(kHz)] dBc, 10 kHz to 500 kHz<br>-85 dBc above 500 kHz |
| Phase Noise | |
| IESS-308/309 phase noise profile | 12 dB below mask |
| MIL-STD-188-164A | 10 dB below mask |
| AC Fundamental | -36 dBc |
| Sum of spurs (370 Hz to 1 MHz) | -47 dBc |
| AM/PM Conversion | 2.5°/dB max. for a single-carrier at 8 dB below rated power (at 3 dB backoff with optional linearizer) |
| Noise Power Density | <-70 dBW/4 kHz, 7.25 - 7.75 GHz<br><-65 dBW/4 kHz, 7.9 - 8.4 GHz<br><-60 dBW/4 kHz, 7.9 - 8.4 GHz with linearizer option |
| Spurious | -60 dBc per MIL-STD-188-164A |
| Noise Figure | 10 dB max.; 15 dB max. with optional integral linearizer |
| Intermodulation | -25 dBc max. with two equal carriers at total output power 7.5 dB (4.5 dB with optional integral linearizer) below rated single-carrier output, per MIL-STD-188-164-A |

### Electrical (continued)

| | |
|---|---|
| Spectral Regrowth | -30 dBc max. at total output power 6 dB backoff (3 dB with linearizer) QPSK modulation |
| Group Delay (in any 40 MHz band) | 0.01 ns/MHz linear max.<br>0.001 ns/MHz sq. parabolic max.<br>0.5 ns pk-pk ripple max. |
| Primary Power | |
| Voltage | Single phase, 200-240 VAC ±10% |
| Frequency | 47- 63 Hz |
| Power Consumption | 2.2 kVA typ. (at 3 dB backoff)<br>2.6 kVA max. |
| Power Factor | 0.95 min. |
| Inrush Current | 200% max. |

### Environmental

| | |
|---|---|
| Ambient Temperature | -40°C to + 55°C operating, including solar loading;<br>-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 | Designed for normal transportation environment per Section 514.4 MIL-STD-810E. Designed to withstand 20G at 11 ms (1/2 sine pulse) in non-operating condition. |

### Mechanical

| | |
|---|---|
| Cooling | Forced air w/ integral blower. Rear air intake & exhaust. Maximum external pressure drop allowable: 0.5 inches water column. |
| RF Input Connection | Type N female |
| RF Output Connection | CPR-112 waveguide flange, grooved, threaded UNF 2B 10-32 |
| RF Output Monitor | Type N female |
| Dimensions (W x H x D) | 14.5 x 13.1 x 24 in.<br>(368 x 333 x 610 mm) |
| Weight | 87 lbs (39.5 kg) typ. |

### Heat and Acoustic

| | |
|---|---|
| Heat Dissipation | |
| Ducted | 2,000 W max. |
| Into Hub | 200 W max. |
| Acoustic Noise | 68 dBA (as measured at 3 ft.) |

### OPTIONS:

- *Integral Linearizer*
- *Remote Control Panel*
- *Redundant and Power Combined Subsystems*
- *External Receive Band Reject Filter (increases loss by a minimum of 115 dB at 7.25 to 7.75 GHz)*
- *Block Upconverter (950 - 1450 MHz)*
- *Higher Operating Temperature Limit (to 65°C including solar loading)*

ISO 9001 Certificate Number: 30515

***KEEPING YOU ON THE AIR***
***not up in the air***

**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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