

# 400W Compact Medium Power Amplifier for Satellite Communications

**C-Band**

## The VZC-6964

*400 Watt TWT Medium  
Power Amplifier—  
high efficiency in a  
compact package*



### Compact

Provides 400 watts of power in a 3 rack unit package, digital ready, for wideband, single- and multi-carrier satellite service over any one of several frequency ranges in C-band. Ideal for transportable and fixed earth station applications where space and prime power are at a premium.

### Efficient

Employs a high efficiency dual-depressed collector helix traveling wave tube backed by many years of field-proven experience in airborne and military applications.

### Simple to Operate

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

### Global Applications

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

### Easy to Maintain

Modular design and built-in fault diagnostic capability with convenient and clearly visible indicators behind front panel door for easy maintainability in the field.

### Worldwide Support

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

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## OPTIONS:

- *Remote Control Panel*
- *Integral Linearizer*
- *Redundant and Power Combined Subsystems*
- *External Receive Band Reject Filter (Increases loss by an additional 65 dB up to 4.8 GHz)*

## SPECIFICATIONS, VZC-6964

### Electrical

Frequency	Select 5.850 to 6.650 GHz, 5.850 to 7.075 GHz or 5.725 to 6.525 GHz
Output Power	
TWT	400 W min. (56.02 dBm)
Flange	350 W min. (55.44 dBm)
Bandwidth	800 or 1225 MHz, depending on configuration
Gain	75 dB min. at rated power output; 78 dB min. at small signal
RF Level Adjust Range	0 to 20 dB
Gain Stability	±0.25 dB/24hr max. (at constant drive and temp.); ±1.0 dB over temperature, -10° to +50°C
Small Signal Gain Slope	±0.02 dB/MHz max.
Small Signal Gain Variation	0.6 dB pk-pk across any 40 MHz band; 2.5 dB pk-pk across 5.725 - 6.525 GHz; 4.0 dB pk-pk across 5.850 - 6.650 GHz or 5.850 - 7.025 GHz (2.5 dB pk-pk typ.); 6.0 dB pk-pk across the 1225 MHz band with linearizer; 4.5 dB pk-pk across 800 MHz band with linearizer.
Input VSWR	1.3:1 max.
Output VSWR	1.3:1 max.
Load VSWR	2.0:1 max. operational; any value for operation without damage
Residual AM	-50 dBc below 10 kHz -20[1.3 + log F(kHz)] dBc, 10 kHz to 500 kHz -85 dBc above 500 kHz
Phase Noise	
Phase Noise Profile	-12 dBc better than IESS 308/309 specification -42 dBc/Hz at 10 Hz -72 dBc/Hz at 100 Hz -82 dBc/Hz at 1 kHz -92 dBc/Hz at 10 kHz -102 dBc/Hz at 100 kHz -122 dBc/Hz at 1 MHz
AC Fundamental Sum of All Spurs	-42 dBc -50 dBc
AM/PM Conversion	2.5°/dB max. for a single carrier at 6 dB below rated power for 5.85 to 6.65 GHz configuration; 3.0°/dB max. for all other configurations
Harmonic Output	-60 dBc at rated power, second and third harmonics
Spurious Output (at rated gain)	<-130 dBW/4 kHz from 3.4 to 4.2 GHz <-65 dBW/4 kHz in passband (<-60 dBW/4 kHz with linearizer option) <-110 dBW/4 kHz from 12.0 to 40.0 GHz

### Electrical Specifications (continued)

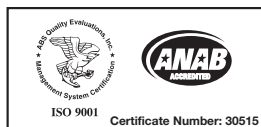
Intermodulation	5.85 - 6.65 GHz configuration: -24 dBc max. with two equal carriers at total output power 7 dB) below rated single-carrier output (at 4 dB with optional integral linearizer; All other configurations: -23 dBc max at 7 dB OBO (at 4 dB OBO with linearizer)
Group Delay (in any 40 MHz band)	0.01 ns/MHz linear max. 0.001 ns/MHz <sup>2</sup> parabolic max. 0.5 ns pk-pk ripple max.
Primary Power	110 - 240 VAC ±10%, single phase 47- 63 Hz
Power Consumption	1.3 kVA typ. 1.5 kVA max.
Power Factor	0.95 min.

### Environmental Specifications

Ambient Temperature	-10° to +50°C operating -40° to +70°C non-operating
Relative Humidity	95% non-condensing
Altitude	10,000 ft. with standard adiabatic derating of 2°C/1000 ft., operating; 40,000 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 configuration.
Acoustic Noise	65 dBA @ 3 ft. from amplifier

### Mechanical Specifications

Cooling (TWT)	Forced air with integral blower Rear air intake & exhaust
RF Input Connection	Type N female
RF Output Connection	CPR-137G waveguide flange, grooved with UNC 2B 10-32 threaded holes
RF Output Monitor	Type N female
Dimensions (W x H x D)	19 x 5.25 x 24 in. (483 x 133 x 610 mm)
Weight	70 lbs (31.8 kg) max.



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.

