

# 250 Watt V-Band Antenna Mount High Power Amplifier



## FEATURES

- *250 Watts Peak TWT Power*
- *-40°C to +60°C Operation*
- *Complete RS-422/485, Ethernet Interface*
- *Designed for Uplink Applications*

The **XTD-250QV** is a compact self-contained antenna mount power amplifier designed for low cost installation and long life.

Cooling and monitor & control systems are all self-contained within the amplifier.

TWTs are available delivering 250 Watts peak power across the 47.2 to 51.4 GHz band. A predistortion linearizer is also included to optimize linear power at the HPA flange.

The **XTD-250QV** provides several methods of tube protection including output power monitoring.

The amplifier is available with multiple options including redundant configurations, preamplifiers with fixed or variable gain.

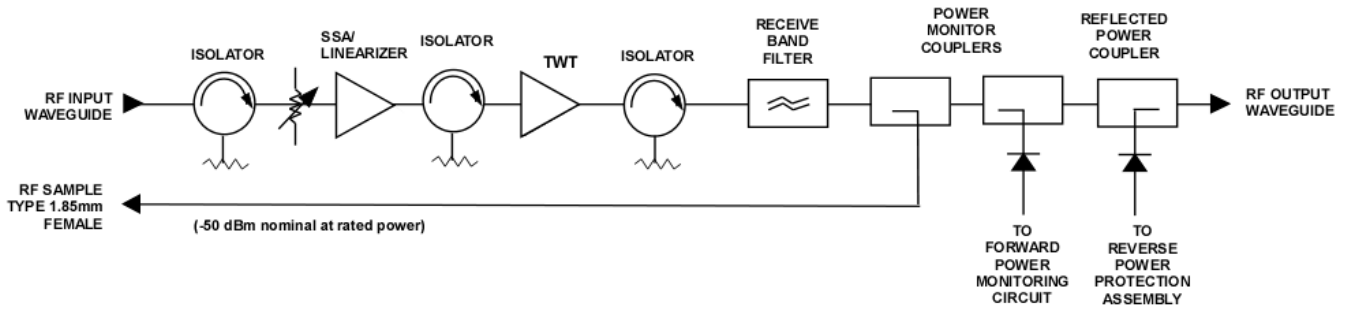
A remote external controller is available to operate the HPA from a user selected location.



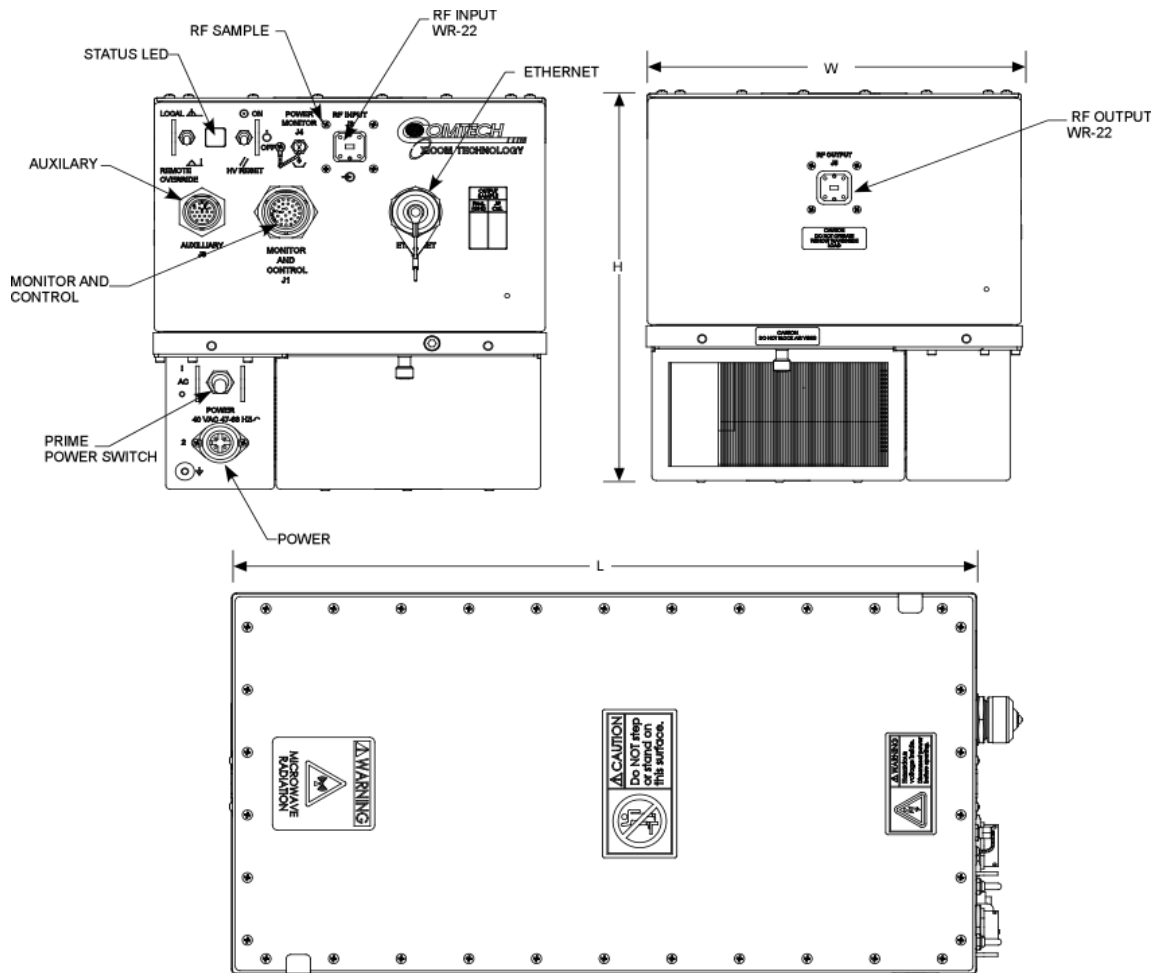
# PERFORMANCE SPECIFICATION

Parameters	XTD-250QV
FREQUENCY RANGE (extended frequency coverage available)	47.2 to 51.4 GHz
OUTPUT POWER	
Traveling Wave Tube, Peak $P_o$	250 W (54.0 dBm)
$P_{Linear}$ @ Amplifier Flange (minimum)	80 W (49.0 dBm)
GAIN	
Large Signal (minimum)	60 dB
Small Signal (minimum)	60 dB
Attenuator Range (continuous)	20 dB
Maximum SSG Variation Over	
Any 500 MHz	2.0 dB maximum
Full Band	4.0 dB maximum
Slope (maximum)	$\pm 0.02$ dB/MHz
Stability, 24 hr. (maximum)	$\pm 0.25$ dB
LSG Stability Over Temperature Range	$\pm 1.0$ dB at any frequency
NOISE POWER RATIO	19 dBc @ $P_{LINEAR}$
AM/PM CONVERSION (maximum)	2°/dB at linear power
NOISE POWER (maximum)	
Transmit Band	-65 dBW/4 kHz
Receive Band (37.5 to 42.5 GHz)	-150 dBW/4Hz
GROUP DELAY (maximum)	
Bandwidth	Any 60 MHz
Linear	0.01 nS/MHz
Parabolic	0.005 nS/MHz <sup>2</sup>
Ripple	0.5 nS/Pk-Pk
RESIDUAL AM NOISE (maximum)	-50 dBc to 10 kHz -20 (1.5 + logf) dBc 10 to 500 kHz -85 dBc above 500 kHz
PHASE NOISE (maximum)	10 dB below IESS phase noise profile AC fundamental -50 dBc Sum of all spurs -47 dBc
VSWR	
Input (maximum)	1.3:1
Output (maximum)	1.3:1

# BLOCK DIAGRAM



# OUTLINE DRAWING



DIMENSIONS		
	INCHES	CENTIMETERS
L	20.0	50.8
H	11.0	27.94
W	10.31	26.19
Typical Weight = 58 lbs. (26.31 kg)		

**XTD-250QV**



## PRIME POWER

100 to 260 VAC, Single Phase  
60 Hz, Single Phase  
1200 VA (typical)  
0.95 Minimum Prime Power Factor



## ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-40°C to +60°C (2°C/1000 Feet Derating)
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 Feet MSL (maximum)
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

## INTERFACE

Type	Function	
LOCAL CONTROL	Prime Power ON/OFF	Local/Remote
	Power Supply ON/OFF	HV ON/OFF
LOCAL STATUS	Tri-Color LED:	
	Fault: Red	Standby: Continuous Amber
	HV ON: Green	FTD: Flashing Amber
REMOTE CONTROL	HV ON/OFF	RF Inhibit (HV OFF)
	RF Attenuation (w/preamp)	Fault Reset
	Heater Standby	
REMOTE STATUS	HV ON	Heater/Beam Hours
	RF Output Power	Fault Identification
	Reflected Power	TWT Temperature
	Filament Time Delay	Helix Current
	Helix Voltage	
FORM C DRY CONTACT CLOSURE	Summary Fault	
RF MONITOR PORT	-37 dB Coupling Value (approx.)	
INTERFACE	Serial 232/422/485	
	Ethernet	

## OPTIONS

- Remote External Control
- 1:1, 1:2, 1:N Redundancy
- Power Combined
- WR-19 Waveguide

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Document XTD-250QV Rev 3, 03/25/2020

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Note: Technical specifications are subject to change without notice. Please contact Xicom Technology before using this information for system design.