

250 Watt V-Band Antenna Mount High Power Amplifiers



FEATURES

- *250 Watts Peak TWT Power*
- *Commercial frequencies between 47.2 and 51.4 GHz (optional 47.2 to 52.4 GHz)*
- *-40°C to +60°C Operation*
- *Complete RS-422/485, Ethernet Interface*
- *Designed for Uplink Applications*

The **XTD-250QV** and **XTD-250QVE** are 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 standard and extended bands. A predistortion linearizer is also included to optimize linear power at the HPA flange.

The amplifiers provide 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.

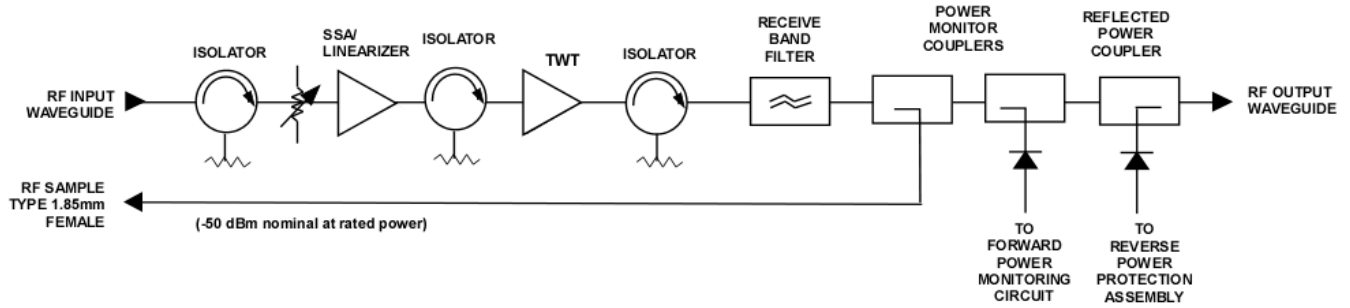
A remote external controller is available to operate the HPA from a user selected location.



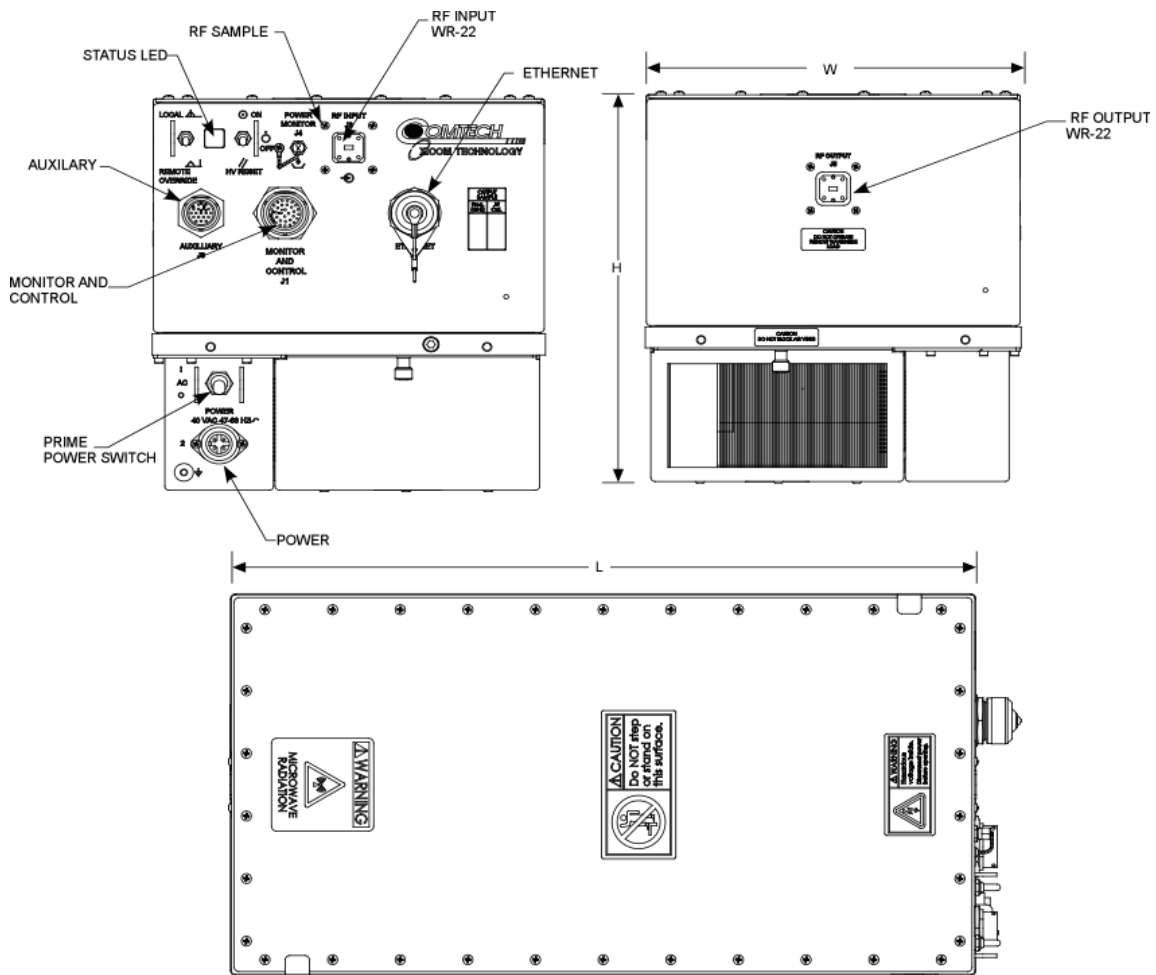
PERFORMANCE SPECIFICATION

Parameters	XTD-250QV	XTD-250QVE
FREQUENCY RANGE	47.2 to 51.4 GHz	47.2 to 52.4 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	5.0 dB maximum
Slope (maximum)	± 0.02 dB/MHz	
Stability, 24 hr. (maximum)	± 0.25 dB	
LSG Stability Over Temperature Range	± 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	-70 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 ²	
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)	15 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 / XTD-250QVE

PRIME POWER

100 to 260 VAC, Single Phase
60 Hz, Single Phase
1100 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	-50 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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