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.

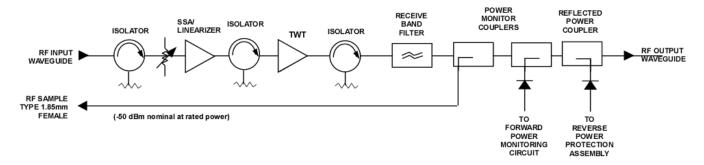


PERFORMANCE SPECIFICATION

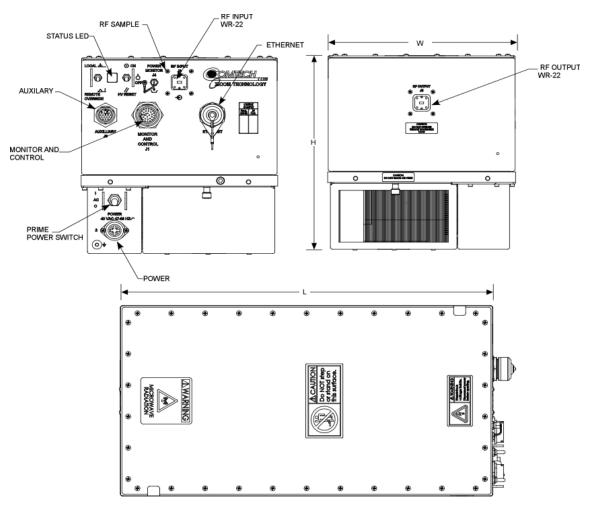
Parameters	XTD-250QV	
FREQUENCY RANGE	47.2 to 51.4 GHz	
(extended frequency coverage available) OUTPUT POWER		
Traveling Wave Tube, Peak P	250 W (54.0 dBm)	
· ·	80 W (49.0 dBm)	
P _{Linear} @ Amplifier Flange (minimum)	80 W (45.0 UBIII)	
GAIN	60 10	
Large Signal (minimum)	60 dB	
Small Signal (minimum)	60 dB	
Attenuator Range (continuous)	20 dB	
Maximum SSG Variation Over		
Any Narrow Band	0.80 dB per 60 MHz	
Any Full Band	3.0 dB	
Slope (maximum)	± 0.02 dB/MHz	
Stability, 24 hr. (maximum)	± 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	-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)	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	
Н	11.0	27.94	
W	10.31	26.19	
Typical Weight = 58 lbs. (26.31 kg)			



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 $+70^{\circ}$ C OPERATING TEMPERATURE RANGE -40° C to $+60^{\circ}$ C

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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