XTD-250Ka/500Ka Antenna Mount Power Amplifier

- Up to 500 Watts Ka-Band
- No Shelter Required
- Variable Gain Control
- Complete RS-232/422/485 Interface
- Up to 500 MHz Instantaneous Bandwidth

The XTD-250Ka and XTD-500Ka are compact, self contained antenna mount power amplifiers designed for low cost installation and long life.

Cooling and monitor & control systems are all self contained within the amplifier. By combining the power supply and the RF components within the same amplifier case, the need for external high voltage cables (required for split-box designs) is eliminated. This highly compact unit typically weighs only 160 pounds.

The tube has a depressed collector for improved efficiency and delivers up to 500 Watts in the 28 to 31 GHz band with instantaneous bandwidth of up to 500 MHz. The XTD-250Ka and XTD-500Ka provide several methods of tube protection. Due to Xicom's unique power supply design, only 1 joule is stored in the power supply.

A high frequency resonant conversion power supply is used that accepts a wide range of prime power (180 to 260 VAC.)

The unit also features power factor correction circuitry that minimizes line current distortion and reduces the required volt-amps input.

These amplifiers have built in waveguide switch control capability. This can be used in a 1:1 redundancy configuration. A single RS-485 cable can control two amplifiers and redundancy switch .

The amplifiers are available with multiple options, including redundant and phase combined system configurations, integral linearizers and harmonic filters.

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

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PERFORMANCE SPECIFICATIONS

Parameter	XTD-250Ka	XTD-500Ka
FREQUENCY RANGE:	28.00 to 31.00 GHz	28.00 to 31.00 GHz
	Alternate frequency range available	
INSTANTANEOUS BANDWIDTH (-1 dB)	500 MHz	250 MHz
OUTPUT POWER		
Tube	250 W	500 W
Rated Power @ Amplifier Flange	215 W	425 W
GAIN		
Large Signal, minimum	70 dB	
Small Signal, minimum	75 dB	
Attenuator range (continuous)	20 dB	
Maximum Variation Over:		
Any 250 MHz Band	1.75 dB maximum at Rated Power	
Slope, maximum	± 0.10 dB/MHz maximum	
Stability, 24 Hr maximum	± 0.25 dB at constant drive/temperature	
Stability, Temperature	± 1.0 dB maximum at any frequency	
INTERMODULATION with two equal signals	- 24 dBc maximum with two equal carriers at 7 dB total power output backoff	
AM/PM CONVERSION, maximum	5°/dB at 3 at rated power	
NOISE POWER, maximum		
Transmit Band	- 65 dBW/4 kHz	
Receive Band (<21.2 GHz	- 150 dBW/4 kHz	
HARMONIC OUTPUT, maximum	-15 dBc (- 60 dBc with optional filter)	
GROUP DELAY, maximum		
Linear	0.1 nS/MHz	
Parabolic	0.02 nS/MHz^2	
Ripple	2.0 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	

PRIME POWER

180-260 VAC
47 to 63 Hz, single phase
3100 VA Maximum
0.95 Minimum Prime Power Factor

OPTIONS

Linearizer
Alternative Frequency Coverage
Remote External Controller
1:1, 1:2, 1:N Redundancy
Power Combined
Harmonic Filter (0.3 dB output power loss)
WR-34 Waveguide Output or Input

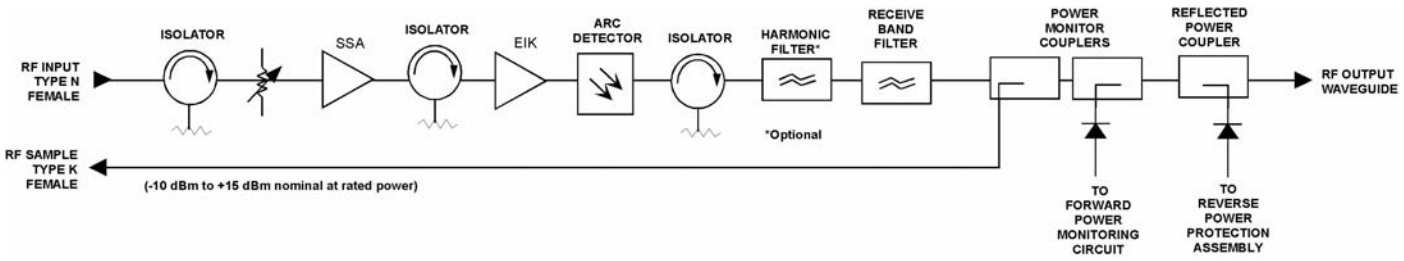
ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50° C to + 70° C
OPERATING TEMPERATURE RANGE	-35° C to +50° C
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 feet MSL maximum with standard adiabatic derating
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

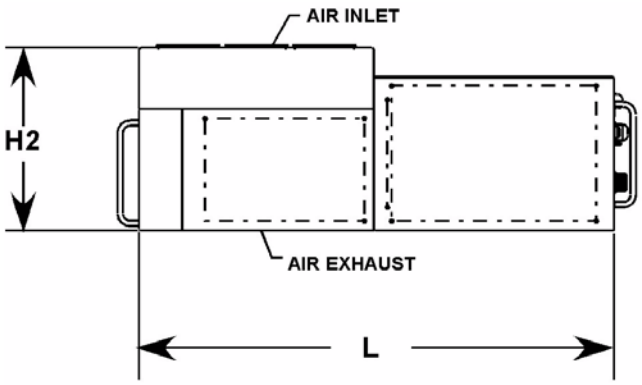
INTERFACE

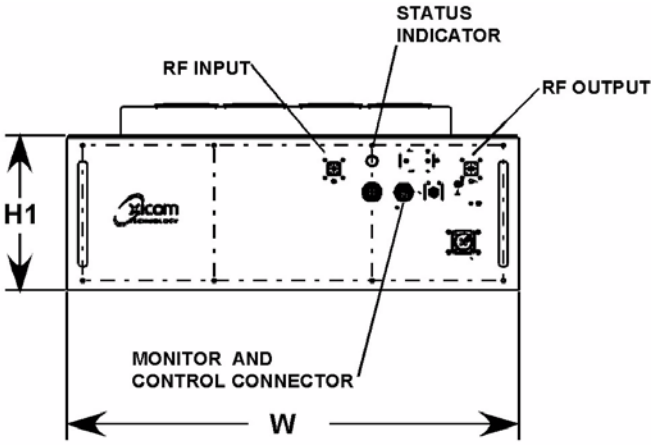
TYPE	FUNCTION		
LOCAL CONTROL	Prime Power ON/OFF	Local/Remote	
		HV ON/OFF	
LOCAL STATUS	Tri-Color LED:		
	Fault: Red	Standby: Continuous Amber	
	HV ON: Green	FTD: Flashing Amber	
REMOTE CONTROL	HV ON/OFF	RF Inhibit (HV OFF)	Heater Standby
	RF Attenuation	Fault Reset	Constant Power
REMOTE STATUS	HV ON	Heater/Beam Hours	Filament Time Delay
	RF Output Power	Fault Identification	Beam Current
	Reflected Power	Tube Temperature	Beam Voltage
Discrete Status	Summary Fault (2X Form C Dry Contact Closure)		
RF MONITOR PORT	-40 dB Coupling Value (Approx)		

Block Diagram

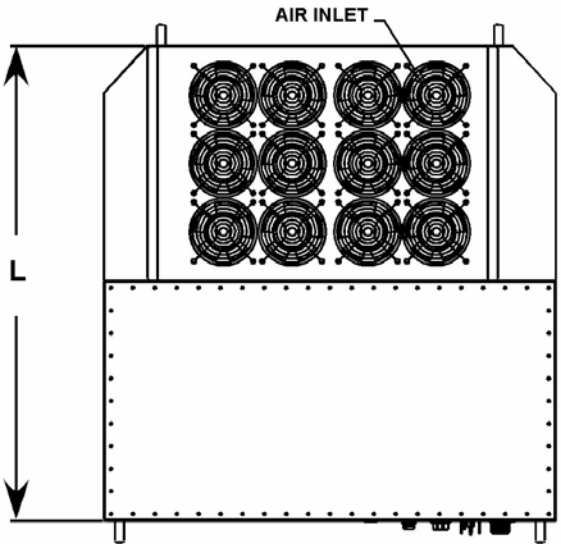


Outline Drawing





	DIMENSIONS	
	INCHES	CENTIMETERS
W	31.5	80.01
L	33.10	84.074
H1	12.75	32.385
H2	10.75	27.305



WEIGHT: 160 LBS (72.57 kg) nominal

RF OUTPUT: Ka-Band WR-34 Tapped

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