

XTD-200K Ku-Band Antenna Mount Power Amplifiers



The XTD-200K is a compact, antenna mountable, traveling wave tube amplifier designed for low cost installation and long life.

Intended for outdoor operation, the self contained XTD-200K eliminates the need for a separate amplifier shelter. In addition, the distance between the amplifier and the antenna feed horn can be short, thus eliminating long waveguide runs and their associated RF losses.

RF filters, cooling, and monitor & control (M&C) systems are all self contained within the package.

- **200 Watts Ku-Band**
- **No Shelter Required**
- **Short Waveguide Run**
- **Low Cost Installation**
- **Complete RS-232/422/485 Interface**
- **Power factor Corrected**

A high frequency resonant conversion power supply is used that accepts a wide range of prime power (100 to 260 VAC).

A remote external controller is available to operate the HPA from a user selected location. Depending upon user requirements, these high power amplifiers can be configured for single thread, redundant, or phase combined configurations.

Mounting brackets are supplied to mount the high power amplifier to most popular antennas.

PERFORMANCE SPECIFICATIONS

Parameter	XTD-200K, Ku-Band
FREQUENCY RANGE standard external frequency coverage available	13.75 to 14.5 GHz (12.75 to 14.5 GHz)
OUTPUT POWER	
Traveling Wave Tube	200 Watts
Rated Power @ Amplifier Flange	175 Watts
GAIN	
Large Signal, minimum	40 dB (70 dB w/optional IPA)
Small Signal, minimum	46 dB (75 dB w/optional IPA)
Gain Flatness, maximum	± 1 dB
Maximum SSG Variation Over:	
Any Narrow band	1.0 dB per 80 MHz
Full Band	2.5 dB/750 MHz
Slope, maximum	± 0.04 dB/MHz
Stability, 24 Hr maximum	± 0.25 dB
Stability, Temperature	± 2.0 dB maximum over temperature range at any frequency
INTERMODULATION with two equal signals	- 18 dBc maximum with two equal carriers at 4 dB total output backoff
HARMONIC OUTPUT, maximum	- 60 dBc
AM/PM CONVERSION, maximum	2.5 deg/dB at 6 dB below rated output power
NOISE POWER, maximum	
Transmit Band	- 70 dBW/4 kHz
Receive Band	- 150 dBW/4 kHz 10.95 to 12.75 GHz
GROUP DELAY, maximum	
Bandwidth	Any 80 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	12 dB below IESS phase noise profile AC fundamental -50 dBc Sum of all spurs -47 dBc
VSWR	
Input, maximum	1.3:1
Output, maximum	2.2:1

PRIME POWER

100-260 VAC
47 to 63 Hz, single phase
850 VA Typical
0.95 Minimum Prime Power Factor

OPTIONS

Remote External Controller
Extended Frequency Coverage
1:1, 1:2, 1:N Redundancy
Variable Phase Combined
Integrated Linearizers
Variable Gain IPA



ENVIRONMENT

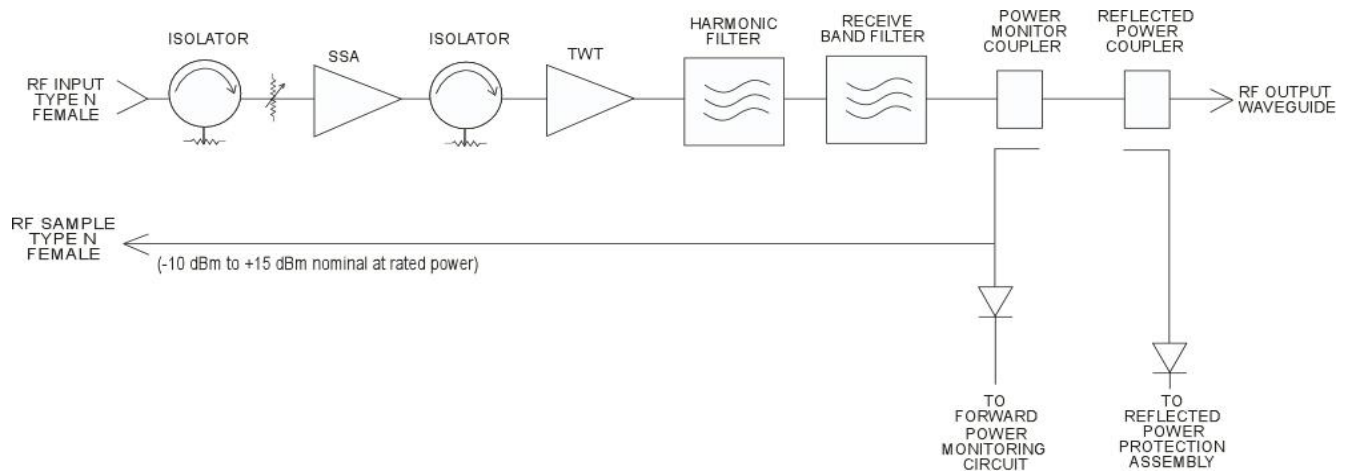
NONOPERATING TEMPERATURE RANGE	-50° C to + 70° C
OPERATING TEMPERATURE RANGE	-40° C to +50° C
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 feet MSL maximum
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

INTERFACE

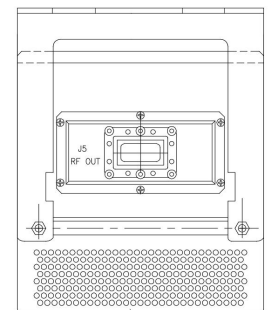
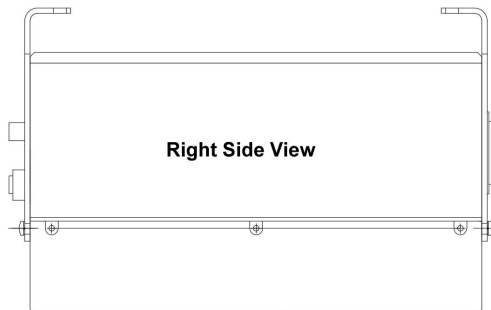
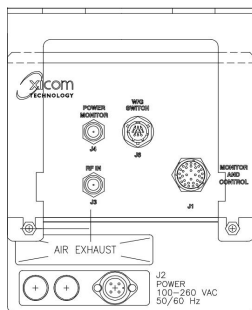
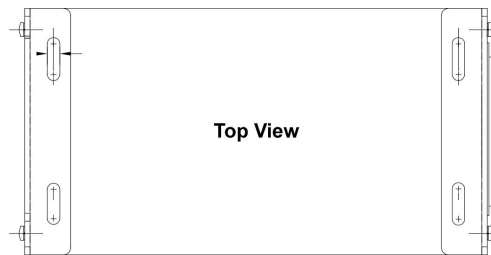
TYPE	FUNCTION		
LOCAL CONTROL	Prime Power ON/OFF	Local/Remote	
	Power Supply ON/OFF	HV ON/OFF	
LOCAL STATUS	Tri-Color LED:		
	Fault: Red	Standby: Continuous Amber	
	HV ON: Green	FTD: Flashing Amber	
REMOTE CONTROL	HV ON/OFF	RF Inhibit (HV OFF)	Heater Standby
	RF Attenuation (w/preamp)	Fault Reset	
REMOTE STATUS	HV ON	Heater/Beam Hours	Filament Time Delay
	RF Output Power	Fault Identification	Helix Current
	Reflected Power	TWT Temperature	Helix Voltage
Form C Dry Contact Closure	Summary Fault		
RF MONITOR PORT	-37 dB Coupling Value (Approx)		

XTD-200K High Power Amplifiers

Block Diagram

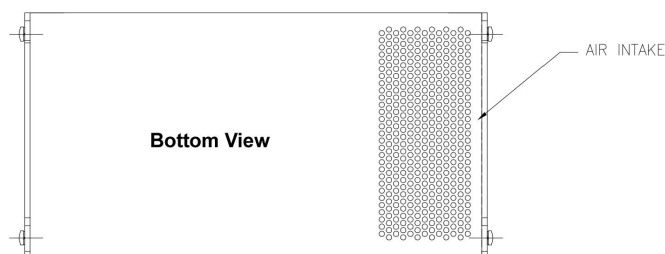


Outline Drawing



DIMENSIONS

	INCHES	CENTIMETERS
W	8.6	21.84
L	15.75	40.01
H	9.1	23.11
Nominal Weight = 34 lbs (15.42 kg)		



FLANGE CHART	
KU-BAND	WR-75