

# 1250 Watt Ku-Band Antenna Mount High Power Amplifier



## FEATURES

- *1250 watts peak power, 575 watts linear power with linearizer*
- *Rugged design operates to +60°C*
- *Optional L-band BUC*
- *No shelter required*
- *Identical outline makes an ideal upgrade from 750W systems*
- *Includes overdrive protection circuitry*

The **XTD-1250KHE** is a compact, self-contained, antenna mountable power amplifier designed for low cost installation and long life. The **XTD-1250KHE** design eliminates the need for an amplifier shelter as well as a long waveguide run between the amplifier and antenna feed horn. RF filters, cooling, and monitoring & control (M&C) systems are all self-contained.

The **XTD-1250KHE** incorporates high efficiency, multi-stage collector 1250W peak power TWT. The output operational power is limited, however the linear power performance at 575W and below is equivalent to a 1250W tube. Depending upon user requirements, the amplifier can be configured for either single thread or redundant system operation.

The **XTD-1250KHE** may be configured for single thread, redundant, phase-combined, or linearized operation.

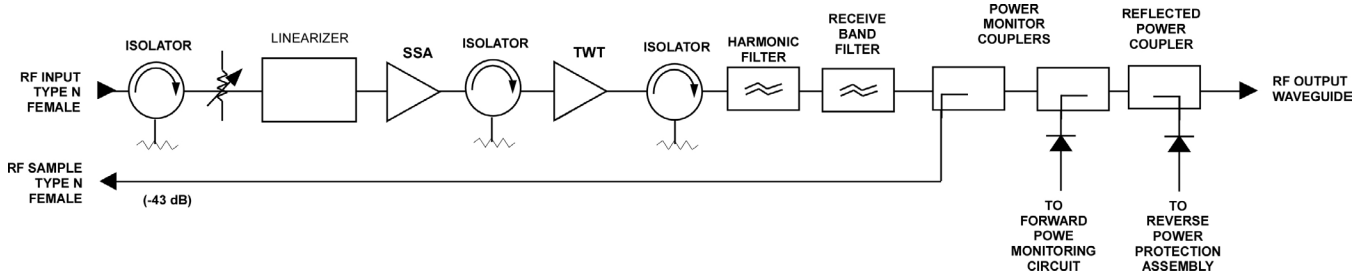
A remote external controller is available to operate the HPA from a user selected location. Mounting brackets can be supplied to mount the HPA to most popular antennas.



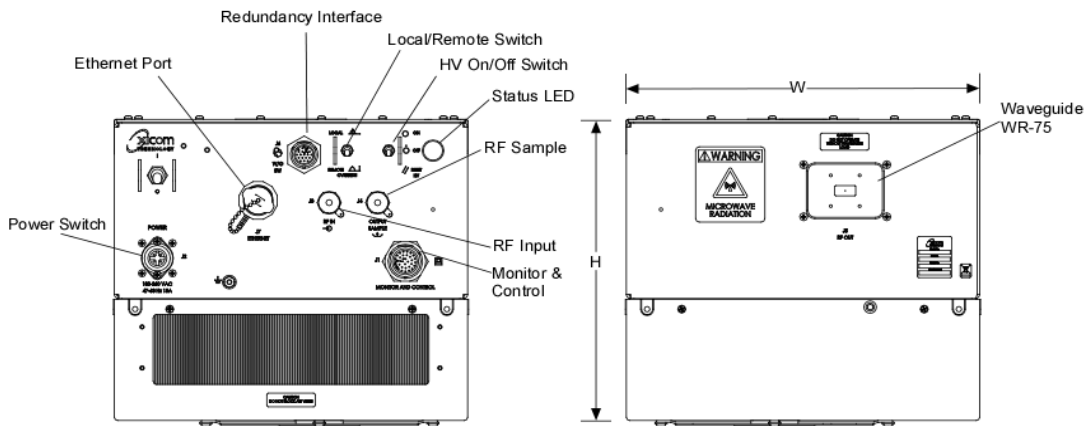
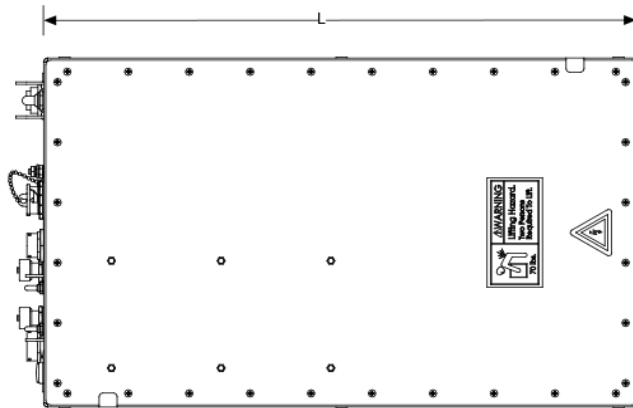
# PERFORMANCE SPECIFICATION

Parameters	XTD-1250KHE	XTD-1250KHE1
FREQUENCY RANGE	13.75 to 14.5 GHz	12.75 to 14.5 GHz
OUTPUT POWER		
TWT Peak Power (typical)	61.0 dBm (1250 W)	
HPA Flange Peak Power	60.3 dBm (1070 W)	
Linear Rated Power, HPA Flange (w/Linearizer)	57.6 dBm (575 W)	
CW Power Max @ Flange	< 58.3 dBm (675 W)	
GAIN		
Large Signal (minimum)	70 dB	
Small Signal (minimum)	70 dB	
Attenuator Range (continuous)	25 dB	
Maximum SSG Variation Over		
Any Narrow Band	1.0 dB per 80 MHz	
Full Band	2.5 dB per 500 MHz	
Slope (maximum)	± 0.04 dB/MHz	
Stability, 24 hr. (maximum)	± 0.25 dB	
Stability, Temperature (maximum)	± 1.0 dB over temperature range at any frequency	
INTERMODULATION with two equal carriers	-25 dBc @ P <sub>LIN</sub>	
HARMONIC OUTPUT (maximum)	-60 dBc	
AM/PM CONVERSION (maximum)	2.0 deg/dB @ P <sub>LIN</sub>	
NOISE POWER (maximum)		
Transmit Band	-70 dBW/4 kHz	
Receive Band	-150 dBW/4 kHz 10.95 to 12.75 GHz	-150 dBW/4 kHz 10.95 to 11.75 GHz
GROUP DELAY (maximum)		
Bandwidth	Any 80 MHz	
Linear	0.01 nS/MHz	
Parabolic	0.001 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)	12 dB below IESS phase noise profile AC fundamental -50 dBc Sum of all spurs -45 dBc	
VSWR		
Input (maximum)	1.3:1	
Output (maximum)	1.3:1	

# BLOCK DIAGRAM



# OUTLINE DRAWING



DIMENSIONS		
	Inches	Centimeters
L	21.5	54.61
H	11.0	27.94
W	12.75	32.39
Weight: 81 lbs, (36.8 kg)		

RF OUTPUT	
Frequency Band	Wave Guide Flange
KU	WR-75, Cover

## PRIME POWER

180 to 260 VAC  
 47 to 63 Hz, Single Phase  
 2300 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 Max.
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	Constant Power
	Min/Max Power Alarm/Fault	Gain
	Reflected Power Alarm/Fault	Fault Reset
	Heater Standby ON/OFF	Units (Watts, dBm, dBW)
REMOTE STATUS	Power Out	Reflected Power
	Helix Current	Helix Voltage
	Heater Hours	Beam Hours
	Attenuator Settings	Units Selection
	TWT Temperature	Faults:
		High VSWR High Voltage Helix Current TWT Temperature Arc Detection
FORM C DRY CONTACT CLOSURE	Summary Fault	
COMPUTER SERIAL PORT	Hardware Interface: 2 ports: RS-232 & RS-422/485	Xicom Command Set: ASCII Commands
RF MONITOR PORT	-43 dB Nominal	

## OPTIONS

- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Block Upconverter
- Ethernet Interface
- Optional Frequency Range  
12.75 to 14.5 GHz coverage

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