

1250 Watt Ku-Band Rack Mount High Power Amplifier



FEATURES

- 1250 watts peak power, 450 watts linear power with linearizer
- Compact 4 RU package
- Menu driven front panel display and control
- Linearizer & harmonic/RX filters included
- 1:1, 1:2, 1:N redundancy – optional built in controller

The **XTRD-1250KHE** is a highly efficient rack mountable traveling wave tube amplifier (TWTA) designed for uplink applications. The unit includes RF gain control, predistortion linearizer, a solid state pre-amplifier, cooling, and monitoring and control (M&C) system. Rack space is conserved because the amplifier occupies only 4 rack units (7 inches) of a standard 19 inch rack cabinet.

The unit features a menu driven front panel display and RS-232/422/485 serial port interfaces for complete computer control. Ethernet is also available as an option. RF, traveling wave tube, and default parameters are easily monitored on the 4-line front panel display. Gain control is provided via the front panel or through the serial interface.

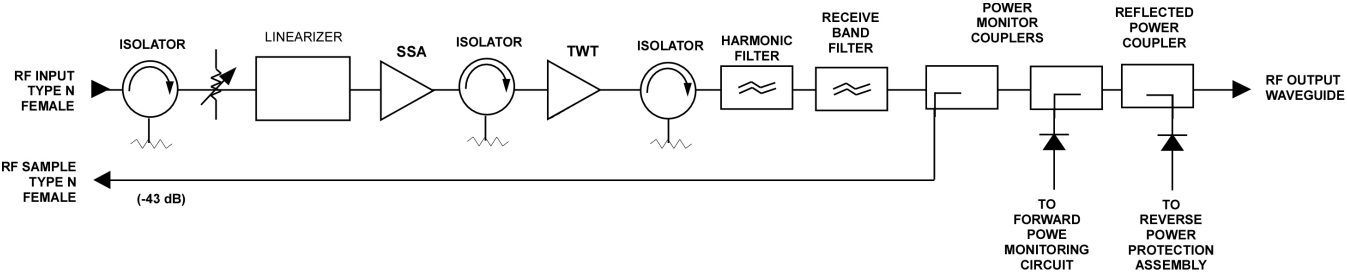
The **XTRD-1250KHE** incorporates high efficiency, multi-stage collector 1250W peak power TWT. The output operational power is limited to 600W (500W flange power); however, the linear power performance at this point is equivalent to a 1250W tube. Depending upon user requirements, the amplifier can be configured for either single thread or redundant system operation.



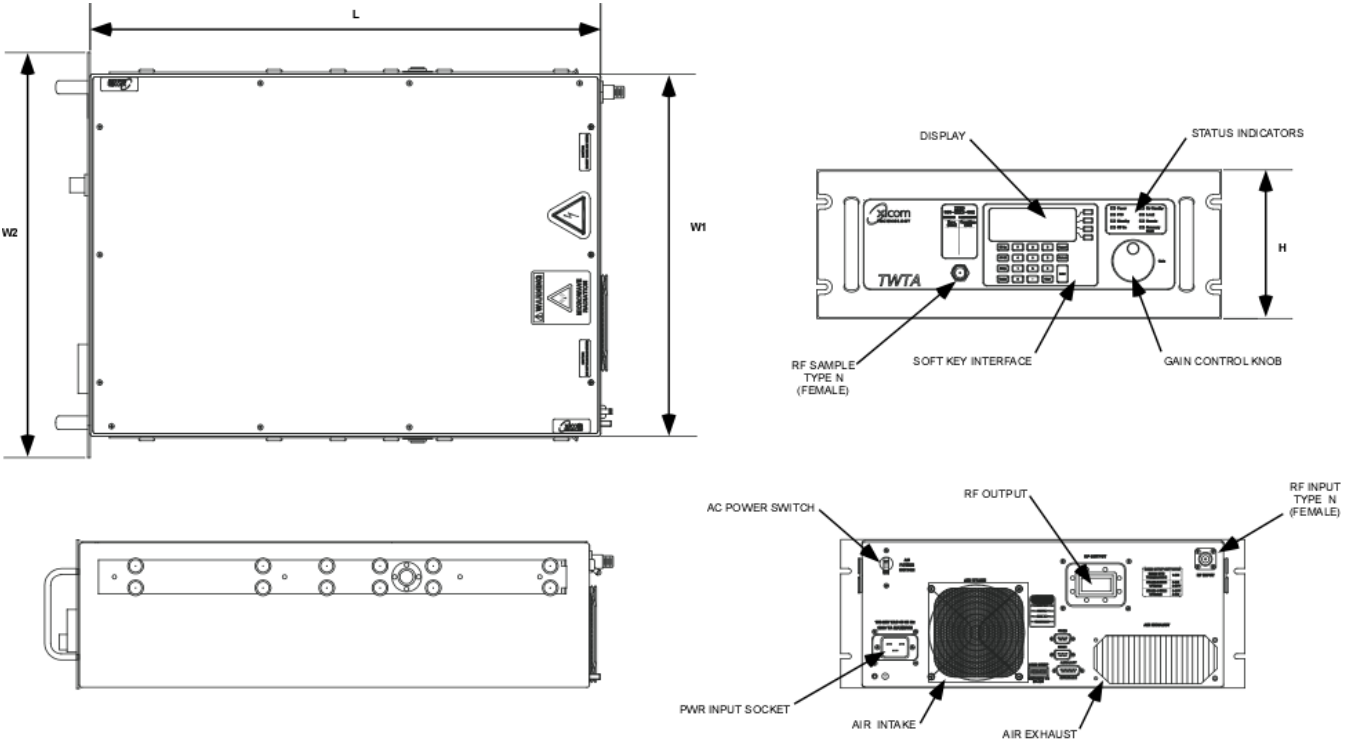
PERFORMANCE SPECIFICATION

Parameters	XTRD-1250KHE	XTRD-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	60.5 dBm (1120 W)	
Linear Rated Power, HPA Flange (w/linearizer)	56.5 dBm (450 W)	
Single Carrier Power, HPA Flange	57.0 dBm (500 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 (maximum) with two equal carriers	-25 dBc @ 450 W total power	
HARMONIC OUTPUT (maximum)	-60 dBc	
AM/PM CONVERSION (maximum)	2.0 deg/dB at ≤ 450 W	
NOISE POWER (maximum)		
Transmit Band	-70 dBW/4 kHz	
Receive Band	-150 dBW/4 kHz 10.95 to 11.75 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)	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 (max)		
	INCHES	CENTIMETERS
W1	17	43.18
W2	19	48.26
L	24	60.96
H	6.97	17.70
WEIGHT (Typical)		
	75 lb.	34.02 kg.

RF Output: Ku-Band WR-75

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	-10°C to +50°C (2°C/1000 Feet Derating)
HUMIDITY	Up to 95% Noncondensing
ALTITUDE	10,000 Feet MSL (maximum)
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air: 250 CFM (typical)

INTERFACE

	Type	Function	
CONTROLS	LOCAL	Local/Remote	AC Power On/OFF
	LOCAL AND REMOTE	Gain	Transmit ON/OFF
		Min/Max Power Alarm/Fault	Audio Alarm ON/OFF
		Reflected Power Alarm/Fault	Units (Watts, dBm, dBW)
		Fault Reset	Lamp Test
		Heater Standby ON/OFF	Constant Power
STATUS	FRONT PANEL LEDs	Standby	Power
		Local	Remote
		Summary Fault	High Voltage ON/OFF
		Heater Time Out (FTD)	Heater Standby
	FRONT PANEL DIGITAL DISPLAY	Power Out	Beam Hours
		Reflected Power	Helix Current
		TWT Temperature	Helix Voltage
		Heater Hours	Faults: High VSWR High Voltage Helix Current TWT Temperature
	DRY FORM-C RELAY CONTACTS (2)	Summary Fault	
	COMPUTER SERIAL PORT	HARDWARE INTERFACE	Two Ports: RS-232 & RS-422/RS-485
		XICOM COMMAND SET	ASCII Commands
		RF SAMPLE PORT COUPLING	-43 dB Nominal

OPTIONS

- Extended Frequency Coverage
- 1:1, 1:2, 1:N Redundancy
- Variable Phase Combined
- Built-in Redundancy Controller
- Ethernet
- Integral L-Band Block Upconverter (BUC)

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