

XTRD-200K Ku-Band High Power Rack Mount Amplifiers



- **125/200 Watts**
- **Power Factor Correction**

- **Digital Display & Control Interface**
- **High Efficiency**

The XTRD-200K is a highly efficient rack mountable traveling wave tube amplifier (TWTA) designed for fixed and mobile uplink applications.

The unit includes RF gain control, a solid state pre-amplifier, RF filters, cooling, and monitoring and control (M&C) systems.

Rack space is conserved because the amplifier occupies only 3 rack units (5¼ inches) of a standard 19-inch rack cabinet. Nominal weight is 50 pounds.

The unit features a menu driven front panel display and RS-232/422/485 serial port interfaces for complete computer control. RF, traveling wave tube, and default parameters are easily monitored on the four line front panel display.

Gain control is provided via the front panel or through the serial interface.

The XTRD-200K incorporates high efficiency, dual stage collector TWTs. Reliability is enhanced because both prime power consumption and internal operating temperatures are reduced for both the linear and saturated modes of operation.

Power factor correction circuitry is also included which minimizes line current distortion and reduces the required Volt-Amps input.

The automatic features of the high frequency resonant conversion power supply include quick recovery from prime power outages and multiple helix fault resets (three fault cycles.)

Depending upon user requirements these amplifiers can be configured for either single thread or redundant system operation.

PERFORMANCE SPECIFICATIONS

Parameter	XTRD-200K	XTRD-200K1
FREQUENCY RANGE	13.75 to 14.5 GHz	
Extended Frequency Coverage	(Call Factory)	
OUTPUT POWER		
Traveling Wave Tube	125 W	200 W
Rated Power @ Amplifier Flange	100 W	175 W
GAIN		
Large Signal, minimum	70 dB	
Small Signal, minimum	75 dB	
Attenuator range (continuous)	25 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	±1.0 dB maximum over temperature range at any frequency	
INTERMODULATION	-18 dBc maximum with two equal carriers	
with two equal signals	@ 4 dB total output backoff	
HARMONIC OUTPUT, maximum	-60 dBc	
AM/PM CONVERSION, maximum	2.5°/dB 6 dB below rated power	
NOISE POWER, maximum		
Transmit Band	-75 dBw/4 kHz	
Receive Band	-155 dBw/4 kHz	
	10.95 to 12.75 GHz	
GROUP DELAY, maximum		
Bandwidth	Any 80 MHz	
Linear	0.01 nsec/MHz	
Parabolic	0.005 nsec/MHz ²	
Ripple	0.5 nsec/P _K -P _K	
RESIDUAL AM NOISE, maximum		
	-50 dBc to 10 kHz	
	-20 (1.5 + logf) dBc 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

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



OPTIONS

Extended Frequency Coverage
1:1, 1:2, 1:N Redundancy
Variable Phased Combined
Integrated Linearizers
Integrated Block Upconverter (BUC)
Integrated 10 MHz BUC Reference

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50° C to +70° C
OPERATING TEMPERATURE RANGE	-10° C to +50° C
HUMIDITY	Up to 95% Noncondensing
ALTITUDE	10,000 feet MSL maximum
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air 110 CFM (typical)

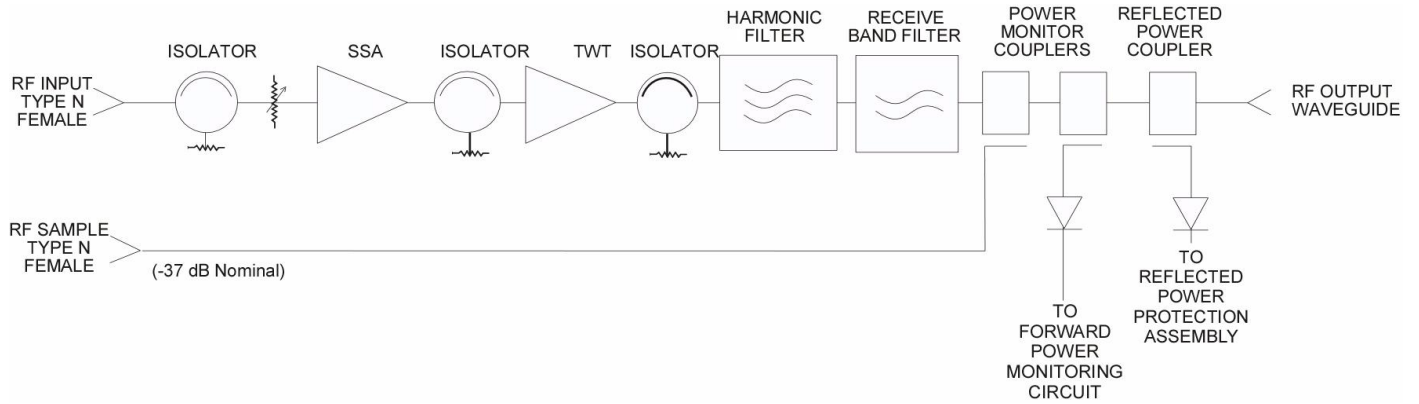
INTERFACE

	TYPE	FUNCTION		
CONTROLS	Local	Local/remote	AC Power ON/OFF	
	Local and Remote	Gain	High Voltage ON/OFF	Fault Reset
		Min/Max Power Alarm/Fault	Audio Alarm ON/OFF	Lamp Test
		Reflected Power Alarm/Fault	Units (Watts, dBm, dBW)	Heater Standby ON/OFF
STATUS	Front Panel LEDs	Standby	Power	Heater Time Out (FTD)
		Local	Remote	Heater Standby
		Summary Fault	High Voltage	
	Front Panel Digital Display	Power Out	Beam Hours	Faults:
		Reflected Power	Helix Current	High VSWR
		TWT Temperature	Helix Voltage	High Voltage
	Heater Hours		Helix Current	
			TWT Temperature	
	Dry Form-C Relay Contacts (Two)	Summary Fault		
COMPUTER	Hardware Interface	Two Ports: RS-232 & RS-422/RS-485		
SERIAL PORT	Xicom Command Set	ASCII Commands		
RF SAMPLE PORT COUPLING		-37 dB Nominal		

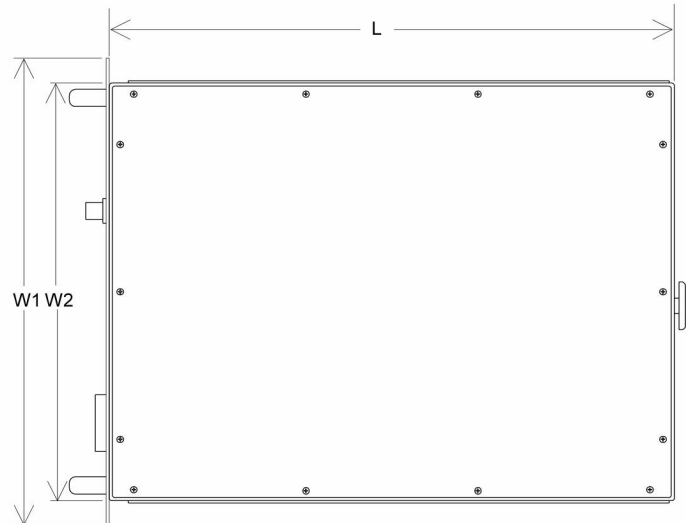
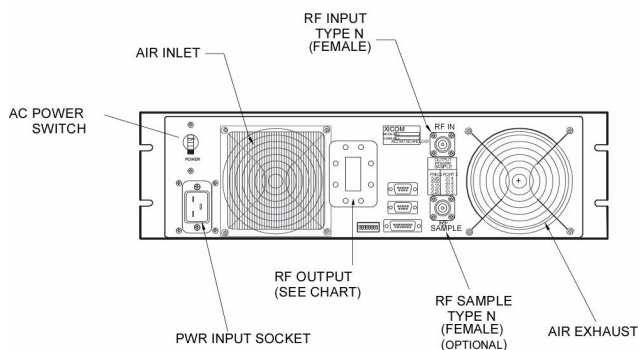
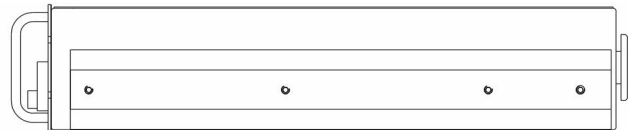
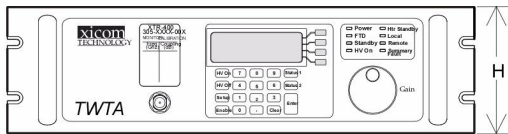
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Block Diagram



Outline Drawing



RF OUTPUT (WAVEGUIDE FLANGE)
Ku-BAND-WR-75

DIMENSIONS		
	inches	centimeters
W1	17.00	43.18
W2	19.00	48.26
L	23.00	58.42
H	5.22	13.26

Nominal Weight = 50 lbs (22.68 kg)