1250 Watt Ku-Band Rack Mount High Power Amplifier

FEATURES

- *1250 watts peak power, 575 watts linear power with linearizer*
- *Touchscreen interface*
- *Built-in redundancy controller*
- *Ethernet interface, remote diagnostics*
- *Parameter trend analysis*
- *Includes linearizer*

The **XTRT-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 LCD and RS-232/422/485 serial port interfaces for complete computer control. The tabbed front panel display can display HPA status, parameter trend analysis and event logs with a simple touch of the screen. Remote diagnostics is possible via the standard Ethernet interface. Gain control is provided via the front panel or through the serial interface.

The **XTRT-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.

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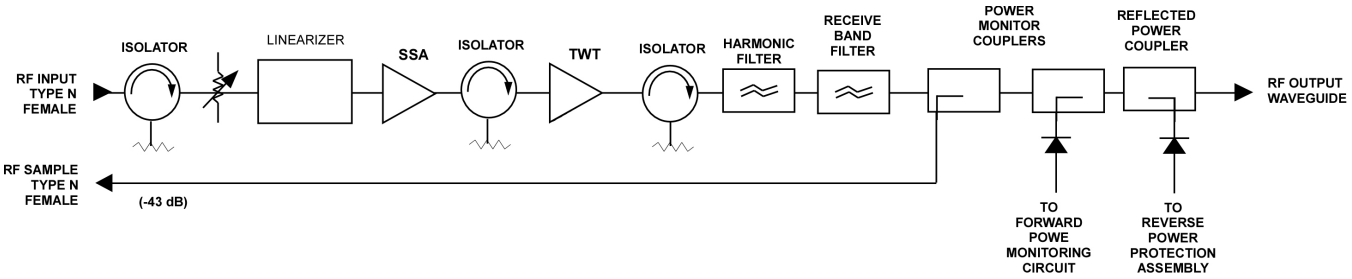
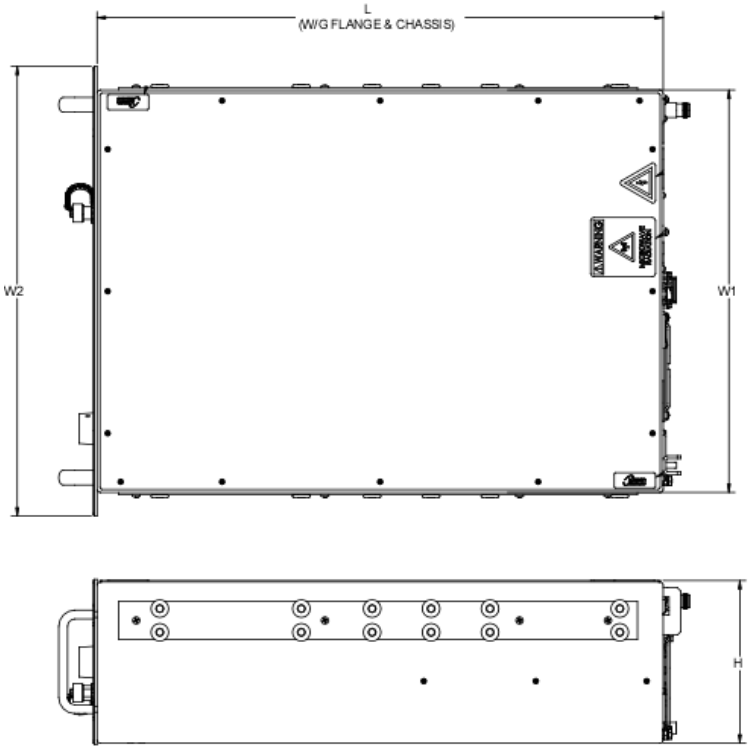
PERFORMANCE SPECIFICATION

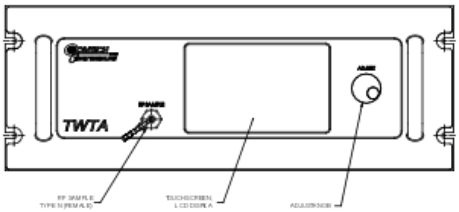
Parameters	XTRT-1250KHE	XTRT-1250KHE1
FREQUENCY RANGE	13.75 to 14.5 GHz	12.75 to 14.5 GHz
OUTPUT POWER		
TWT Peak Power (typical)	61.0 dBm (1250 W)	
HPA Flange Peak Power	60.3 dBm (1070 W)	
Linear Rated Power, HPA Flange (w/linearizer)	57.6 dBm (575 W)	
Single Carrier Power, HPA Flange	< 58.3 dBm (675 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 (maximum) with two equal carriers	-25 dBc @ P_{LIN}	
HARMONIC OUTPUT (maximum)	-60 dBc	
AM/PM CONVERSION (maximum)	2.0 deg/dB @ P_{LIN}	
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	0.005 nS/MH^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	

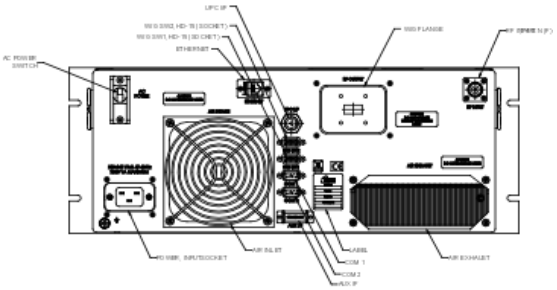
BLOCK DIAGRAM



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) 78 lb. 35.38 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

CE

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 LCD	Standby	Power
		Local	Remote
		Summary Fault	High Voltage ON/OFF
		Heater Time Out (FTD)	Heater Standby
		Power Out	Beam Hours
		Reflected Power	Helix Current
		TWT Temperature	Helix Voltage
		Heater Hours	Faults:
		Event Log	High VSWR
		Trend Log	High Voltage
		System Status	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 Ethernet T10/100	
	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
- Integrated Block Upconverter

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