750 Watt X-Band Rack Mount High Power Amplifier

FEATURES

- *Compact 4RU chassis*
- *Menu driven front panel display and control*
- *1:1, 1:2, 1:N redundancy*
- *Optional integrated linearizer*

The **XTRD-750X** is a highly efficient rack mountable traveling wave tube amplifier (TWTAs) designed for fixed and mobile uplink applications. The unit includes RF gain control, a solid state pre-amplifier, RF harmonic filter, cooling, and monitoring and control (M&C) systems. Rack space is conserved because the amplifier occupies only 4 rack units (7 inches) of a standard 19-inch rack cabinet. Nominal weight is 75 pounds.

The unit features a menu driven front panel display and RS-232/422/485 serial port interface 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-750X** incorporates high efficiency, multi-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.

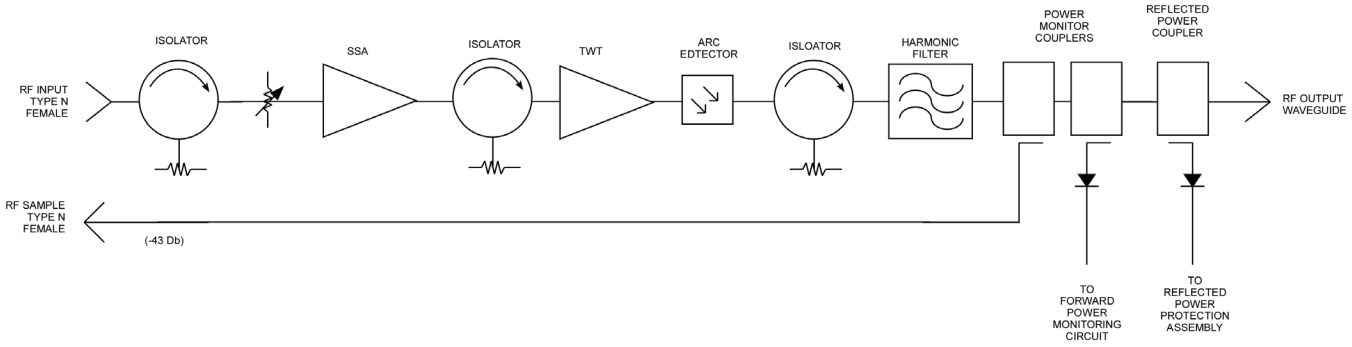
The automatic features of the high frequency resonant conversion power supply include quick recovery from prime power outages and mulitiple helix fault resets (three fault cycles.) An optional linearizer is available to allow increased transmit power while meeting spectral regrowth requirements. Depending upon user requirements this amplifier can be configured for either single thread or redundant system operation.

COMTECH
XICOM TECHNOLOGY
3550 Bassett Street • Santa Clara • CA 95054 • Tel: (408) 213-3000 • Fax: (408) 213-3001
www.xicomtech.com • email sales@xicomtech.com

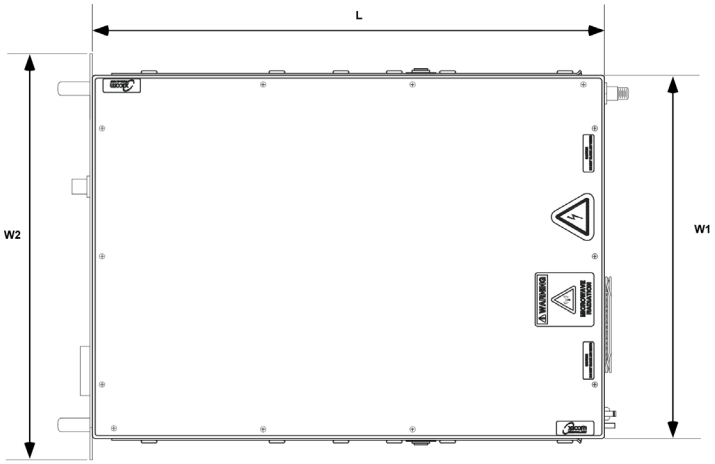
PERFORMANCE SPECIFICATION

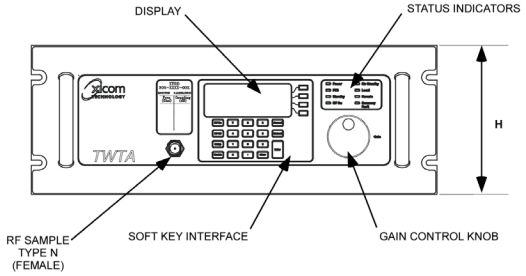
Parameters	XTRD-750X
FREQUENCY RANGE	7.90 to 8.40 GHz
OUTPUT POWER	
Traveling Wave Tube	750 W (58.7 dBm)
Rated Power @ Amplifier Flange (minimum)	650 W (58.1 dBm)
Linear Power @ Amplifier Flange w/o Linearizer	160W (52.1 dBm)
Linear Power @ Amplifier Flange w/Linearizer	360 W (55.6 dBm)
GAIN	
Large Signal (minimum)	70 dB
Small Signal (minimum)	75 dB
Attenuator Range (continuous)	25 dB
Maximum SSG Variation Over:	
Any Narrow Band	1.0 dB per 40 MHz
Full Band	2.5 dB
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 @ linear power referenced to the sum of the carriers
SPECTRAL REGROWTH @ LINEAR POWER	-30 dBc
HARMONIC OUTPUT (maximum)	-60 dBc
AM/PM CONVERSION (maximum)	2.5 deg/dB at 6 dB below rated power
NOISE POWER (maximum)	
Transmit Band	-70 dBW/4 kHz
Receive Band	-70 dBW/4 kHz 7.25 to 7.75 GHz
GROUP DELAY (maximum)	
Bandwidth	Any 40 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 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)	1.3:1

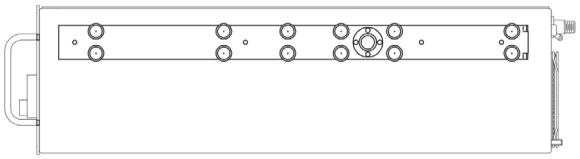
BLOCK DIAGRAM

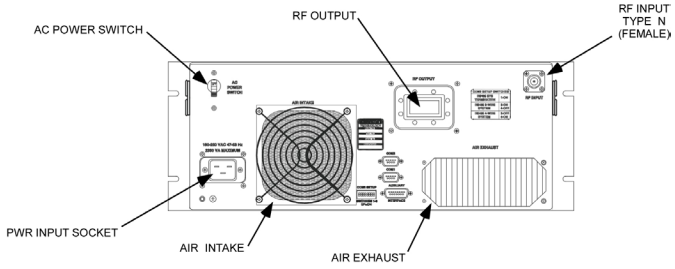


OUTLINE DRAWING









RF OUTPUT:	CPRG-112 or CPRG-137
Nominal Weight: 75 lbs (34.02 kg)	

DIMENSIONS

	INCHES	CENTIMETERS
W1	17.00	43.18
W2	19.00	48.26
L	24.00	60.96
H	6.97	17.70

PRIME POWER

100 to 260 VAC
47 to 63 Hz, Single Phase
750 Watt: 2700 VA (maximum)
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	High Voltage 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	
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

- 1:1, 1:2, 1:N Redundancy
- Variable Phase Combined
- Integrated Linearizer
- Block Upconverter

Headquarters

Comtech Xicom Technology, Inc.
3550 Bassett Street
Santa Clara, CA 95054
USA

Phone: +1-408-213-3000
Fax: +1-408-213-3001

email: sales@xicomtech.com
Web: www.xicomtech.com

Europe Sales Office

Comtech Xicom Technology Europe, LTD
4 Portland Business Center
Manor House Lane
Datchet
Berkshire SL3 9EG
United Kingdom

Phone: +011 44 (0) 1753 549 999
Fax: +011 44 (0) 1753 549 997

email: sales@xicomeurope.com
Web: www.xicomtech.com

Asia Sales Office

Comtech Xicom Technology
150 Cecil Street
#08-02
Singapore 069543

Phone: +011 65 6325 1953
Fax: +011 65 6325 1950

email: asiasales@xicomtech.com
Web: www.xicomtech.com

COMTECH XICOM TECHNOLOGY

Document XTRD-750X Rev 4, 10/10/2012