750 Watt X-Band Antenna Mount High Power Amplifiers

FEATURES

- *Rugged 75 lb. antenna mount package*
- *Optional internal L-band BUC*
- *Optional linearizer*
- *High efficiency*
- *RS-232/485 M&C interface*
- *1:1, 1:2, 1:N redundancy*

The **XTD-750X** is a compact self-contained, antenna mountable power amplifiers designed for low cost installation and long life. The design eliminates the need for an amplifier shelter as well as a long waveguide run between the amplifier and the antenna feed horn. RF harmonic filters, cooling, and monitoring & control systems are all self-contained within the HPA. These features provide high reliability, low maintenance costs, and low replacement costs.

The amplifier incorporates high efficiency multi-stage collector TWTs. Some of the benefits of this type of TWT are: reduced prime power consumption, lower internal operating temperatures, and reliability enhancement. These benefits are obtained for both the linear and saturated modes of operation.

The **XTD-750X** may be configured for single thread, redundant or phase-combined operation. An optional linearizer is available to allow increased transient power while meeting spectral regrowth requirements. A remote external controller is available to operate the HPA from a user selected location.

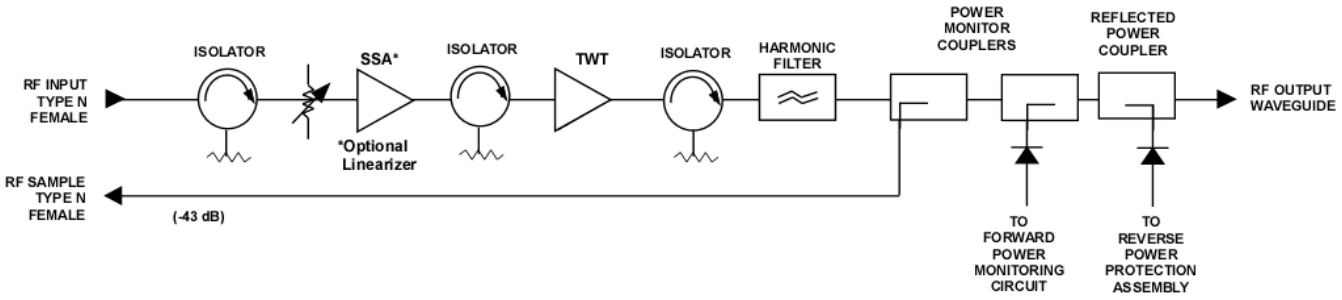
COMTECH XICOM TECHNOLOGY™

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

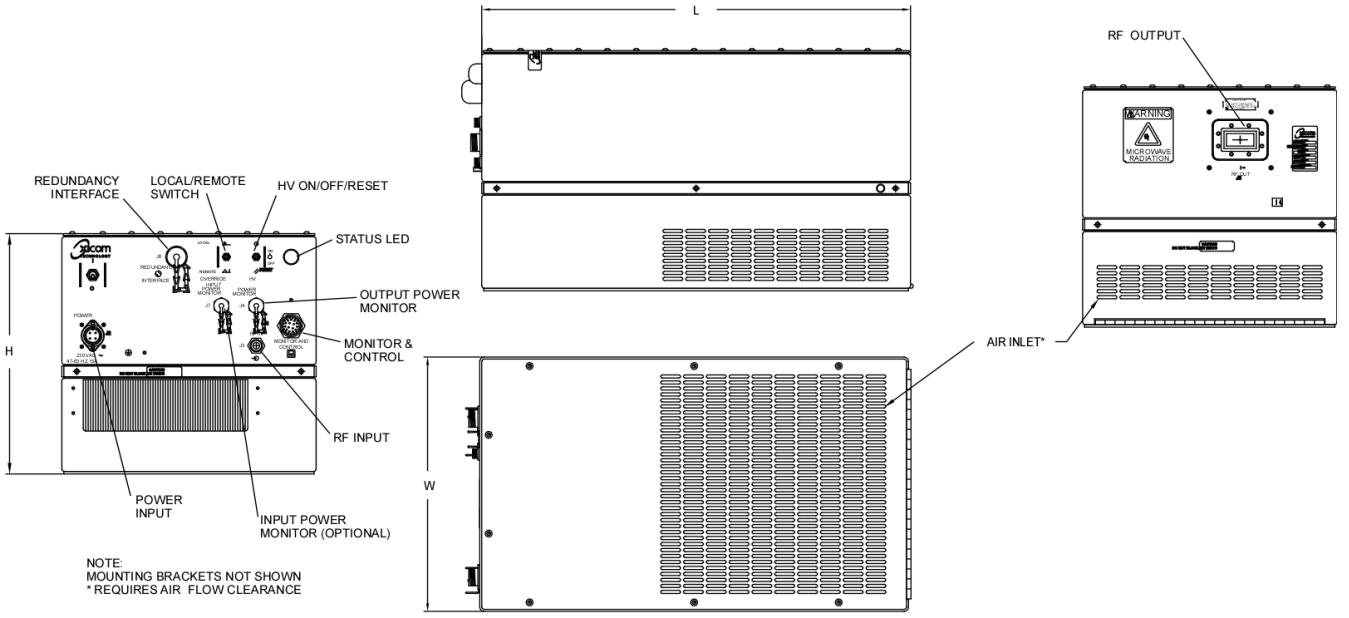
PERFORMANCE SPECIFICATION

Parameters	XTD-750X
FREQUENCY RANGE	7.9 to 8.4 GHz
OUTPUT POWER	
Traveling Wave Tube	750 W (58.7 dBm)
Rated Power @ Amplifier Flange	650 W (58.1 dBm)
Linear Power @ Amplifier Flange w/o Linearizer	160 W (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 @ 4 dB total output power backoff from rated power	-18 dBc (-26 dBc with linearizer option)
SPECTRAL REGROWTH @ Linear Power	-30 dBc
HARMONIC OUTPUT (maximum)	-60 dBc
AM/PM CONVERSION (maximum)	2.5 deg/dB at 6 dB below rated output power (2.5 dB backoff with linearizer option)
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/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)	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



NOTE:
MOUNTING BRACKETS NOT SHOWN
* REQUIRES AIR FLOW CLEARANCE

DIMENSIONS		
	INCHES	CENTIMETERS
L	21.50	54.61
H	12.13	30.81
W	12.75	32.39

Nominal Weight = 75 lbs (34.02 kg)

RF OUTPUT = CPRG-112

PRIME POWER

180 to 260 VAC
47 to 63 Hz, Single Phase
2500 VA Maximum
0.95 Minimum Prime Power Factor

CE

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-40°C to +50°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	RF Inhibit (HV OFF)
	Gain	Units (Watts, dBm, dBW)
	Minimum Power Alarm/Fault	Maximum Power Alarm/Fault
	RF Attenuation (w/preamp)	Fault Reset
	Heater Standby	Reflected Power Alarm/Fault
REMOTE STATUS	HV ON	Heater/Beam Hours
	RF Output Power	Helix Current
	Reflected Power	Helix Voltage
	Filament Time Delay	TWT Temperature
	Helix Voltage	Fault Identification: HIgh VSWR High Voltage Helix Current TWT Temperature RF Arc
FORM C DRY CONTACT CLOSURE	Summary Fault	
RF MONITOR PORT	-43 dB Coupling Value (approx.)	

OPTIONS

- Integrated Linearizer
- Remote External Controller
- 1:1, 1:2 Redundancy
- Phase Combined
- Block Upconverter
- Low PIM

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

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