

# 100 Watt C, 140 Watt X, and 80 Watt Ku-Band Tri-Band Antenna Mount High Power Amplifier



## FEATURES

- *Compact outdoor Tri-Band amplifier for transportable applications*
- *Low cost installation*
- *Short waveguide run*
- *RS232/485 M&C*

The **XTD-150T** is a compact self-contained antenna mount power amplifier designed for low cost installation and long life.

Intended for outdoor operation, the **XTD-150T** eliminates the need for a separate amplifier shelter.

In addition, the distance between the amplifier and the antenna feed horn can be short thus eliminating long waveguide runs and their associated RF losses.

Mounting brackets are available to mount the amplifier to most popular antennas.

A number of features have been incorporated to enhance overall reliability and minimize maintenance and replacement costs.

A high frequency resonant conversion power supply with power factor correction is used that accepts a wide range of prime power (100 to 260 VAC).

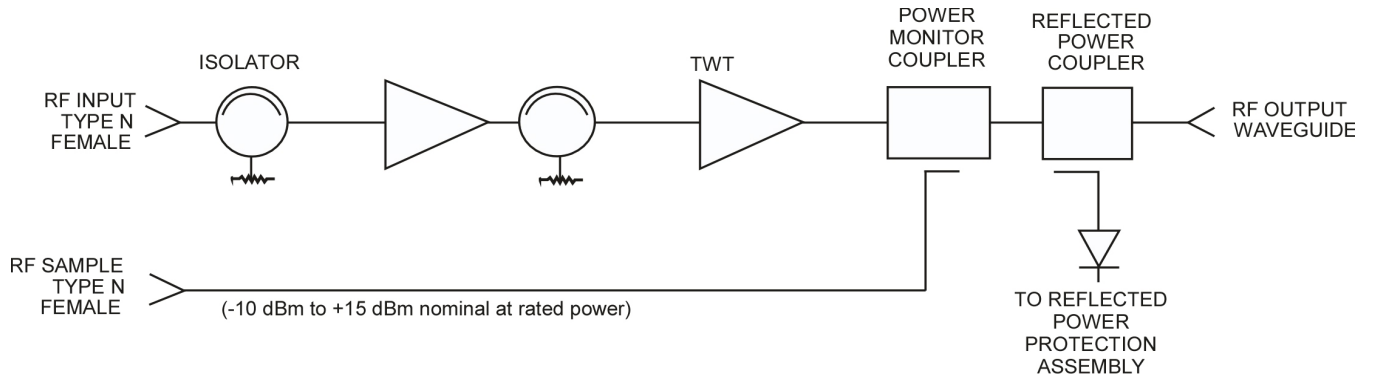
A remote external controller is available to operate the HPA from a user selected location. The **XTD-150T** may be configured for single thread, 1:1 or 1:2 redundant operation.



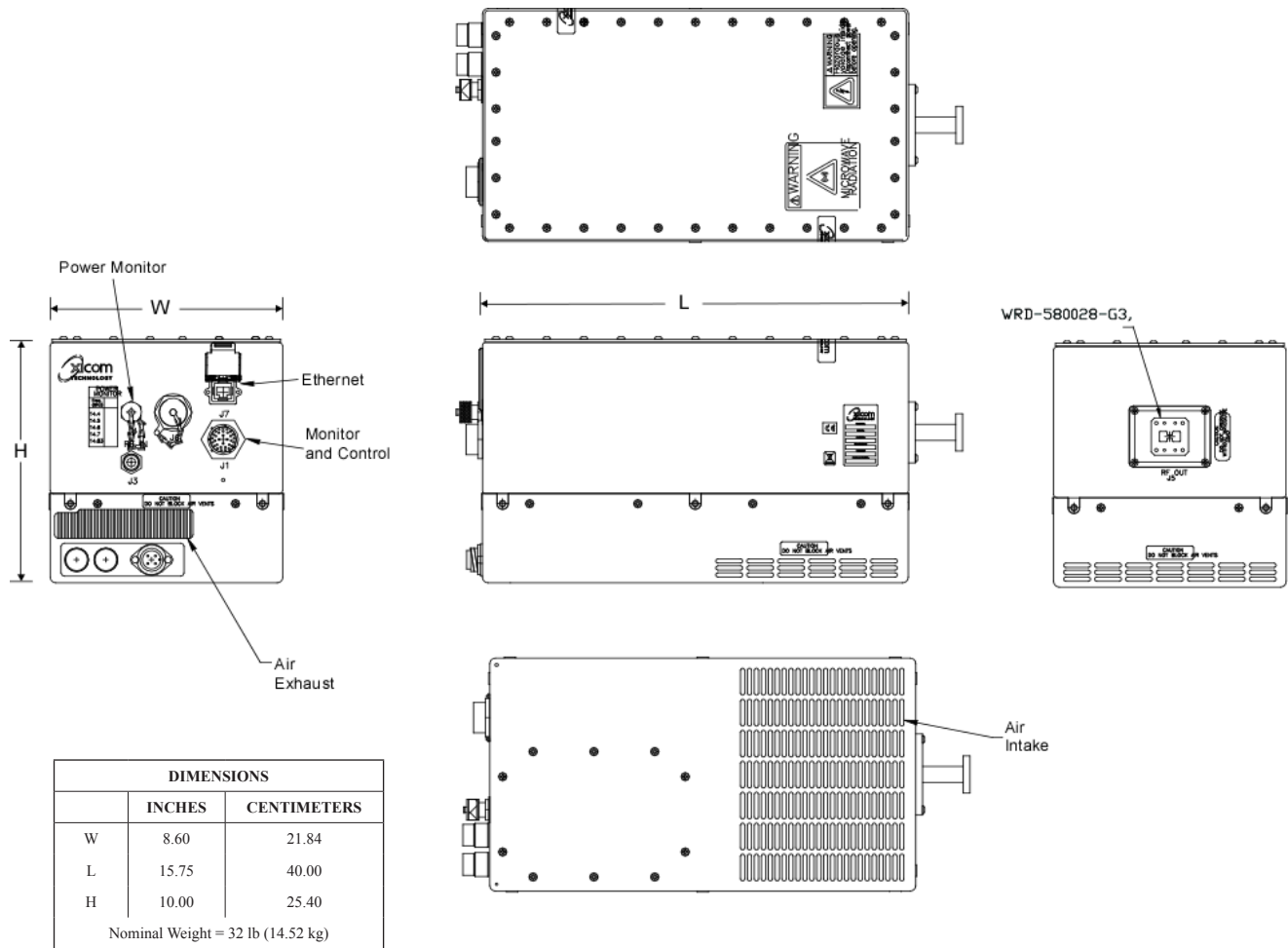
# PERFORMANCE SPECIFICATION

Parameters	C-Band	X-Band	Ku-Band
FREQUENCY RANGE	5.850 to 6.425 GHz	7.90 to 8.40 GHz	13.75 to 14.5 GHz
OUTPUT POWER			
Traveling Wave Tube	110 W	150 W	90 W
Rated Power @ Amplifier Flange	100 W	140 W	80 W
GAIN			
Large Signal (minimum)		53 dB	
Small Signal (minimum)		57 dB	
Maximum SSG Variation Over			
Any Narrow Band		0.5 dB per 10 MHz	
Full Band	3.0 dB	2.5 dB	2.75 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 at 7.5 dB total output power backoff from rated power	
HARMONIC OUTPUT (maximum)	-3 dBc	-7 dBc	-12 dBc
AM/PM CONVERSION (maximum)	2.5 deg/dB at 6 dB below rated power		
NOISE POWER (maximum)			
Transmit Band		-64 dBW/4 kHz	
Receive Band	-64 dBW/4 kHz 3.7 to 4.2 GHz	-64 dBW/4 kHz 7.25 to 7.75 GHz	-64 dBW/4 kHz 10.95 to 12.75 GHz
GROUP DELAY (maximum)			
Bandwidth	Any 40 MHz	Any 40 MHz	Any 80 MHz
Linear		0.01 nS/MHz	
Parabolic		0.005 nS/MHz <sup>2</sup>	
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 -47 dBc	
VSWR			
Input (maximum)		1.3:1	
Output (maximum)		2.2:1	

# BLOCK DIAGRAM



# OUTLINE DRAWING



## PRIME POWER

100 to 260 VAC  
47 to 63 Hz, Single Phase  
850 VA (maximum)  
0.95 Minimum Prime Power Factor



## ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-30°C to +60°C derated (2°C/1000 Feet Derating)
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 Feet MSL (maximum) (2°C/1000 feet derating)
SHOCK AND VIBRATION	20g, 11 ms, 4 grms 20 to 2000 Hz
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)	Heater Standby
	RF Attenuation (w/preamp)	Fault Reset	
Remote Status	HV ON	Heater/Beam Hours	Filament Time Delay
	RF Output Power	Fault Identification	Helix Current
	Reflected Power	TWT Temperature	Helix Voltage
Form C Dry Contact Closure	Summary Fault		
RF Monitor Port	-37 dB Coupling Value (Approx.)		

## OPTIONS

- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Integrated Linearizer

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