

# 750 Watt C and Ku-Band Antenna Mount High Power Amplifier



## FEATURES

- *Rugged 75 lb. antenna mount package*
- *Extended frequency bands available*
- *Optional internal L-band BUC*
- *Optional integrated linearizer*
- *High efficiency*
- *RS-232/422/485 M&C interface*

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

The **XTD-750** uses high efficiency, dual-stage collector Traveling Wave Tubes (TWT). Some benefits of this type of tube are: reduced prime power consumption, lower internal operating temperatures, reliability enhancement.

The **XTD-750** incorporates power factor correction circuitry, which minimizes line current distortion and reduces the required Volt-Amps. The combination of power factor correction and high efficiency TWTs reduces input Volt-Amps by 45% when compared to equivalent amplifiers. A high frequency resonant conversion power supply is used that accepts a wide range of prime power (180 to 260 VAC). The automatic features of the power supply include quick recovery from prime power outages and multiple helix arc fault resets (three fault cycles).

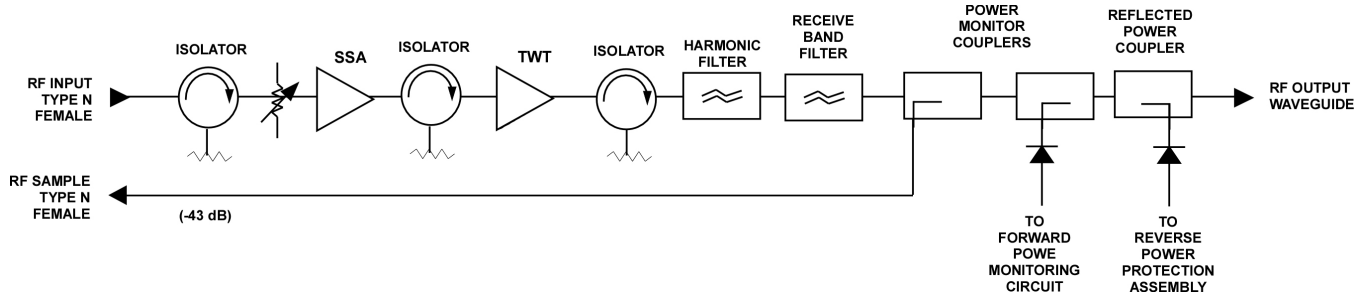
A complete serial M&C system is built into the unit.

The **XTD-750** may be configured for single thread, redundant, phase-combined, or linearized operation.

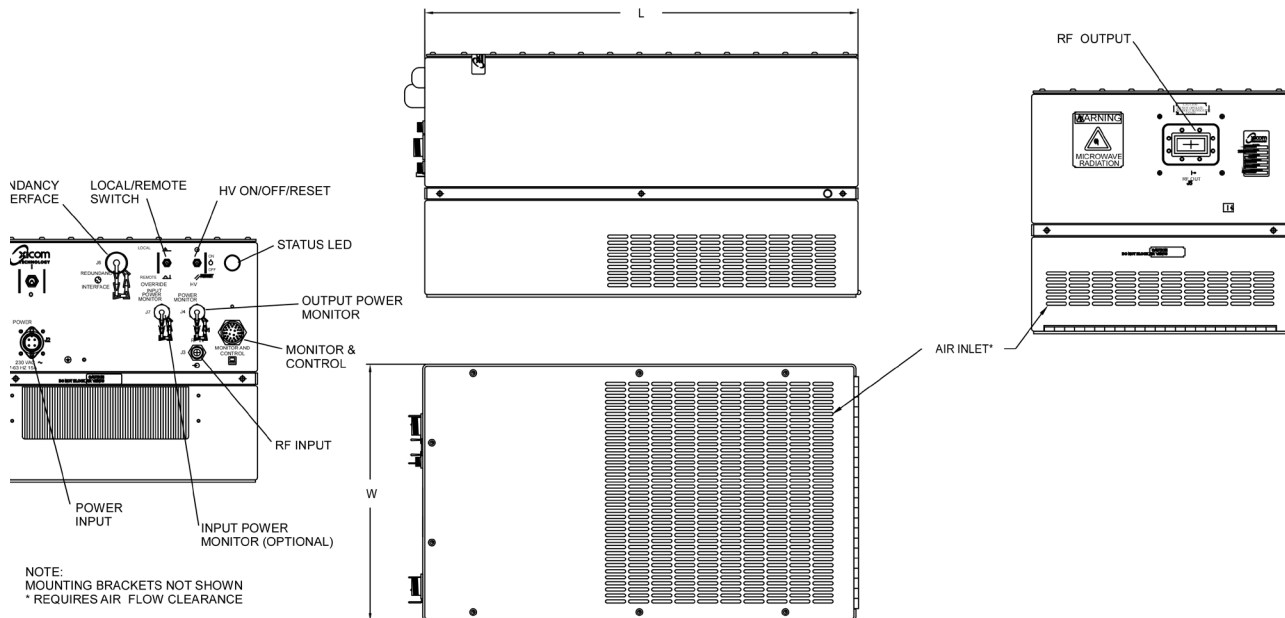
# PERFORMANCE SPECIFICATION

Parameters	XTD-750C C-Band	XTD-750K Ku-Band
FREQUENCY RANGE (optional extended frequency)	5.850 to 6.425 GHz (5.850 to 6.650 GHz) (5.850 to 6.725 GHz) (6.725 to 7.025 GHz)	13.75 to 14.5 GHz (12.75 to 13.25 GHz) (12.75 to 14.5 GHz) (13.75 to 14.8 GHz)
OUTPUT POWER		
Traveling Wave Tube		750 Watts
Rated Power @ Amplifier Flange		650 Watts
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	1.0 dB per 80 MHz
Full Band	2.5 dB	2.5 dB per 500 MHz
Slope (maximum)		± 0.02 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	-18 dBc @ 4 dB total power backoff from rated output (-26 dBc with linearizer option)	
HARMONIC OUTPUT (maximum)	-60 dBc	
AM/PM CONVERSION (maximum)	2.5 deg/dB at 6 dB below rated output power	
NOISE POWER (maximum)		
Transmit Band		-70 dBW/4 kHz
Receive Band	-150 dBW/4 kHz 3.7 to 4.2 GHz	-150 dBW/4 kHz 10.95 to 12.75 GHz
GROUP DELAY (maximum)		
Bandwidth	Any 40 MHz	Any 80 MHz
Linear		0.01 nS/MHz
Parabolic		0.005 nS/MHz <sup>2</sup>
Ripple		0.05 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)		1.3:1

# BLOCK DIAGRAM



# OUTLINE DRAWING



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

Weight: 75 lbs (34kg)

RF OUTPUT	
FREQUENCY BAND	WAVEGUIDE FLANGE
DBS	WR-62, COVER
KU	WR-75, COVER
C or X	CPR-137, GROOVED

**XTD-750**

## PRIME POWER

180 to 260 VAC  
47 to 63 Hz, Single Phase  
2450 VA Maximum  
0.95 Minimum Prime Power Factor



## ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-40°C to +60°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	Constant Power
	Min/Max Power Alarm/Fault	Gain
	Reflected Power Alarm/Fault	Fault Reset
	Heater Standby ON/OFF	Units (Watts, dBm, dBW)
REMOTE STATUS	Power Out	Reflected Power
	Helix Current	Helix Voltage
	Heater Hours	Beam Hours
	Attenuator Setting	Units Selection
	TWT Temperature	Faults:
		High VSWR High Voltage Helix Current TWT Temperature Arc Detection
FORM C DRY CONTACT CLOSURE	Summary Fault	
COMPUTER SERIAL PORT	Hardware Interface: 2 ports: RS-232 & RS-422/485	Xicom Command Set: ASCII Commands
RF MONITOR PORT	-43 dB Coupling Value (nominal.)	

## OPTIONS

- Extended Frequency Coverage
- Integrated Linearizer
- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Block Upconverter

 **CDIP**  
www.cdip.ru  
info@cdip.ru  
+7 (495) 956-20-22