750 Watt DBS-Band Antenna Mount Amplifiers With Block Upconverter

FEATURES

- *Peak power or CW*
- *Rugged 70 lb. antenna mount package*
- *RS-232/ 422/485 M&C interface*
- *L-band input*

The **XTD-750DBS-B1** series are compact self-contained, antenna mountable power amplifier 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 a high efficiency multi-stage collector TWT. Some of the benefits 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 units are available with either CW tubes or peak power tubes. CW amplifiers are used when the operator desires maximum transmit power, while peak power HPAs are selected for users that operate only in the linear range. An optional linearizer is available to allow increased transmit power while meeting spectral regrowth requirements.

A complete serial monitoring and control system is built into the unit. The amplifiers may be configured for single thread, redundant or phase-combined operation. It can be configured to control one or two switches.

A remote external controller is available to operate the HPA from user selected location. Mounting brackets can be supplied to mount the HPA to most popular antennas.

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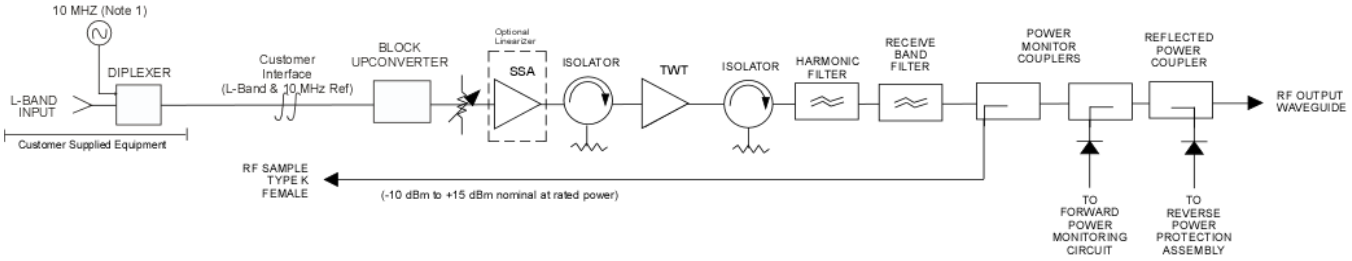
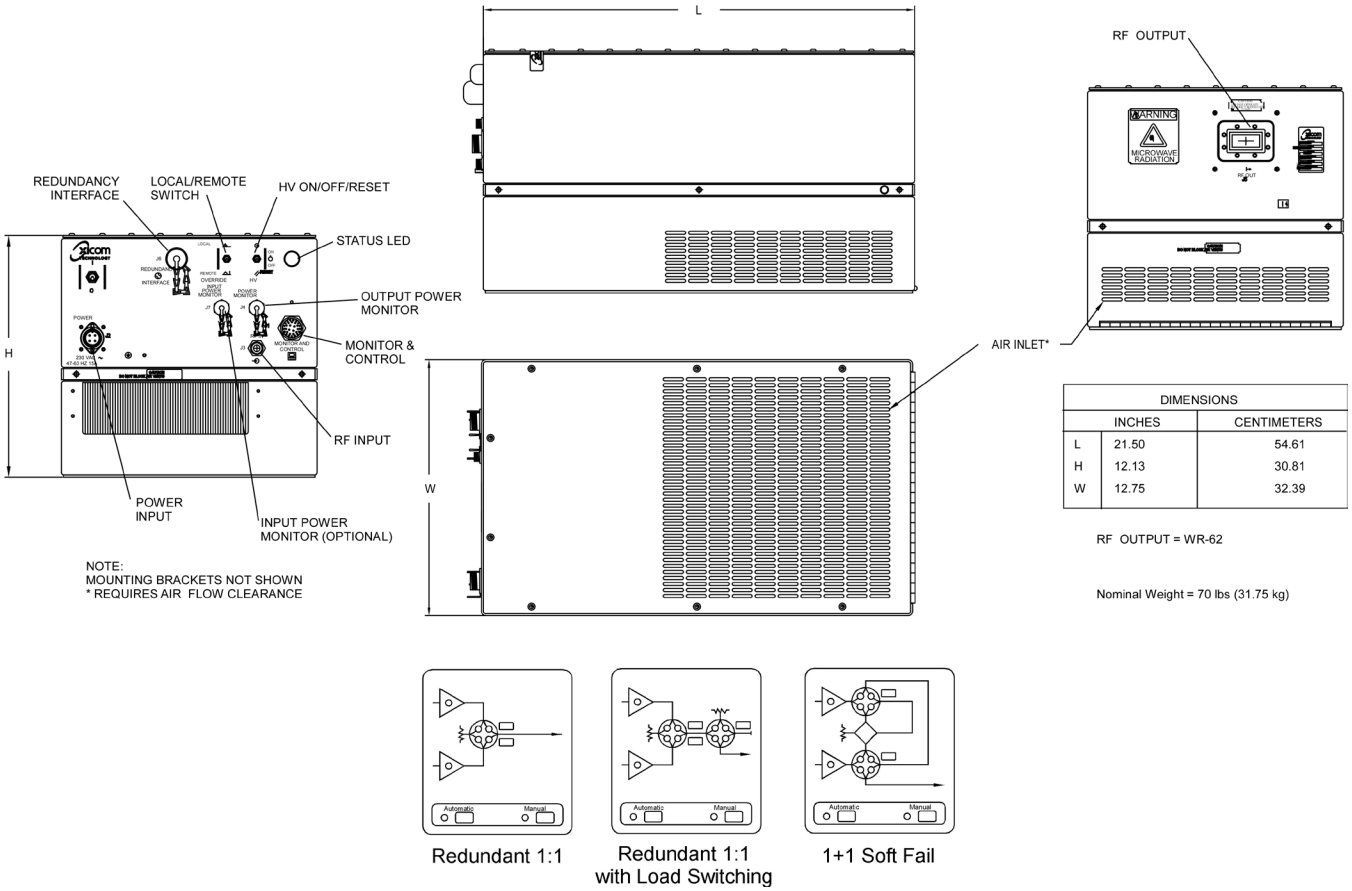
PERFORMANCE SPECIFICATION

Parameters	XTD-750DBSL-B1	XTD-750DBS-B1
FREQUENCY RANGE		
Output	17.3 to 18.1 GHz (optional 17.3 to 18.4 GHz)	
Input	950 to 1750 MHz	
LO Frequency	16350 MHz	
Input Level, w/o damage (maximum)	10 dBm	
Reference Signal Frequency	external 10 MHz	
10 MHz Power Level	2 dBm ± 5 dB	
Reference Input Impedance	50 Ohms	
OUTPUT POWER		
Traveling Wave Tube	750 W Peak	750 W CW
Rated Power @ Amplifier Flange	340 W	650 W
GAIN		
Large Signal (minimum)	65 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	3.0 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	-18 dBc @ 4 dB total output backoff from rated power	
HARMONIC OUTPUT (maximum)	-60 dBc	
AM/PM CONVERSION (maximum)	3.0 deg/dB at 6 dB below rated output power	
NOISE POWER (maximum)		
Transmit Band	-70 dBW/4 kHz	
Receive Band	-150 dBW/4kHz 10.95 to 12.75 GHz	
GROUP DELAY (maximum)		
Bandwidth	Any 80 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)	Per IESS phase noise profile AC fundamental -50 dBc Sum of all spurs -47 dBc	
VSWR		
Input (maximum)	1.8:1	
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

RF OUTPUT = WR-62

Nominal Weight = 70 lbs (31.75 kg)

Redundant 1:1 | Redundant 1:1 with Load Switching | 1+1 Soft Fail

PRIME POWER

180 to 260 VAC
47 to 63 Hz, Single Phase
2000 VA Typical (XTD-750DBSP)
2300 VA Typical (XTD-750DBS)
0.95 Minimum Prime Power Factor

CE

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	RF Inhibit (HV OFF)
	RF Attenuation	Fault Reset
	Heater Standby	
REMOTE STATUS	HV ON	Heater/Beam Hours
	RF Output Power	Fault Identification
	Reflected Power	TWT Temperature
	Filament Time Delay	Helix Current
	Helix Voltage	
FORM C DRY CONTACT CLOSURE	Summary Fault	
RF MONITOR PORT	-43 dB Coupling Value (approx.)	

OPTIONS

- Extended Frequency Coverage
- Linearizer
- Parallel (Discrete) Interface
- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Variable Phase Combined
- Ethernet

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