XTD-500DBS, DBS-Band Antenna Mount Amplifiers

- **500 Watts DBS-Band**
- **No Shelter required**
- **Short Waveguide Run**
- **Power Factor Correction**
- **High efficiency Dual-Stage TWTs**
- **Complete RS-232/422/ 485 Interface**

The XTD-500DBS are 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.

One of the features of the XTD-500DBS is incorporation of power factor correction 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 that is used 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 fault resets (three fault cycles).

A complete serial monitoring and control system is built into the unit.

The XTD-500DBS 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 user selected location. Mounting brackets can be supplied to mount the HPA to most popular antennas.

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PERFORMANCE SPECIFICATIONS

Parameter	XTD-500DBS, DBS-Band
FREQUENCY RANGE	17.3 - 18.4 GHz
OUTPUT POWER	
traveling Wave Tube	500W (17.3-18.1) 450W (18.1-18.4)
Rated Power @ Amplifier Flange	415W (17.3-18.1) 380W (18.1-18.4)
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	4.0 dB
Slope, maximum	± 0.04 dB/MHz
Stability, 24 Hr maximum	± 0.25 dB
Stability, Temperature	± 1.0 dB maximum over temperature range at any frequency
INTERMODULATION, with two equal signals at 4 dB total output backoff	- 18 dBc
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/4 kHz 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	10 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

PRIME POWER

180-260 VAC
47 to 63 Hz, single phase
2300 VA Maximum
0.95 Minimum Prime Power Factor

CE COMPLIANT

OPTIONS

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

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50° C to + 70° C
OPERATING TEMPERATURE RANGE	-40° C to +50° C
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 feet MSL maximum
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

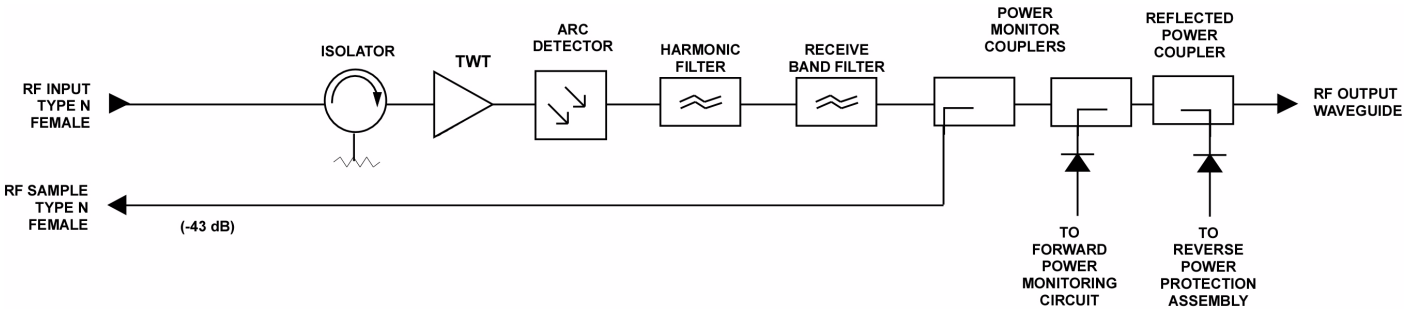
INTERFACE

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)	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	-43 dB Coupling Value (Approx)		

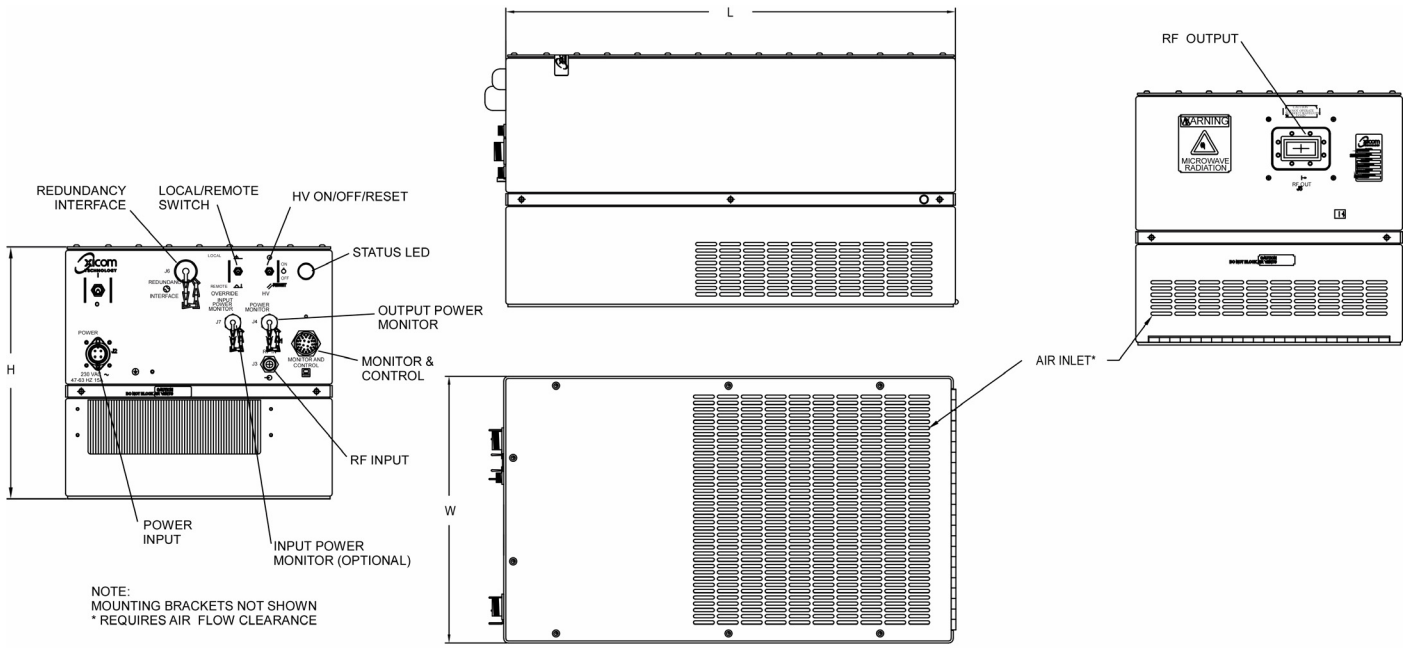
XTD-500DBS High Power Amplifiers

xicom TECHNOLOGY

Block Diagram



Outline Drawing



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

RF OUTPUT = CPRG-137

Nominal Weight = 75 lbs (34.02 kg)

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