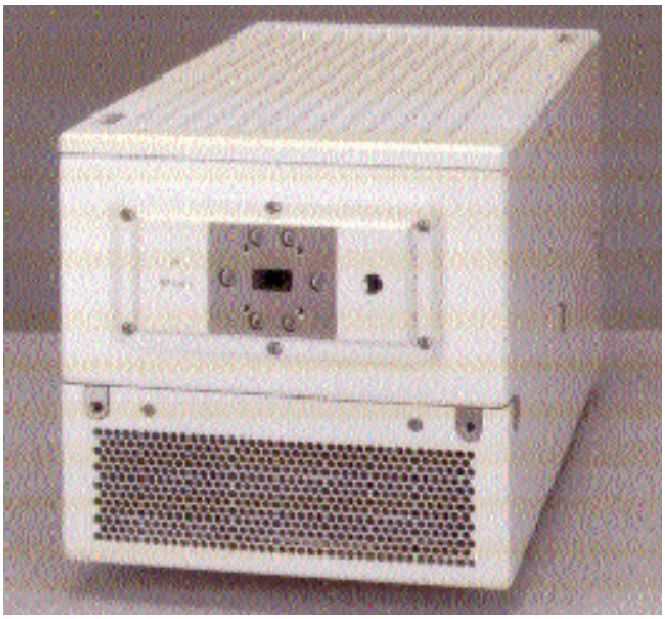
XT-270DBS DBS-Band Antenna Mount Amplifier



- 270 Watts DBS-Band
- No Shelter Required
- Short Waveguide Run
- Power Factor Corrected
- High Efficiency Dual-Stage TWTs

The XT-270DBS is a compact, self-contained, antenna mountable power amplifier designed for low cost installation and long life. The XT-270DBS design eliminates the need for an amplifier shelter as well as a long waveguide run between the amplifier and the antenna feed horn; for example, an antenna mounted 270 Watt DBS-Band amplifier with its shorter waveguide run will often deliver EIRP comparable to a 500 Watt rack mounted amplifier. RF filters and cooling systems are self-contained within the amplifier. These features provide high reliability, low maintenance costs, and low replacement costs.

The XT-270DBS incorporates high efficiency, dual-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 XT-270DBS is incorporation of power factor correction and circuitry that 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 (100 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.)

The XT-270DBS may be configured for single-thread, redundant, phase-combined, or linearized operation.

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

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PERFORMANCE SPECIFICATIONS

Parameter	XT-270DBS, DBS-Band
FREQUENCY RANGE	17.3 - 18.4 GHz
OUTPUT POWER	
Traveling Wave Tube	270 Watts
Rated Power @ Amplifier Flange	225 Watts
GAIN	
Large Signal, minimum	41 dB (65 dB with optional IPA)
Small Signal, minimum	46 dB (70 dB with optional IPA)
Maximum SSG Variation Over:	
Any Narrow Band	1.0 dB per 80 MHz
Full Band	3.0 dB per 500 MHz
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	- 18 dBc maximum with two equal carriers at
with two equal signals	4 dB total output backoff
HARMONIC OUTPUT, maximum	- 60 dBc
AM/PM CONVERSION, maximum	2.5 deg/dB at 6 dB below rated 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

100-260 VAC
47 to 63 Hz, single phase
1300 VA Typical
0.95 Minimum Prime Power Factor

CE COMPLIANT

OPTIONS

Detected RF
Remote External Controller
Preamplifiers
Gain Control
Serial or Discrete Interfaces
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
CONTROLS	Power ON	HV ON
	Fault Reset	Heater Standby
	Note: Heater Standby reduces the TWT heater voltage for situations where the high voltage is off for extended periods.	
MONITORS — ANALOG	+15 VDC (100 MA Max)	Helix Current (2 mA/V)
	+24 VDC (100 MA Max)	Cathode Voltage (1000:1 V/V)
	TWT Temperature	RF Output Power (optional)

XT-270DBS High Power Antenna Mount Amplifiers

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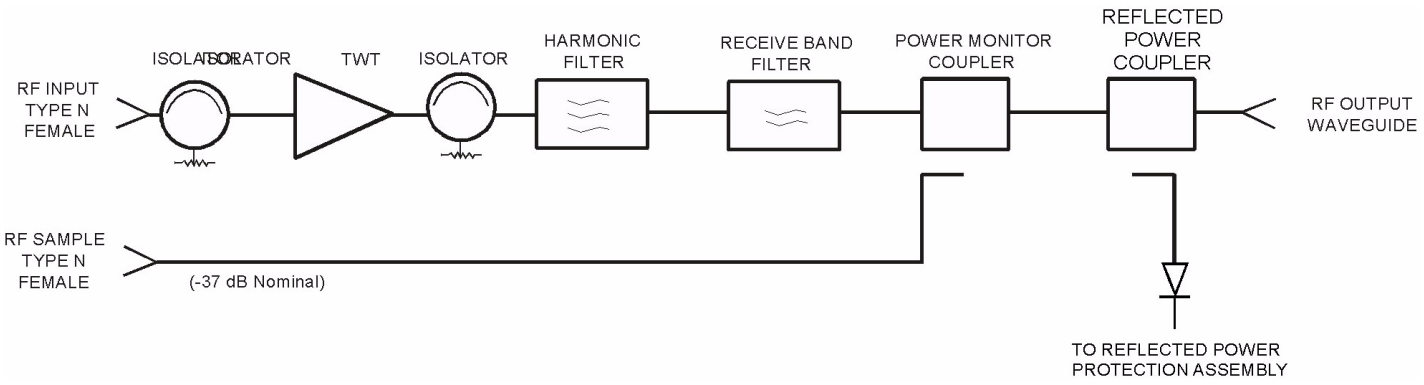
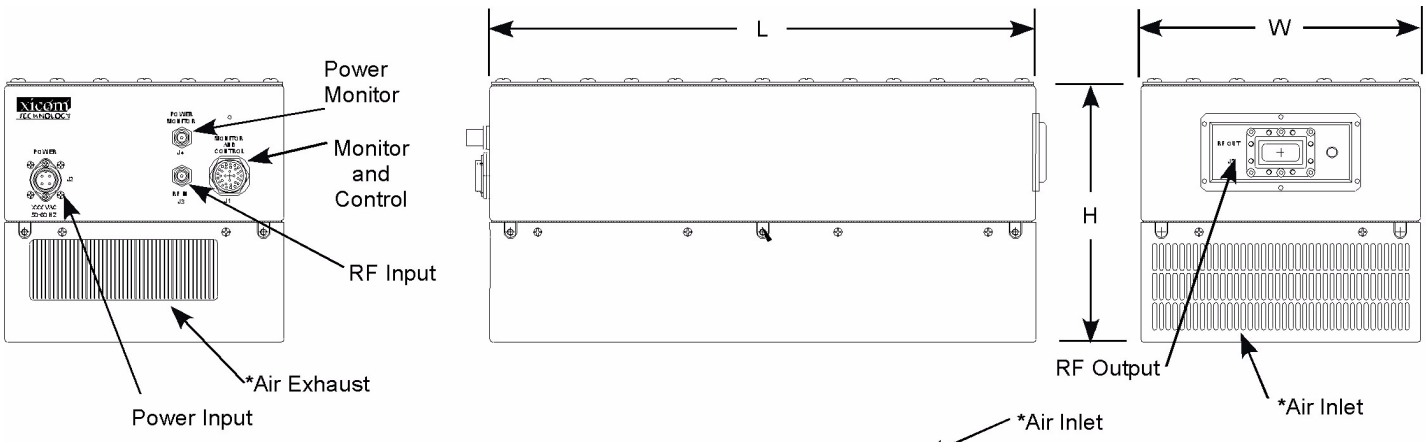
Block Diagram



Outline Drawing



NOTE:
Mounting Brackets not shown
*Requires Air Flow Clearance

DIMENSIONS	Inches	Centimeters
L	20.00	50.80
W	10.25	26.04
H	9.52	24.18

WEIGHT (Typical)
55 lbs (25.00 kg)

WAVEGUIDE FLANGE	
DBS-Band	WR-62

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