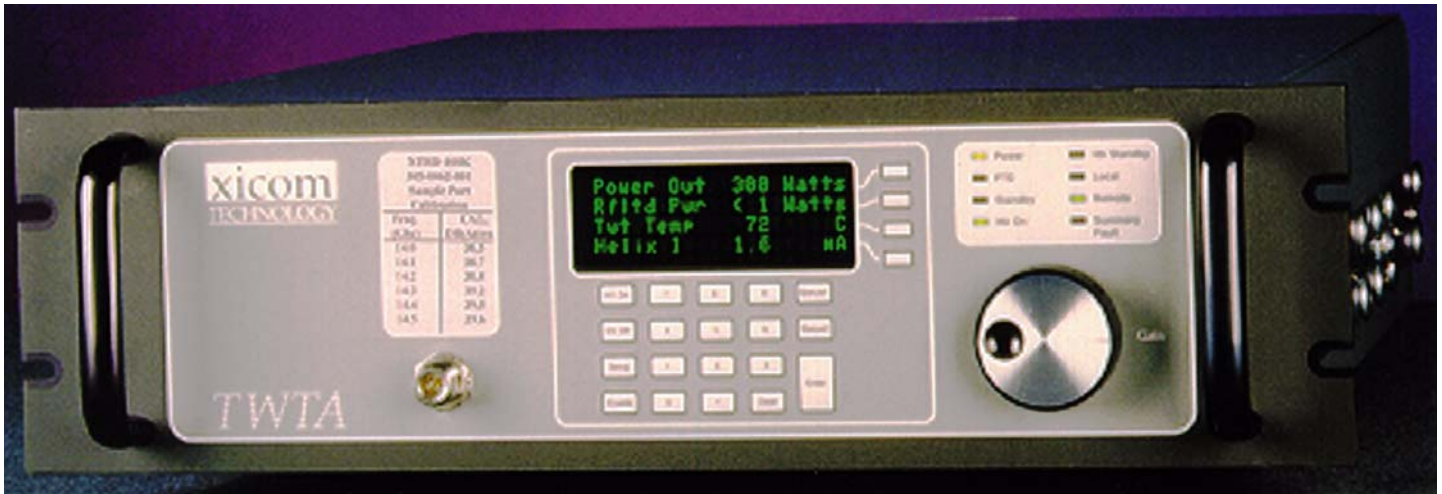




XTRD-100Ku and DBS Bands Dual-Band Rack Mount High Power Amplifier



- **100 Watts Ku-Band
95 Watts DBS-Band**
- **Power Factor Correction**
- **Digital Display & Control Interface**
- **High Efficiency**

The XTRD-100K/DBS is a highly efficient rack-mountable traveling wave tube (TWT) amplifier designed for fixed and mobile uplink applications.

The unit includes RF gain control, a solid state pre-amplifier, RF filters, cooling, and monitoring & control (M&C) systems..

Rack space is conserved because the amplifier occupies only 3 rack units (5 ¼ inches) of a standard 19 inch rack cabinet. Nominal weight is 50 pounds.

The unit features a menu driven front panel display, RS-232/422/485 serial port interfaces for complete computer control. RF, traveling wave tube, and default parameters are easily monitored on the four line front panel display.

Gain control is provided via the front panel or through the serial interface.

The XTRD-100K/DBS amplifier incorporates high efficiency dual-stage collector TWTs. Reliability is enhanced because both prime power consumption and internal operating temperatures are reduced for both the linear and saturated modes of operation.

Power factor correction circuitry is also included which minimizes line current distortion and reduces the required Volt-Amps input.

The automatic features of the high frequency resonant conversion power supply include quick recovery from prime power supply outages and multiple helix fault resets (three fault cycles).

Depending upon user requirements, this high power amplifier can be configured for either single thread or redundant system operation.

PERFORMANCE SPECIFICATIONS

Parameter	Ku-Band XTRD-100K/DBS	DBS-Band XTRD-100K/DBS
FREQUENCY RANGE	13.75 to 14.5 GHz	17.3 to 18.4 GHz
*Extended other frequency coverage available		
OUTPUT POWER		
Saturated Power (typical)	100 W	95 W
Rated Power @ Amplifier Flange	85 W	80 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	±1.0 dB maximum over temperature range at any frequency	
INTERMODULATION with two equal signals	-16 dBc maximum with two equal carriers @ 4 dB total output backoff	
SECOND HARMONIC OUTPUT, maximum	-60 dBc	
AM/PM CONVERSION, maximum	3.0°/dB @ 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 nsec/MHz
Parabolic		0.005 nsec/MHz ²
Ripple		0.5 nsec/Pk-Pk
RESIDUAL AM NOISE, maximum		
In band discrete spurious		-50 dBc to 10 kHz -20(1.5 log F) 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		2.2:1

PRIME

100-260 VAC
47 to 63 Hz, single phase
650 Maximum Input VA
0.95 Minimum Prime Power Factor

OPTIONS

Extended Frequency Coverage
1:1, 1:2, 1:N Redundancy



ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50° C to +70° C
OPERATING TEMPERATURE RANGE	-10° C to +50° C
HUMIDITY	Up to 95% Noncondensing
ALTITUDE	10,000 feet MSL maximum
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

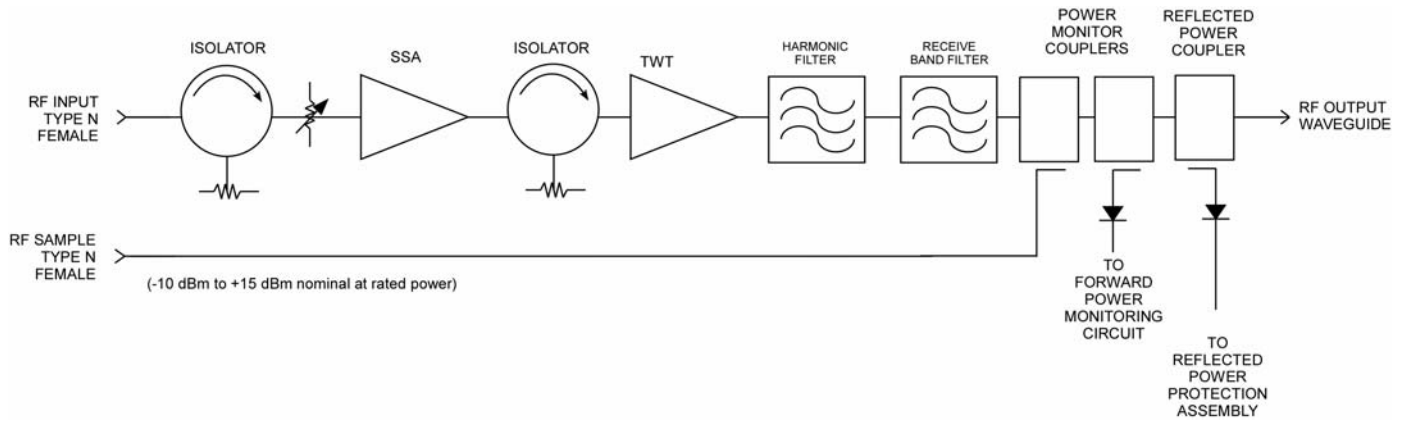
INTERFACE

TYPE	FUNCTION			
CONTROLS	Local	Local/remote	AC Power ON/OFF	
	Local and Remote	Gain	High Voltage ON/OFF	Fault Reset
		Min/Max Power Alarm/Fault	Audio Alarm ON/OFF	Lamp Test
		Reflected Power Alarm/Fault	Units (Watts, dBm, dBW)	Heater Standby ON/OFF
STATUS	Front Panel LEDs	Power	Heater Time Out (FTD)	Standby
		High Voltage	Heater Standby	Local Mode
		Remote Mode	Summary Fault	
	Front Panel Digital Display	Power Out	Reflected Power	Faults:
		TWT Temperature	Helix Current	High VSWR
		Helix Voltage	Heater Hours	High Voltage
Dry Form-C Relay Contacts (Two)	Beam Hours		helix Current	
	Summary Fault		TWT Temperature	
SERIAL PORT	RS-232/RS-422/RS-485			
RF SAMPLE PORT COUPLING	-37 dB Nominal			

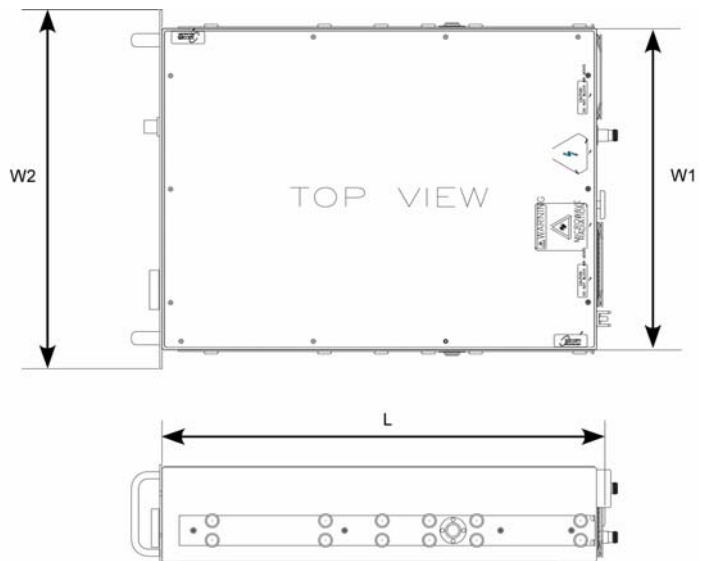
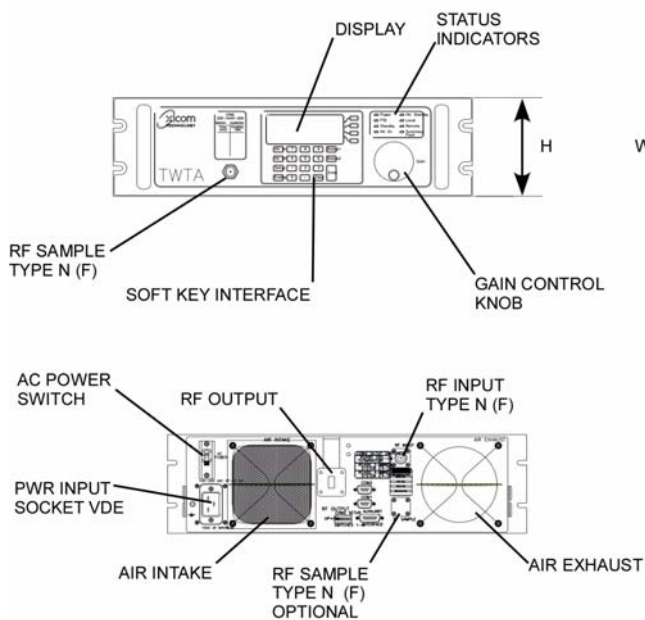
XTRD-100K/DBS Dual-Band HIGH POWER AMPLIFIERS



Block Diagram



Outline Drawing



DIMENSIONS		
	INCHES	CENTIMETERS
L	23.45	59.56
W1	17.00	43.18
W2	19.00	48.26
H	5.25	13.34
Nominal Weight: 46 lbs (20.87 kg)		

RF OUTPUT
Ku-Band = WR-75
DBS-Band = WR-62

