Klystron Power Amplifiers
DBS-Band

FEATURES

- ½ Cabinet Height of Compatible KPAs
- Digital M&C Interface
- Harmonic & Receive Band Filtering
- Power Save Mode
- Power Supply Redundancy
- RS-232/485 Serial Interface

The **XTK-1400DBS** and **XTK-2000DBS** are compact Klystron Power Amplifiers (KPAs) designed for fixed and mobile uplink applications. Xicom KPAs are ½ the height of conventional KPAs. Reduced height is complimented by reduced weight. Shipping is greatly simplified as the RF deck, klystron tube, and power supply are shipped individually and weigh 100 pounds each.

The units can be fully operated locally via the front panel, or remotely via an RS-232 or RS-422/485 serial interface connection. Additionally, users can bypass microprocessor control and operate the unit via the analog controls incorporated into the unit. This design feature allows users complete flexibility in controlling the amplifier. Additional features are: (1) power supply redundancy - within each KPA are three redundant 5 KW power supplies. Any two of these power supplies can fully operate the KPA, thereby enhancing operational reliability; (2) active airflow - automatic sensing and control of blow speed which is independent of line voltage and frequency; (3) fully power factor corrected for CE compliance; (4) klystron tube removable through the front panel; (5) fast-tune option available; (6) power save mode for reduced prime power.

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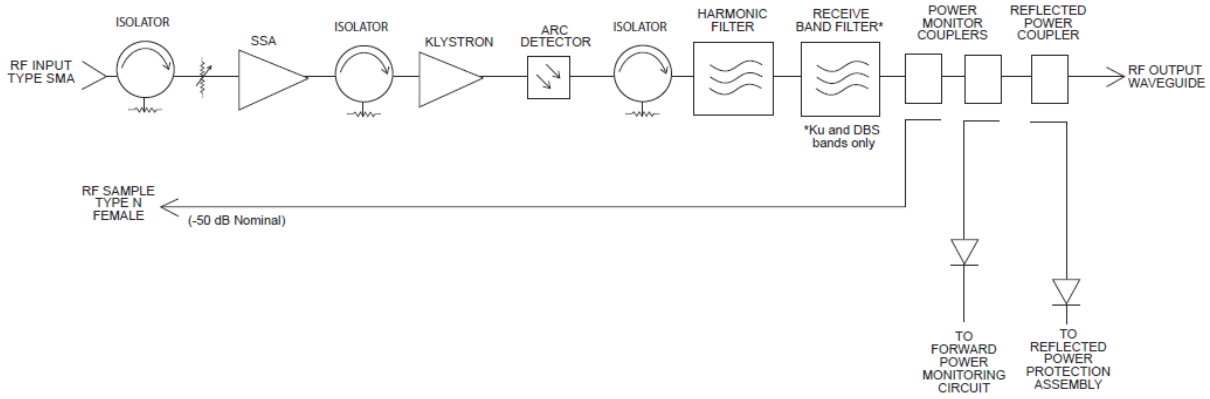
PERFORMANCE SPECIFICATION

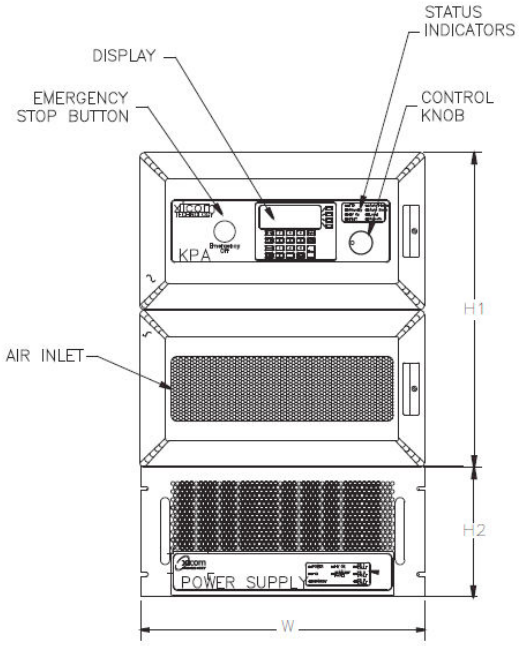
Parameters	XTK-1400DBS	XTK-2000DBS
FREQUENCY RANGE (optional)	17.3 to 18.1 GHz (17.3 to 18.4 GHz*)	17.3 to 18.1 GHz
OUTPUT POWER		
Klystron	1700 W	2400 W
Rated Power @ Amplifier Flange	1400 W	2000 W
PRESET CHANNELS	8, 12	
BANDWIDTH	85 MHz	50 MHz
GAIN		
At Rated Power	75 dB	
Variation, at rated power (maximum)	0.40 dB Pk-Pk over Fo ± 30 MHz	
Slope, at rated power (maximum)	± 0.04 dB/MHz over Fo ± 30 MHz	
Stability, 24 hr. (maximum)	± 0.25 dB/24 hrs at constant drive/temperature	
Stability, Temperature (maximum)	± 2.5 dB at constant drive	
GAIN ADJUSTMENT	0 to 30 dB, 0.1 dB steps	
INTERMODULATION (maximum) with two equal carriers	-26 dBc @ 7 dB total output power backoff from rated power	-27 dBc @ 7 dB total output power backoff from rated power
HARMONIC OUTPUT (maximum)	-70 dBc	
AM/PM CONVERSION (maximum)	3.0 deg/dB at rated power	4.0 deg/dB at rated power
NOISE POWER (maximum)		
Transmit Band	-65 dBW/4 kHz	
Receive Band	-150 dBW/4 kHz (10.95 to 12.20 GHz) -110 dBW/4 kHz (16.0 to 40.0 GHz) excludes passband	
GROUP DELAY (maximum)		
Bandwidth	Any 80 MHz	
Linear	± 0.1 nS/MHz	
Parabolic	± 0.02 nS/MHz^2	
Ripple	2.0 nS/Pk-Pk	
RESIDUAL AM NOISE (maximum)	-50 dBc up 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	
VSWR		
Input (maximum)	1.2:1	
Output (maximum)	1.25:1	
Load w/o damage	2.0:1	
Load, shutdown	> 2.0:1	

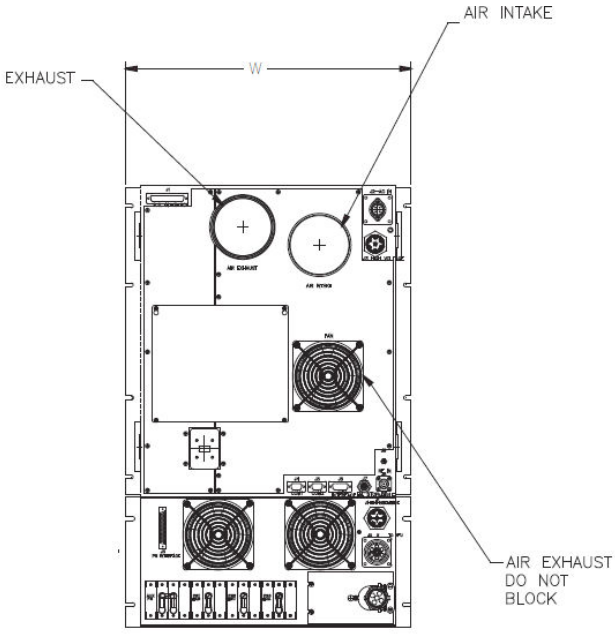
** Standard power over 17.3 to 18.1 GHz band; power derates to 1500W/1250W over 18.1 to 18.4 GHz*

BLOCK DIAGRAM



OUTLINE DRAWING





DIMENSIONS

	INCHES	CENTIMETERS
W	19.00	48.26□
H1	21.00	53.34□
H2	8.72	22.15

Nominal Weight = 300 lbs. (136.1 kg)

RF OUTPUT

DBS-band	WR-62

PRIME POWER

190 to 260 VAC, L-L, Delta
50 to 60 Hz, Three Phase, Three Wire, Plus Ground
XTK-1400DBS: 11300 VA (maximum)
XTK-2000DBS: 11500 VA (maximum)
0.95 Minimum Prime Power Factor
180% in-rush current (maximum)

CE

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-10°C to +50°C (2°C/1000 Feet Derating)
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
		Lamp Test	Emergency Stop
		Channel Selector	
	LOCAL AND REMOTE	Heater Standby ON/OFF	Channel Selection (Optional)
		Lamp Test	Beam Voltage Adjust
		Fault Simulation Test	HV ON/OFF
		Audio Alarm ON/OFF	Units (Watts, dBm, dBW)
		Fault Reset	RF Inhibit
		Attenuator Setting	Auto Power Save
STATUS	FRONT PANEL LEDs	HV On	Heater Time Out (FTD)
		Standby	High Voltage Fault
		Heater Standby	Local Mode
		Remote Mode	Body Current Fault
		Summary Fault	
	FRONT PANEL DIGITAL DISPLAY	Power Out	Reflected Power
		Attenuator Setting	Klystron Temperature
		Body Current	Beam Voltage
		Beam Current	Channel Selected
		Heater Voltage	Faults: High VSWR Body Current High Voltage Klystron Temperature P. S. Temperature Blower
		Heater Hours	
		Beam Hours	
		Waveguide Arc	
		Blower Pressure	
		Fan Speed	
	DRY FORM-C RELAY CONTACTS (2)	Summary Fault	
COMPUTER SERIAL PORT	HARDWARE INTERFACE	Two Ports: RS-232 & RS-422/RS-485	
	XICOM COMMAND SET	ASCII Commands	
	RF SAMPLE PORT COUPLING	-50 dB Nominal	

OPTIONS

- 330 to 450 VAC, L-L, Wye
- 50 to 60 Hz, Three Phase, Four Wire + Ground
- Redundant 1:1 Configuration in One Cabinet
- Phase Combined & 1:N Configurations
- Fast Tuner (< 1 second)

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