

Klystron Power Amplifiers Ku-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-2000K**, **XTK-2000K1**, **XTK-2000K2**, and **XTK-2000K3** 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.

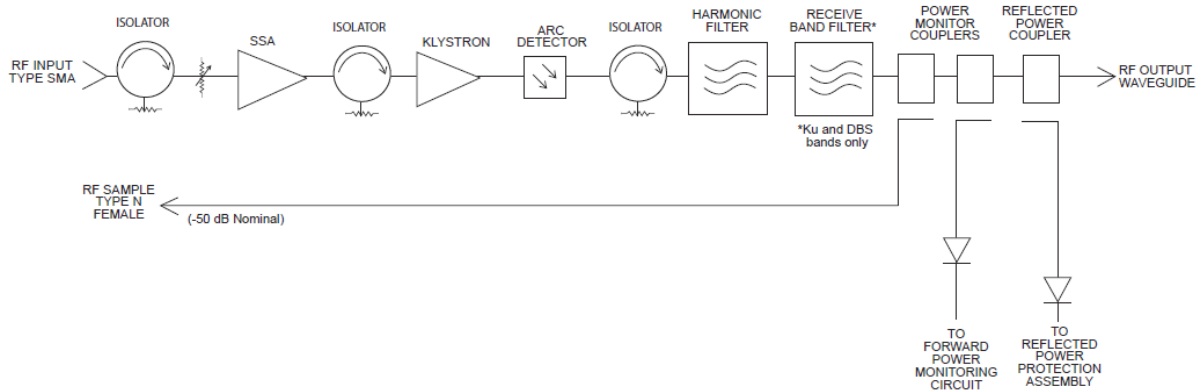
The units can be fully operated locally via the front panel, or remotely via an RS-232 or RS-422/485 serial interface connection. Additionally, users can bypass microprocessor control and operate the unit via the analog controls incorporated into the unit. This design feature allows users complete flexibility 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.



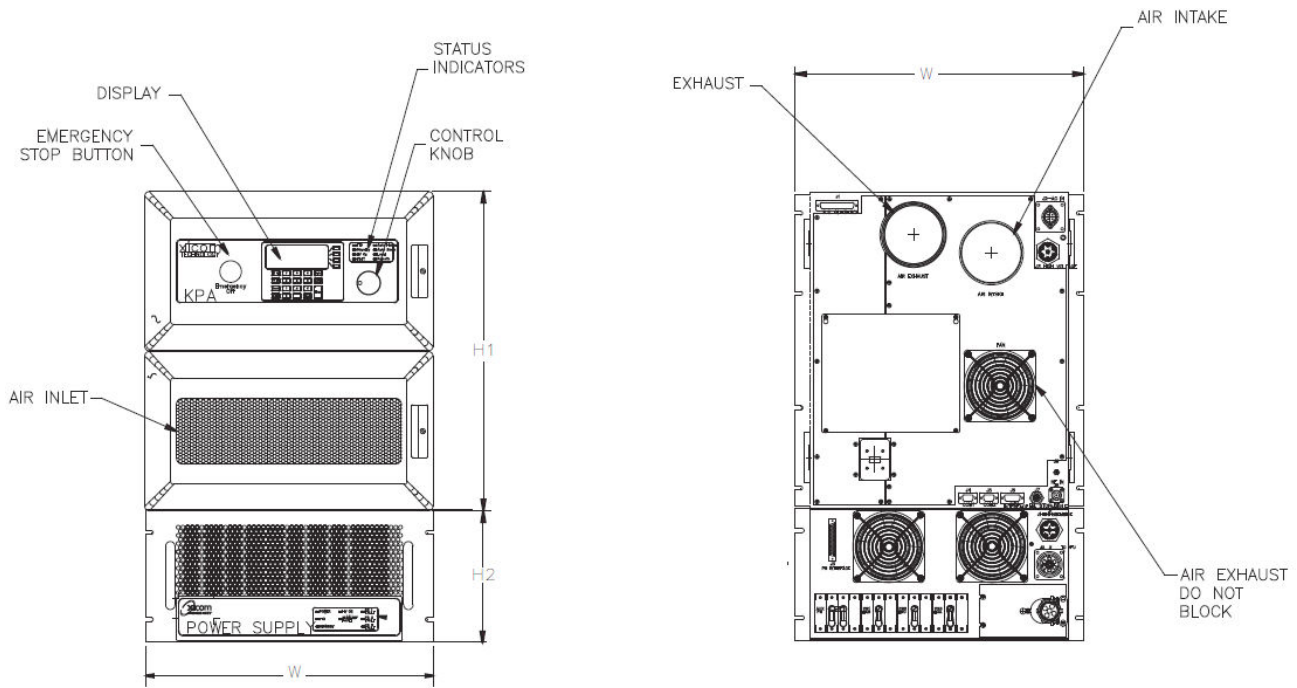
PERFORMANCE SPECIFICATION

Parameters	XTK-2000K	XTK-2000K1	XTK-2000K2	XTK-2000K3
FREQUENCY RANGE	14.0 to 14.5 GHz	13.75 to 14.5 GHz	14.5 to 14.8 GHz	12.75 to 13.25 GHz
OUTPUT POWER				
Klystron	2450 W	2450 W	2450 W	2200 W
Rated Power @ Amplifier Flange	2000 W	2000 W	2000 W	1850 W
PRESET CHANNELS	8, 12			
BANDWIDTH	85 MHz	85 MHz	85 MHz	80 MHz
GAIN				
At Rated Power	80 dB			
Variation, at rated power (maximum)	0.40 dB Pk-Pk over $F_o \pm 30$ MHz			
Slope, at rated power (maximum)	± 0.04 dB/MHz over $F_o \pm 30$ 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, 0.12 dB steps			
INTERMODULATION (maximum) with two equal carriers	-28 dBc @ 7 dB total output power backoff from rated power			
HARMONIC OUTPUT (maximum)	-80 dBc			
AM/PM CONVERSION (maximum)	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	± 0.10 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)	1.3:1			
Load w/o damage	2.0:1			
Load, shutdown	> 2.0:1			

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

Ku-band WR-75

PRIME POWER

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



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:
Heater Hours		High VSWR	
Beam Hours		Body Current	
Waveguide Arc		High Voltage	
Blower Pressure	Klystron Temperature		
Fan Speed	P. S. Temperature		
		Blower	
	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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