

400 Watt Ku-Band High Efficiency Antenna Mount High Power Amplifier



FEATURES

- 13.75 to 14.5 GHz
- High linear power, high efficiency: draws 850W @ 170W output
- Light weight, compact package: 31 lbs.
- Optional L-band BUC

The **XTD-400KHE** series is a compact, antenna mountable, traveling wave tube amplifier designed for low cost installation and long life. Intended for outdoor operation, the self contained **XTD-400KHE** is designed for transportable applications where high efficiency, light weight, and high ambient temperature operation are required.

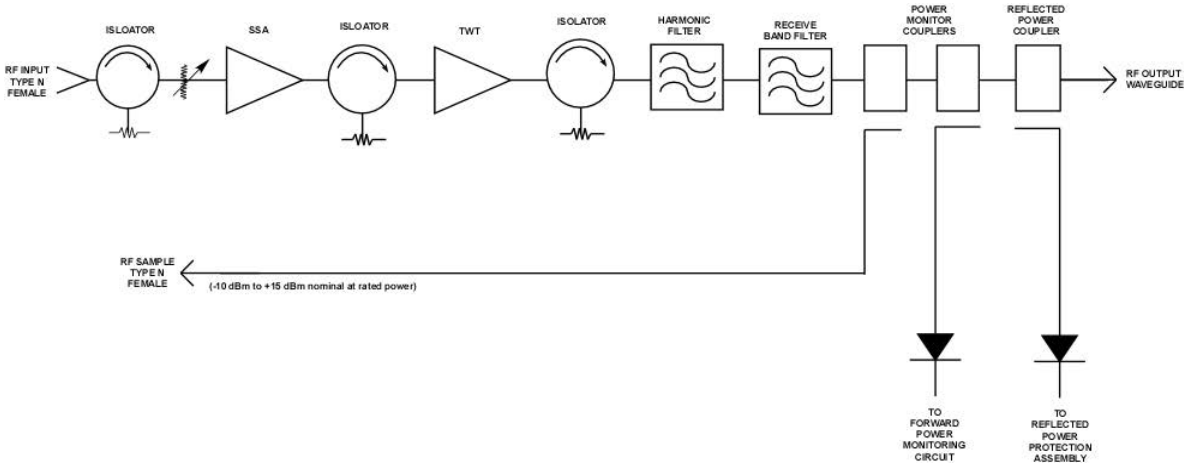
RF filters, cooling, and monitor & control (M&C) systems are all self contained within the package. A high frequency resonant conversion power supply is used that accepts a wide range of prime power (100 to 240 VAC). A remote external controller is available to operate the HPA from a user selected location. Depending upon user requirements, these high power amplifiers can be configured for single thread, redundant, or phase combined configurations.



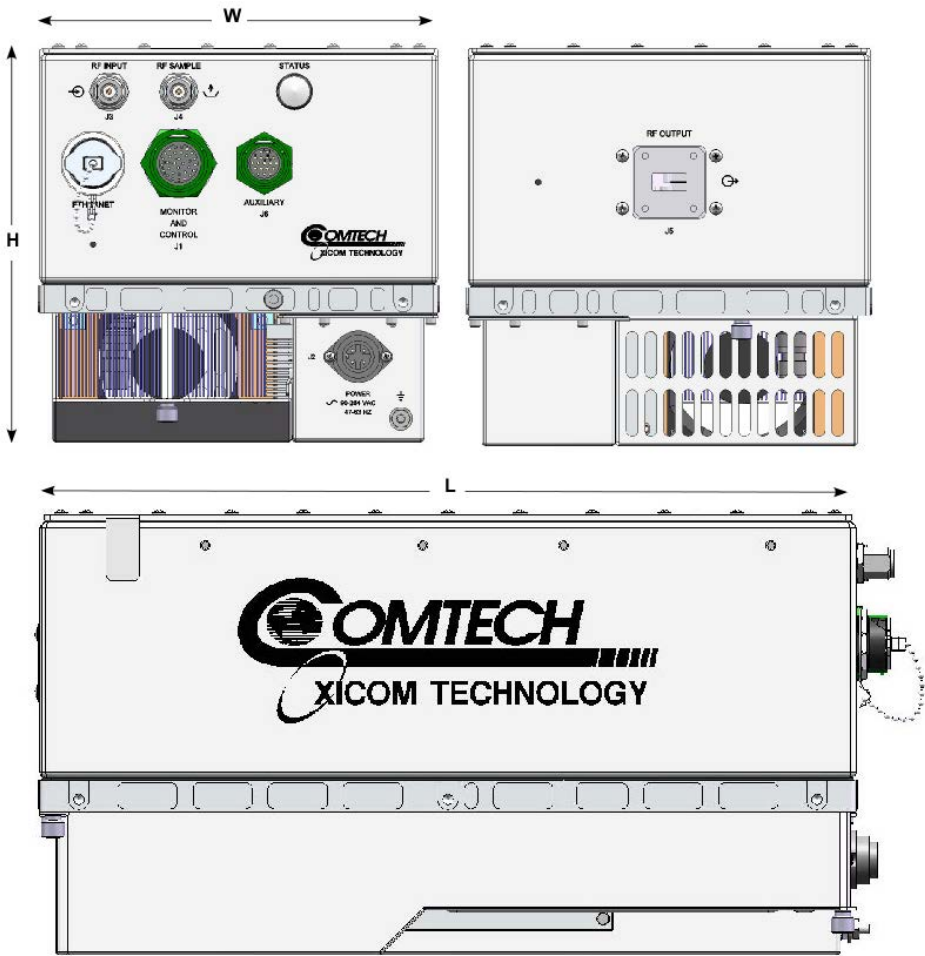
PERFORMANCE SPECIFICATION

Parameters	XTD-400KHE
FREQUENCY RANGE (extended frequency coverage available)	13.75 to 14.5 GHz
OUTPUT POWER	
Traveling Wave Tube	400 Watts
Maximum Transmit Power	178 Watts
Linear Power @ Amplifier Flange (minimum)	170 Watts with optional linearizer 90 Watts without linearizer
GAIN	
Large Signal (minimum)	70 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	± 2 dB
Slope (maximum)	± 0.04 dB/MHz
Stability, 24 hr. (maximum)	± 0.25 dB
Stability, Temperature (maximum)	± 1.0 dB over temperature range at any frequency
INTERMODULATION with two equal carriers	-18 dB @ Po = 140W (-26 dBc with linearizer option)
SPECTRAL REGROWTH (@ 1 SR offset)	-30 dBc @ P _{LINEAR}
HARMONIC OUTPUT (maximum)	-60 dBc
AM/PM CONVERSION (maximum)	2.0 deg/dB @ linear 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)	12 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

BLOCK DIAGRAM



OUTLINE DRAWING



DIMENSIONS		
	Inches	Centimeters
H	8.50	21.59
W	8.60	21.84
L	15.75	40.00
WEIGHT = 31 lbs (14.06 kg)		

PRIME POWER

100-240 VAC
47 to 63 Hz, Single Phase
850 VA Typical
1000 VA Maximum
0.95 Typical Prime Power Factor



ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-40°C to +60°C (2°C/1000 Feet Derating)
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 feet MSL (maximum)
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

INTERFACE - ETHERNET

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 A CONTACT CLOSURE	Summary Fault		
RF MONITOR PORT	-37 dB Coupling Value (Approx)		

OPTIONS

- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Variable Phase Combined
- Linearizer
- Block Upconverter

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