

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



FEATURES

- 13.75 to 14.5 GHz
- Compact size and weight
- 300 watts linear power
- Operates to +60°C
- Optional linearizer
- High efficiency peak TWT
- Ethernet interface

The **XTD-750KHE** is a highly compact, rugged antenna mountable power amplifier designed for high efficiency and long life. The **XTD-750KHE** design uses high efficiency, dual-stage collector peak Traveling Wave Tubes (TWT) to fit a 750 watt rated amplifier into the package size previously offered as a 400 watt TWTA. Some benefits of this type of tube are: significantly reduced prime power consumption, lower internal operating temperatures, and reliability enhancement.

RF filters, cooling, and monitoring & control (M&C) systems are all self-contained within the High Power Amplifier (HPA). An ethernet M&C interface is included.

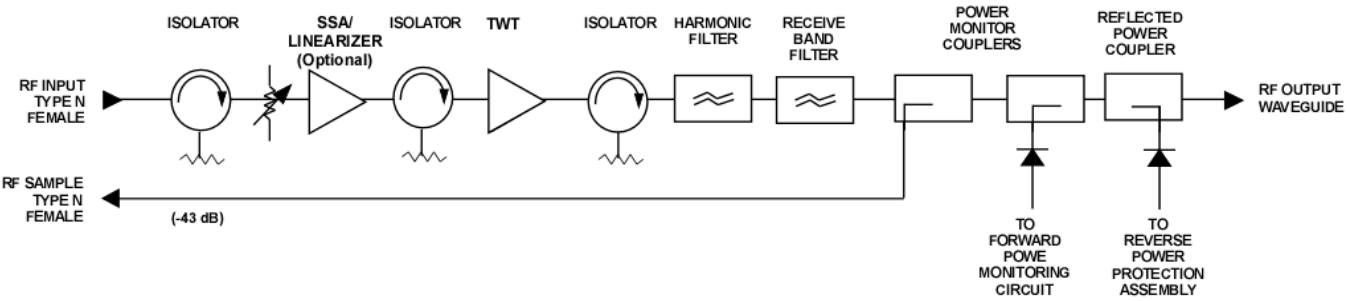
The **XTD-750KHE** may be configured for single thread, redundant, or phase-combined operation.



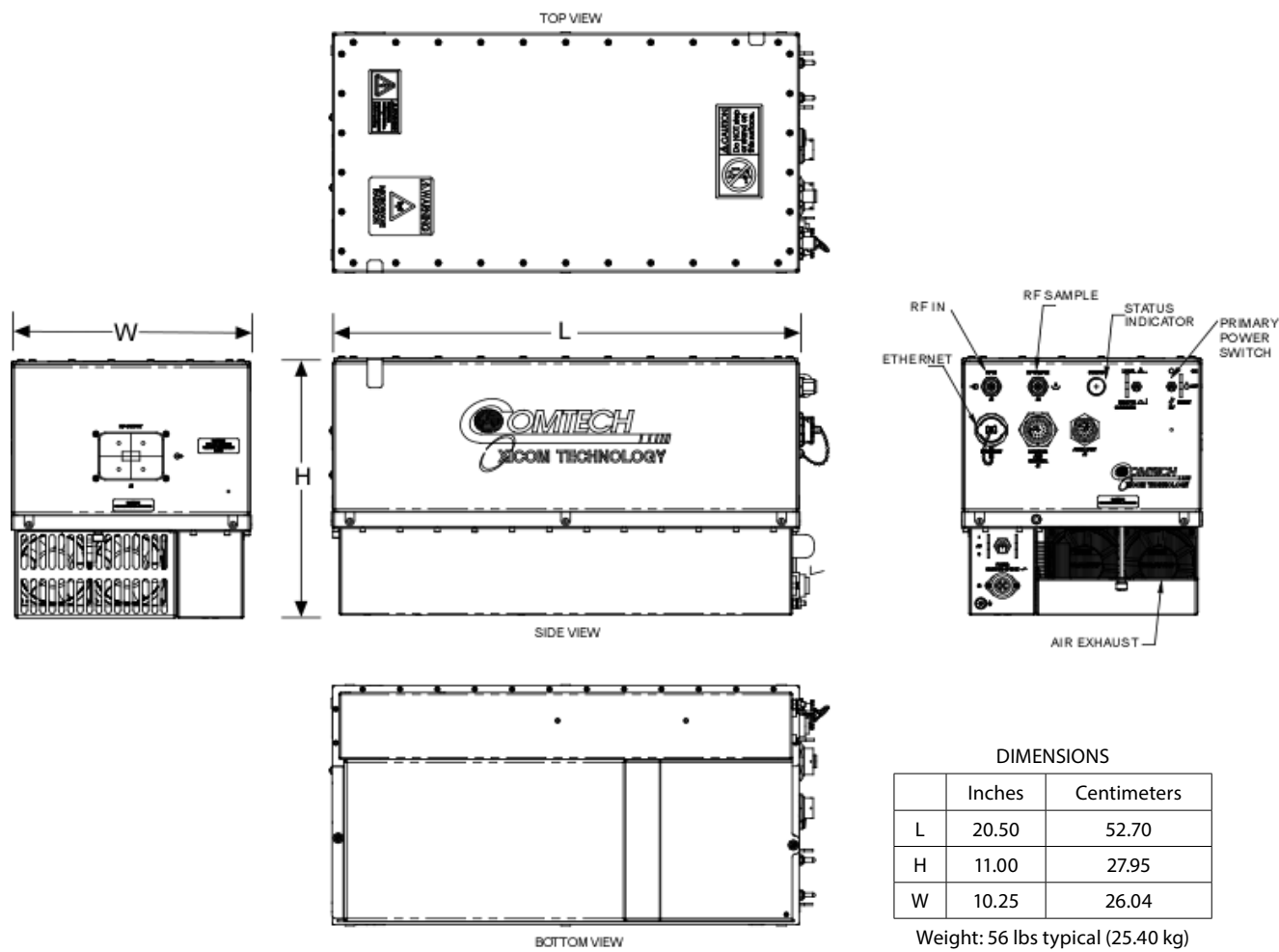
PERFORMANCE SPECIFICATION

Parameters	XTD-750KHE
FREQUENCY RANGE (optional extended frequency)	13.75 to 14.5 GHz (12.75 to 14.5 GHz)
OUTPUT POWER	
Peak TWT Power	750 Watts
Maximum CW power (P_{MAX})	355 Watts
Linear Power (P_{LINEAR})	300 Watts with optional linearizer 165 Watts without linearizer
GAIN	
Large Signal (minimum)	70 dB
Small Signal (minimum)	70 dB
Attenuator Range (continuous)	30 dB, 0.1 dB steps
Maximum SSG Variation Over	
Any Narrow Band	1.0 dB per 80 MHz
Full Band	2.5 dB per 500 MHz
Slope (maximum)	± 0.02 dB/MHz
Stability, 24 hr. (maximum)	± 0.25 dB
Stability, Temperature (maximum)	± 1.0 dB over temperature range at any frequency
INTERMODULATION (maximum) relative one of two equal carriers	-25 dBc @ P_{LINEAR}
SPECTRAL REGROWTH @ 1 SR offset	-30 dBc @ P_{LINEAR}
AM/PM CONVERSION (maximum)	2.0 deg/dB @ P_{LINEAR}
HARMONIC OUTPUT (maximum)	-60 dBc
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	0.05 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



PRIME POWER

100 to 240 VAC
47 to 63 Hz, Single Phase
1450 VA Typical @ P_{LINEAR} 180 to 240 VAC
1650 VA Typical @ P_{LINEAR} 100 VAC
0.95 Minimum 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 Max.
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air

INTERFACE

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	Constant Power
	Min/Max Power Alarm/Fault	Gain
	Reflected Power Alarm/Fault	Fault Reset
	Heater Standby ON/OFF	Units (Watts, dBm, dBW)
REMOTE STATUS	Power Out	Reflected Power
	Helix Current	Helix Voltage
	Heater Hours	Beam Hours
	Attenuator Setting	Units Selection
	TWT Temperature	Faults:
		High VSWR High Voltage Helix Current TWT Temperature 10 MHz Lock
FORM C DRY CONTACT CLOSURE	Summary Fault	
COMPUTER PORT	Hardware Interface: RS-232 & RS-422/485 Ethernet	Xicom Command Set: ASCII Commands
RF MONITOR PORT	-43 dB Coupling Value (nominal.)	

OPTIONS

- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Linearizer
- Alternate Frequencies Available

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