

### Key Differentiators

**High Speed** 9.6 kbps–3.5 Mbps over-the-air throughput. XetaWave’s proprietary DSM technology offers the industry’s highest throughput in a 12.5 kHz channel at 51 kbps.

**Dual Band** 902–960 MHz frequency support enables both licensed and unlicensed operation with a single radio.

**Dual Radio** Support for optional 2<sup>nd</sup> RF Module (of any Xeta Series) in a single enclosure (**Xeta9x9-E**) provides enhanced repeater functionality, higher throughput rates and multi-band/multi-frequency operations.

**Link Adaptation** Dynamic data rate automatically adapts communication parameters to achieve optimal link performance.

#### Multi-Speed TDMA

Unique to XetaWave, a *single* radio can have multi-logical data channels with different speeds. This allows for the prioritization/trade off of reliability versus speed.

**Ethernet Switch** Two independent Ethernet ports, each with full VLAN support and configurable as access ports, trunks, or mixed.

**Serial Bridge** Seamless integration for hybrid networks utilizing both Ethernet and legacy Serial devices.

**4 Watts** Adjustable power output from 10 mW to 3 Watts (+10dBm to +33dBm).

The **Xeta9-E** is a dual band ISM/MAS 902-960 MHz software defined Ethernet radio that automatically optimizes parameters across three axes - power output, channel size and modulation. This dynamic modulation allows for data transfer rates from 9.6 kbps to 3.5 Mbps, power output from 10mW to 3W, and channel sizing from 6.25 kHz to 1.2 MHz. The **Xeta9-E** selectively switches modulation schemes to ensure required throughput given available channel sizes and environmental noise. Based on its patent pending Dual Decode Digital Architecture™, XetaWave’s technology platform offers performance second to none in the commercial market today.

With built-in support for **MultiSpeed MultiPoint™** networks, the **Xeta9-E** enables both high and low speed remotes to operate on the same network with a single access point.

This new capability empowers wireless network planners to add video cameras and other high data-rate monitoring systems to their SCADA infrastructure without the need to build separate radio networks for these devices. The ability to integrate serial-only sub networks allows for complete flexibility with network design. **Multi-Master Sync (MMS) network synchronization** for serial and Ethernet networks precisely controls the transmission timing within a multiple Master network to eliminate self-interference.



*Board level & OEM RF module versions also available*

### Industry Applications

#### Oil & Gas

- Bandwidth for expanding IP-based control systems & video
- Unified serial and IP/Ethernet infrastructure
- Licensed option for congested unlicensed 900 MHz areas

#### Energy

- Sequential-relay mode provides optimal coverage for long-line distribution infrastructure
- 100% testing over full -40°C to +85°C ISM & -40°C to +60°C MAS operating range (-55°C available) ensures reliable communications across the harshest environments.

#### Industrial Controls

- Optional I/O allows seamless integration of ModBus RTU, ModBus TCP, and DNP3 protocols into a unified wireless network.

#### Electric Power

- Distribution automation
- Substation automation
- SCADA
- Grid Sensors
- Voltage Optimization


#### Water & Wastewater

- 1 Mbps at 40 miles allows more frequent polling and the ability to add video monitoring in critical locations.
- Standard AES 256 bit encryption with optional FIPS 140-2 (validation in progress) support secures critical communications channels from unauthorized use and interception.

# Xeta9-E *Performance Specifications*

Transmitter				
Frequency Range	902-928 MHz: ISM-FHSS & DTS; 928-960 MHz: MAS			
Output Power	10mW to 3W, step size 10mW   1W in ISM mode			
Range – Line of Sight	70+ miles			
Modulation	MSK, 2-FSK, 4-FSK, BPSK, QPSK, 8-PSK, 16-PSK, 16-QAM, 32-QAM			
RF Data Rate	9.6 kbps to 3.5 Mbps			
Occupied Bandwidth	6.25 kHz to 1.2 MHz			
Frequency Stability	1.0 ppm			
Duty Cycle	Continuous			
Output Impedance	50 Ohms			
Receiver				
Sensitivity - ISM (dBm)	-111 @ 57 kbps MSK	-101 @ 884 kbps BPSK		
	-109 @ 114 kbps MSK	-98 @ 1768 kbps QPSK		
	-108 @ 153 kbps MSK	-91 @ 2651 kbps 8-PSK		
	-105 @ 229 kbps MSK	-86 @ 3535 kbps 16-QAM		
	-101 @ 663 kbps 2-FSK	-75 @ 3535 kbps 16-PSK		
	Sensitivity - MAS (dBm)  <i>Note: Other channel sizes are available to meet local regulations.</i>		12.5 kHz	25 kHz
MSK		-114 @ 10 kbps	-111 @ 20 kbps	-107 @ 40 kbps
4 GFSK		-106 @ 19.2 kbps	-103 @ 38.4 kbps	-100 @ 76.8 kbps
QPSK		-108 @ 23 kbps	-105 @ 46 kbps	-102 @ 94 kbps
8 PSK		-101 @ 34 kbps	-98 @ 68 kbps	-95 @ 136 kbps
16 QAM		-97 @ 45 kbps	-94 @ 90 kbps	-91 @ 180 kbps
32 QAM		-91 @ 57 kbps	-88 @ 114 kbps	-85 @ 228 kbps
RF Selectivity		50 dB		
Adjacent Channel Rej	51 dB @ 12.5 kHz, 60 dB @ 25 kHz, 70 dB @ 50 kHz			
Data Transmission				
Error Detection	Up to 32-bit CRC, Retransmit on error			
Data Encryption	AES 256 ( <i>FIPS 140-2 validation in progress</i> )			
Data Interfaces	2x 10/100 Ethernet, 2x RS232/422/485 Serial			
Data Connector	4x RJ45			
Serial Interface Speed	Up to 921.6 kbps			
Power / Physical				
Operating Voltage	Enclosed: 10-32 VDC with reverse polarity protection to 32 VDC   Module: 4.5-5 VDC			
Transmit Current	550 mA @ 12V for 1 W RF   < 2.7 A @ 7.5V for 3W RF			
RF Connector	TNC			
Dimensions (L x W x H)	Enclosed: 6.625" x 3.45" x 1.835"   Module: 2.0" x 1.4" x 0.37"			
Weight	Enclosed: 663 grams (1.46 lbs)   Module: 24 grams			

## Environmentals

- 40°C to +85°C ISM & -40°C to +60°C MAS operating temperature range. *-55°C available.*
- 95% operating humidity @ 40°C non-condensing.
- UL Class 1 Div 2 &  approved

## Security

- AES 256-bit encryption
- Password authentication
- VLAN network segregation
- FIPS 140-2 validation in progress

## Management

- SNMP V3

## Available Versions

### Enclosed

**Xeta9-E** Single RF Module  
Enclosed Ethernet

**Xeta9x9-E** Dual RF Modules  
Enclosed Ethernet

### Board-Level

**Xeta9m-T** OEM RF Module  
TTL interface



258 South Taylor Avenue  
Louisville, CO 80027  
303-447-2745 · sales@xetawave.com  
www.xetawave.com