

Xeta9 OEM Module

900 MHz Serial Software Defined Industrial Radio

The **Xeta9 OEM Module** is an extremely capable and flexible industrial Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined 900 MHz serial radio offered as a board level product in a small 2.0" x 1.4" footprint.

The Xeta9 OEM Module utilizes a XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance. Like all XetaWave radios, the Xeta9 OEM also supports multiple modulation schemes and MultiSpeed MultiPoint™ that allow End Points to selectively switch transfer rates with an Access Point to achieve optimal data throughput given the available channel size and RF environment.



All Xeta9 radios from the uTasker, Linux, XetaEdge, and Debian series are over-the-air compatible and XetaWave's seamless serial mode allows serial and Ethernet End Points to simultaneously communicate with Ethernet Access Points. The Xeta9 OEM Module also **supports compatibility with MDS TransNET™** master and repeater radios.

Key Features

High Speed Over-the-air data rates from 10 kbps to 5.3 Mbps plus higher throughput in **XetaEMP** mode.

Adjustable RF Output Power output up to 1 Watt (+30 dBm) or 5 Watts (+37 dBm).

Dual Mode Frequency hopping and single channel operations.

Network Types Point to Point, Point to Multipoint, Enhanced MultiPoint, and Peer to Peer.

Selective Modulation Multiple MSK, FSK, PSK, and QAM modulations.

MultiSpeed Multipoint Access Point communicates with Endpoints operating at different RF data rates.

Multi-Speed TDMA Offers multiple logical data channels with different speeds.

Options Available with TTL or RS232 serial interface, higher RF power output to 5 Watts (+37 dBm), and TDMA.

Interchangeable Xeta9, Xeta13, and Xeta24 radio modules are drop in replacements.

Compatibility Over-the-air compatible with GE MDS TransNET repeaters and master radios.

Xeta9 OEM Module Specifications

Transmitter	ISM FHSS	ISM DTS
Frequency Range	902 to 928 MHz	
Output Power	10 to 1000 mW (10 to 30 dBm)	
Modulation	MSK, 2FSK, BPSK, QSPK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM	
Data Rate	57 to 5303 kbps	530 to 5303 kbps
Channel Bandwidth	77, 154, 207, 310, 600, 900 & 1200 kHz	600, 900 & 1200 kHz
Frequency Stability	1.0 ppm	
Range	70+ miles	30 miles

Receive sensitivity numbers below are with FEC disabled. With FEC enabled, these typically improve by 3 dBm.

Receiver	ISM					
	77 kHz Channel		154 kHz Channel		207 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-110 dBm	57 kbps	-107 dBm	114 kbps	-106 dBm	153 kbps

Modulation	310 kHz Channel		600 kHz Channel		1200 kHz Channel	
	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-105 dBm	229 kbps				
BPSK			-100 dBm	530 kbps	-99 dBm	884 kbps
QPSK			-98 dBm	1061 kbps	-97 dBm	1768 kbps
8PSK			-93 dBm	1591 kbps	-92 dBm	2651 kbps
16PSK					-85 dBm	3535 kbps
16QAM			-89 dBm	2121 kbps	-87 dBm	3535 kbps
32QAM			-86 dBm	2651 kbps	-83 dBm	4419 kbps
64 QAM			-76 dBm	3182 kbps	-76 dBm	5303 kbps

Modulation	900 kHz Channel	
	Sensitivity	Data Rate
2FSK	-100 dBm	663 kbps
RF Selectivity	50 dB	

** Frequency Range may vary by Country, for example*

Australia, Peru	916-928 MHz
Brazil	902-907 & 916-928 MHz

Xeta9 OEM Module Specifications

Power

Transmit Current	< 600 mA @ +7.5 Vdc / 1W < 2.5 A @ +10 Vdc / 5W
Receive Current	< 120 mA @ +7.5 Vdc
Idle Current	< 75 mA @ +7.5 Vdc

Environmental/Physical

Op. Temperature	-40°C to +75°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions (LxWxH)	2.0" x 1.4" x 0.37"
Weight	24 grams

Interfaces

Connector	24-pin Samtec Header
Data	Serial TTL or RS232
Data Interface Rate	Up to 2 Mbps (TTL) Up to 921.6 kbps (RS232)
RF Connector	MMCX / 50 Ohms

Power	+4.5 to +7.5 Vdc / 1W +9.5 to 10 Vdc / 5W
Control	Serial TTL
Control Interface Rate	115.2 kbps

Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, TDMA
Roles	Access Point, Endpoint, Repeater
Compatibility Modes	As an Endpoint compatible with MDS TransNET
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, Small Block, Reed-Solomon
Data Encryption	128-bit AES Payload Data Encryption
RF Encryption	128-bit AES RF Overhead Encryption
Hop Patterns	10 Pseudo Random, 1 Pseudo Random Based on Network ID, & 1 Secure
Secure Hop Pattern	128-bit AES Hop Pattern Determination
Repeater	Store-and-forward
MultiMaster	Synchronization of Collocated Access Points or Multiple Access Points within a Network
MultiSpeed	Up to 4 Data Rates within the Same Channel Bandwidth
Diagnostics	Network Scan, RF Ping, RF Throughput, RF Statistics

Xeta9 OEM Module Specifications

Ordering

XETA9-TIFC	Board level OEM, TTL interface, 1W
XETA9-RIFC	Board level OEM, RS232 interface, 1W
XETA9-TIFC-TDMA	Board level OEM, TTL interface, 1W, TDMA
XETA9-TIRC-TDMA5W	Board level OEM, TTL interface, 5W, TDMA
XETA9-TIRC-TDMA5WMM2	Board level OEM, TTL interface, 5W, TDMA, MM2 connector
XETA9-RIRC-TDMA5W	Board level OEM, RS232 interface, 5W, TDMA