

# Xeta24 OEM Module

## 2.4 GHz Serial

### Software Defined Industrial Radio

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The **Xeta24 OEM Module** is an extremely capable and flexible industrial Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined radio. The module utilizes a XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance.

The **Xeta24** supports multiple modulation schemes and features that can selectively switch the modulation scheme to achieve optimal data throughput given the available channel size and environmental noise.

The **MultiSpeed MultiPoint™** mode enables Endpoints operating at different over-the-air data transfer rates to communicate with an Access Point over the same network. Simultaneous transmissions within a network using the new **XetaMESH** feature increases the aggregate throughput while supporting peer to peer communications.



## Key Features

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

**Adjustable RF Output** Power output up to 1 Watt (+30 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 within a single radio.

**XetaMESH** Provides peer to peer communications within a point to multipoint network.

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

**Options** Available with TDMA or a dual row 14-pin MM2 compatible header.

# Xeta24 OEM Module Specifications

Transmitter	ISM FHSS	ISM DTS
Frequency Range	2402 to 2478 MHz	
Output Power	10 to 1000 mW (10 to 30 dBm)	
Modulation	MSK, BPSK, QPSK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM	
Data Rate	57 to 5303 kbps	530 to 5303 kbps
Channel Bandwidth	77, 154, 207, 310, 600, & 1200 kHz	600 & 1200 kHz
Frequency Stability	1.0 ppm	
Range	40 miles	10 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

  

Receiver	310 kHz Channel		600 kHz Channel		1200 kHz Channel	
	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK	-103 dBm	229 kbps				
BPSK			-98 dBm	530 kbps	-100 dBm	884 kbps
QPSK			-99 dBm	1061 kbps	-96 dBm	1768 kbps
8PSK			-96 dBm	1591 kbps	-90 dBm	2651 kbps
16PSK					-84 dBm	3535 kbps
16QAM			-91 dBm	2121 kbps	-85 dBm	3535 kbps
32QAM			-85 dBm	2651 kbps	-80 dBm	4419 kbps
64 QAM			-80 dBm	3182 kbps	-77 dBm	5303 kbps

# Xeta24 OEM Module Specifications

## Power

Transmit Current	< 800 mA @ +5.0 Vdc
Receive Current	< 150 mA @ +5.0 Vdc
Idle Current	< 90 mA @ +5.0 Vdc
Sleep Current	< 3 mA @ +5.0 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	14 or 24-pin Samtec Header	Power	+3.3 to +12.0 Vdc
Data	Serial TTL	Control	Serial TTL
Data Interface Rate	Up to 2 Mbps	Control Interface Rate	115.2 kbps
RF Connector	MMCX / 50 Ohms		

## Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, Mesh, TDMA
Roles	Access Point, Endpoint, Repeater
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, Small Block, Reed-Solomon
Data Encryption	128 & 256-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

# Xeta24 OEM Module Specifications

## Ordering

XETA24-TIFA	Board level OEM, TTL interface, 24-pin Header
XETA24-TIFA-TDMA	Board level OEM, TTL interface, TDMA, 24-pin Header
XETA24-TIFA-TDMAMM2	Board level OEM, TTL interface, TDMA. 14-pin Header