

Xeta24 OEM

2.4 GHz ISM Serial

Software Defined Industrial Radio

The **Xeta24** OEM module is an extremely capable and flexible industrial Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) software defined radio (SDR) supporting the unlicensed 2.4 GHz frequency band. The **Xeta24** OEM module utilizes a XetaWave **Dual Decode Digital Architecture** which offers significant receiver performance.

The **Xeta24** supports multiple modulation schemes and features. The **MultiSpeed** mode allows Endpoints operating at different RF data rates to communicate with a single Access Point to achieve optimal data throughput given the available channel size and RF environment. The **Enhanced Multipoint (EMP)** mode provides an increase in throughput and a decrease in latency over traditional modes and against competitive products.



All **Xeta24** OEM modules are backwards compatible and over-the-air compatible with the XetaWave uTasker, Linux, Debian, and XetaEdge families. XetaWave's seamless serial mode allows serial and Ethernet Endpoints to simultaneously communicate with an Ethernet Access Point.

Key Features

High Speed Over-the-air data rates from 57 kbps to 5.3 Mbps plus higher throughput with **EMP**.

Dual Mode Frequency hopping and single channel operation.

Adjustable RF Output Power output up to 1 Watt (+30 dBm).

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

Selective Modulation Multiple MSK, PSK, and QAM modulations.

MultiSpeed Endpoints communicate at different RF data rates with Access Point.

Multi-Speed TDMA Offers multiple logical data channels with different speeds within a single radio.

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

Xeta24 OEM 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, QSPK, 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	70+ miles	30 miles

Receive sensitivity numbers are with FEC disabled. When enabled, sensitivity improves 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 Specifications

Power

Input Voltage	+3.3 to +12.0 Vdc
Transmit Current	375 mA @ +5 Vdc
Receive Current	190 mA @ +5 Vdc
Idle Current	92 mA @ +5 Vdc

Interfaces

Connector	14-pin 24-pin Samtec Header
Data	Serial TTL Up to 2 Mbps
Control	Serial TTL 115.2 kbps
RF	MMCX 50 Ohms

Environmental/Physical

Op. Temp.	-40°C to +75°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions	2.0" x 1.45" x 0.37"
Weight	24 grams

Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, TDMA
Roles	Access Point, Endpoint, Repeater
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, 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

Ordering

XETA24-TIFB	Board level OEM, TTL interface
XETA24-TIFB-TDMA	Board level OEM, TTL interface, TDMA
XETA24-TIFB-TDMAMM2	Board level OEM, TTL interface, TDMA, MM2 connector

