

Xeta1

100 MHz MAS Serial Software Defined Industrial Radio

The **Xeta1** Serial radio is an extremely capable and flexible industrial software defined radio (SDR) supporting the licensed 135 to 174 MHz frequency band. The **Xeta1** utilizes a XetaWave **Dual Decode Digital Architecture** which offers significant receiver performance.

The **Xeta1** 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 **Xeta1** Serial radios 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. The **Xeta1** also supports **compatibility** with the **MDS 1710** and **SD1** master radios.

Key Features

High Speed Over-the-air data rates from 5 kbps to 88 kbps plus higher throughput when operating in **EMP** mode.

Dual Mode Duplex and simplex operation.

Adjustable RF Output Power output up to 5 Watts (+37 dBm).

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

Selective Modulation Multiple MSK, PSK, and QAM modulations.

Secure Over-the-air data encryption using 128-bit and 256-bit AES.

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

EMP An enhanced Point to MultiPoint protocol with higher throughput and lower latency.

Xeta1 Serial Specifications

Transmitter	FCC	IC
Frequency Range	150.8 to 173.4 MHz	150.05 to 174 MHz
Output Power	10 to 5000 mW (10 to 37 dBm)	
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM	
Data Rate	5 to 88 kbps	
Channel Bandwidth	6.25, 12.5 & 25 kHz	
Frequency Stability	1.0 ppm	
Range	70+ miles	

Receive sensitivity numbers are with FEC disabled. When enabled, sensitivity improves by 3 dBm.

Receiver	6.25 kHz Channel		12.5 kHz Channel		25 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK		5 kbps	-113 dBm	10 kbps	-113 dBm	17 kbps
QPSK			-103 dBm	18 kbps	-109 dBm	29 kbps
8PSK			-97 dBm	27 kbps	-103 dBm	41 kbps
16QAM			-94 dBm	37 kbps	-100 dBm	56 kbps
32QAM			-91 dBm	45 kbps	-96 dBm	72 kbps
64QAM			-86 dBm	54 kbps	-90 dBm	88 kbps

Xeta1 Serial Specifications

Power

Transmit	945 mA @ +12 Vdc
Receive	100 mA @ +12 Vdc
Idle	85 mA @ +12 Vdc

Interfaces

Power	2-pin Phoenix +12 to +32 Vdc
Data	1x RJ45 up to 1Mbps RS232/422/485
Control/Diag	1x RJ45 115.2 kbps RS232
RF	TNC 50 Ohms

Environmental/Physical

Op. Temp.	-40°C to +60°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions	6.62" x 3.45" x 1.83"
Weight	700 grams

Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer
Roles	Access Point, Endpoint, Repeater
Compatibility Modes	As an Endpoint compatible with MDS 1710 and SD1
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
Repeater	Store-and-forward
MultiSpeed	Up to 4 Data Rates within the Same Channel Bandwidth
Diagnostics	Network Scan, RF Ping, RF Throughput, RF Statistics

Ordering

XETA1-10MMNFA	Metal Enclosed, 2 Serial, MAS
---------------	-------------------------------

