



The **Xeta9s-IO** serial radio is an extremely capable, flexible, low cost industrial 900 MHz software defined radio (SDR) with 8 multi-function, independently programmable Input/Output signals ideally suited for monitoring and controlling industrial operations. The Xeta9s-IO is a Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) radio offered as a board level product.

The Xeta9s-IO was developed using XetaWave's patented D3 Architecture™ providing superior receiver performance, supports multiple modulation schemes, and selectively switches modulation to achieve optimal data throughput given the available channel size and environment noise. The Xeta9s-IO also features XetaWave's **MultiSpeed MultiPoint™** mode which enables Endpoints operating at different over-the-air data transfer rates to communicate with a single Access Point over the same network, **XetaEMP** which provides enhanced multipoint capability, and **XetaMESH** for peer to peer frequency hopping.

Key Features

High Speed Over-the-air data transfer rates from 57 to 5.3 Mbps plus higher throughput with payload compression and in the **XetaEMP** mode.

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

Dual Mode Frequency hopping and single channel operations.

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

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

Adjustable RF Output RF power output from 10 mW to 1 Watts (+10 dBm to +30 dBm).

MultiSpeed Multipoint Enables Access Points to communicate with Endpoints operating at different RF Data Rates.

Programmable I/O Independently configure 4 I/O as analog inputs, analog outputs, or digital inputs and 4 I/O as digital inputs or outputs.

Compatibility Optional modes offer the ability to communicate with GE MDS TransNET repeaters and master radios.

Xeta9s-IO Specifications

Transmitter	ISM FHSS	ISM DSS
Frequency Range	902 to 928 MHz	
Output Power	10 to 1000 mW (non-QAM) and 250 mW (QAM)	
Modulation	MSK, 2FSK, 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, 900 & 1200 kHz
Frequency Stability	1.0 ppm	
Range	70+ miles	

ISM Receiver	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

	310 kHz Channel		600 kHz Channel		1200 kHz Channel	
Modulation	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				3182 kbps		5303 kbps

900 kHz Channel		
Modulation	Sensitivity	Data Rate
2FSK	-98 dBm	663 kbps

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

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

Xeta9s-IO Specifications

Interfaces

Power Connector	2-pin Phoenix / +10 to +32 Vdc
Serial	1 x RJ45 / up to 1Mbps / RS232/422/485 1 x RJ45 / up to 1Mbps / RS232
Micro USB	Client mode
I/O	12-pin Phoenix 4 Analog In, Analog Out, or Digital In 4 Digital In or Digital Out 4 Ground
RF Connector	SMA / 50 Ohms

Power

Transmit	< 314 mA @ +12 Vdc
Receive	< 77 mA @ +12 Vdc
Idle	< 71 mA @ +12 Vdc

Environmental/Physical

Op. Temperature	-40°C to +85°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions (LxWxH)	5.1" x 3.2" x 1.0" (board level)
Weight	170 grams

Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer, Mesh
Roles	Access Point, Endpoint, Repeater
Repeater	Store-and-forward
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, Small Block
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
MultiMaster	Synchronization of Collocated Access Points or Multiple Access Points within a Network
MultiSpeed	Up to 4 Data Rates within the Same Channel Bandwidth
Programmable I/O	8 programmable input/output signals (4 independently programmed analog inputs, analog outputs, or digital inputs and 4 independently programmed digital inputs or digital outputs)
Diagnostics	Neighbor List, RF Ping, RF Throughput, RF Statistics, RF Scan

Ordering

XETA9S-10INNFD-IO	Board level, 1 Serial Data & 1 Serial Config & 8 I/O
XETA9S-10INNFD-FGRIO	Board level, 1 Serial Data & 1 Serial Config & 8 I/O, FGR2 style connector

