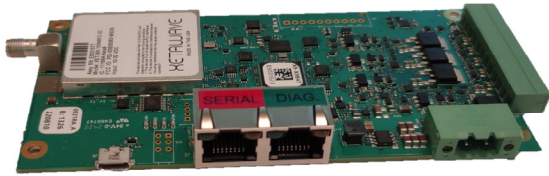


Xeta9s IO

900 MHz Serial IO

Software Defined Industrial Radio

The **Xeta9s IO** radio is an extremely capable, flexible, low cost industrial Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) 900 MHz software defined radio (SDR). The **Xeta9s IO** is available in a board level version as a Serial only radio with 8 independently programmable Input/Output signals. It is the ideal replacement for the discontinued FreeWave FGR2 IO radio.



The Xeta9s IO utilizes a XetaWave patented **Dual Decode Digital Architecture™** that offers significant receiver performance. The Xeta9s also supports multiple modulation schemes and MultiSpeed

MultiPoint™ that allows 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 are over-the-air compatible with each other and XetaWave's seamless serial mode allows serial and Ethernet End Points to simultaneously communicate with Ethernet Access Points. The Xeta9s radio also supports compatibility with **MDS 9710/9790** and **MDS TransNET™** master and repeater radios.

Key Features

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

Adjustable RF Output RF 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, Peer to Peer, and XetaMESH.

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

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 Over-the-air compatible with GE MDS TransNET 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 | |

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

| 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 | -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 |

900 kHz Channel

| Modulation | 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 |

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 / 115.2 kbps / RS232 |
| FGR (optional) | 10-pin FGR compatible |
| 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 | < 204 mA@ +12 Vdc |
| Receive | < 75mA@ +12 Vdc |
| Idle | < 47 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, X710, TransNET |
| Roles | Access Point, Endpoint, Repeater |
| Repeater | Store-and-forward |
| Error Handling | CRC, FEC, Retransmit on error |
| Error Correction | Golay, Small Block |
| 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 |
| 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 |

