# XetaWave IO

## *Wireless Monitoring & Control*

XetaWave IO solutions combine Ethernet and Serial high speed, long range wireless communication with integrated IO functionality. XetaWave IO is compatible with common instrumentation interfaces, supports Modbus, and seamlessly integrates with XetaWave networks. XetaWave IO is ideally suited for process control to securely and wirelessly monitor temperature, pressure, level, and flow, and control pumps, latches, and valves. XetaWave IO integrates unmatched speed and distance and the widest selection of frequencies.

## Key Differentiators

**Multi-Function IO**
All 8 IO channels serve multiple functions - digital, analog, input, or output.

**Wireless & IO in One Offering**
XetaWave IO channels can be combined with any XetaWave RF Module: 200 MHz, 400 MHz, 700 MHz, 900 MHz or 2.4 GHz.

**Serial, Ethernet or Both**
XetaWave IO supports Ethernet, Serial or Seamless Serial for combined communications.

**Data Concentrator**
Concentrate data from Modbus TCP, RTU or ASCII servers on any data interface.

**IO Expander**
XetaWave IO is available without a radio (RF module) to provide the most cost effective IO solution with a Data Concentrator.


*Compact Enclosure*

### Multi-Function IO

*Rugged Enclosure*

XetaWave IO includes a total of **8 multi-function IO channels** to monitor and control industrial operations. All 8 channels are multi-function channels. IO channels support analog input (1 to 5 Volt, 4 to 20 milliAmp with internal sense resistor), analog output (4 to 20 milliAmps), digital input (wet contact, dry contact), and digital output (sinking 2 Amps with current monitoring). XetaWave multi-function IO are running all the time to automate any industrial automation application with minimum configuration.

### Seamless Ethernet and Serial

XetaWave IO supports Seamless Ethernet and Serial networks to offer the ultimate flexibility in upgrading legacy equipment. Legacy serial networks can be upgraded to XetaWave IO without changing any configurations on the PLC or controllers. XetaWave IO delivers faster communication than legacy serial networks, a second virtual serial network invisible to the legacy serial network, Modbus TCP/RTU/ASCII support, and configuration and management over Ethernet and USB.

### Data Concentrator

XetaWave IO includes a **Data Concentrator** application which reduces network traffic and simplifies SCADA polling. Multiple Modbus TCP, RTU and ASCII devices can be polled by the Data Concentrator and organized in a fully customizable Modbus map. The Data Concentrator includes configurable failure filtering, command skipping, default values, and error flags so the user can get the fastest possible performance without sacrificing data integrity. *Please refer to the Data Concentrator overview for more details (available at www.xetawave.com).*

### Powerful Wireless Communication

XetaWave IO provides wireless communication with unmatched speed, distance, and selection of frequencies. Two high performance XetaWave radios can also be included in one device. Xeta9 dual-band ISM/MAS modules for 902 to 960 MHz, Xeta4 narrow band radios for 406 to 512 MHz, and Xeta24 for the 2.4 GHz ISM band are currently available.

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# XetaWave IO, *cont.*

## IO Channels

| Pin | IO Ref | Function |
|---|---|---|
| Pin 1 | IO 1 | Multifunction Analog |
| Pin 2 | IO 2 | Multifunction Analog |
| Pin 3 | IO 3 | Multifunction Analog |
| Pin 4 | - | Ground |
| Pin 5 | IO 4 | Multifunction Analog |
| Pin 6 | IO 5 | Multifunction Digital with 10 kHz counting and input-only Multi-Sync |
| Pin 7 | - | Ground |
| Pin 8 | IO 6 | Multifunction Digital |
| Pin 9 | - | Ground |
| Pin 10 | IO 7 | Multifunction Digital |
| Pin 11 | - | Ground |
| Pin 12 | IO 8 | Multifunction Digital |

## IO Specifications

| Channel Type | Multifunction Analog | Multifunction Digital |
|---|---|---|
| **Digital Input function** | | |
| Input high, minimum (V) | 2.3 | 2.4 |
| Input low, maximum (V) | 2.2 | 0.7 |
| Counting frequency (Hz) | 0.4 | 200 |
| Counting frequency, high (Hz) | - | 10 k (IO 5 only) |
| Pull-up resistor (Ohm) | 50 | 47 k |
| Pull-down resistor (Ohm) | 250 | - |
| **Digital Output function** | | |
| Output rating (A current sink) | - | 2 |
| Output reporting accuracy | - | 5% |
| Output impedance (Ohm) | - | 0.1 |
| Power-up states | - | on, off, last value |
| Fail-safe states | - | on, off, last value |
| **Analog Input, voltage function** | | |
| Signal range (V) | -0.3 to 6.25 | -0.3 to 7.5 |
| Accuracy | 0.5% of reading | 2.5% of reading |
| Resolution (bits) | 16 | 16 |
| **Analog Input, current function** | | |
| Signal range (mA) | 0 to 25 | - |
| Accuracy | 0.5% of reading | - |
| Internal sense resistor (Ohm) | 250 | - |
| Resolution (bits) | 16 | - |
| **Analog Output function** | | |
| Signal range (mA) | 0 to 24 | - |
| Power-on states | set point | - |
| Fail-safe states | set point, last value | - |
| Accuracy | 0.5% of reading | - |
| Resolution (bits) | 10 | - |
| **Sensor Power function** | | |
| Voltage output (V) | 14 | - |
| Current output (mA) | 24 | - |
| **Electrical and Environmental** | | |
| Input impedance (Ohm) | 62 k | 66 k |
| Maximum terminal voltage (V) | Vbat | |
| Battery/supply voltage (Vbat) | 10 to 32 | |
| Temperature (Celsius) | -40 to 85 | |

## IO Selection Guide

| | IO Model | -EIO | -EIOL | -EIOC | -SIO | -SIOC | -XEIO | -XEIOL |
|---|---|---|---|---|---|---|---|---|
| **RF Module** | **XETA2-** | x | x | x | x | x | | |
| | **XETA4-** | x | x | x | x | x | | |
| | **XETA7-** | x | x | x | x | x | | |
| | **XETA9-** | x | x | x | x | x | | |
| | **XETA24-** | x | x | x | x | x | | |
| **# RF Modules** | 1 RF Module | x | x | x | x | x | | |
| | 2 RF Modules | x | x | | x | | | |
| **RF Features** | Ethernet | x | x | x | x | x | | |
| | Seamless | x | x | x | x | x | | |
| | Serial | x | x | x | x | x | | |
| | INS Master | | | | | | | |
| | INS Slave | x | x | x | x | x | | |
| | MMS Source | | | | | | | |
| | MMS Sync | x | x | x | x | x | | |
| **IO** | 8 IO Channels | x | x | x | x | x | x | x |
| **USB** | Virtual serial | x | | x | x | x | x | |
| **Ethernet** | 1 Port | | | | | x | | |
| | 2 Ports | x | x | x | | | x | x |
| **Serial** | 1 Port | | | | | x | | |
| | 2 Ports | x | x | x | x | | x | x |
| **Operating System** | Bridge OS | x | | x | x | x | x | |
| | Router OS | | x | | | | | x |
| **Networking** | VLAN | x | x | x | x | x | x | x |
| | Ethernet Bridge | x | x | x | x | x | x | x |
| | IP Router | | x | | | | | x |
| **Applications** | Modbus RTU | x | x | x | x | x | x | x |
| | Modbus ASCII | x | | x | x | x | x | |
| | Modbus TCP | x | | x | x | x | x | |
| | Data Concentrator | x | | x | x | x | x | |
| | SNMP | | x | | | | | x |
| | HTTP | x | x | x | x | x | x | x |
| | HTTPS | | x | | | | | x |
| **Enclosure** | Rugged | x | x | | x | | x | x |
| | Compact | | | x | | x | | |

## Ordering Information

IO Expanders XETA-XEIO and XETA-XEIOL are not available with RF Modules.

To order IO with 1 RF Module start with the RF Module and then add the IO model. For example, XETA9-EIO, XETA24-SIO, XETA4-EIOL.

To order IO with 2 RF Modules start with the RF Module, add "X" and the second RF Module, and then add the IO model. For example, XETA9X9-EIO, XETA24X24-SIO, XETA4X4-EIOL. IO models with Bridge OS must have the same RF Modules; IO models with Router OS support different RF Modules.

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