FREEWAVE

Wired IO Series

I/O Expansion



The Wired IO Series offers a reliable, safe and easy way to meet the growing measurement and control demands of your automation system.

This I/O expansion module builds on existing communications systems and controller infrastructure to extend the useful life of your automation system. The expansion modules snap easily onto a radio base to provide 188 I/O points over a single wireless link. The Serial Base features a wired serial interface to provide up to 192 I/O points to an existing PLC, RTU or other device with serial communications. Certified for C1D2.

All radios are designed, manufactured, and tested in Boulder, CO.

Key Features

Modular: Supports up to 15 expansion modules to a serial base or radio base

Flexible: Supports radio base for wireless I/O or serial base

Low Latency: Access times as fast as 11 milliseconds to all available expansion modules

Powerful: Universal channels configurable as digital input, digital output, analog input, analog output or sensor power

Reliable: Fail-safe settings are user-configurable for DO and AO channels

Easy Sensor Selection: Support for 4 to 20 mA, 1 to 5 V and 0 to 10 V transducers with loop power

High Accuracy: Maximum reading error of 0.10% of AI channels across entire operating temperature

Low Power Consumption: Ideal for solar, battery, and DC applications

Industrial Grade: Operating temperature from -40°C to +75°C

Part Number Summary

Serial Base		IOE-4422	IOE-4404
Expansion Module	**IOEX-4440**	**IOEX-4422**	**IOEX-4404**
Number of Universal Channels	**4**	**4**	**4**
Number of Input-Only Channels	**4**	**4**	**4**
Number of Isolated Digital Input Channels	**4**	**2**	**0**
Number of Isolated Digital Output Channels	**0**	**2**	**4**

Technical Specifications

Digital Input	Universal Channels	Input-Only Channels	Isolated Channels
Input ON voltage	> 3.0 V	> 3.0 V	> 3.2 V
Input OFF voltage	< 2.5 V	< 2.5 V	< 1.2 V
Pulse-counting frequency, standard	100 Hz or 4 ms	100 Hz or 4 ms	100 Hz or 4 ms
Pulse-counting frequency, high	-	10 kHz or 40 µs	10 kHz or 40 µs
Pull-up resistor	1 kΩ to 3 V	1 kΩ to 3 V	-
Pull-down resistor	10 kΩ to ground	10 kΩ to ground	-
Digital Output	**Universal Channels**	**Input-Only Channels**	**Isolated Channels**
Output ON current	1 A to ground	-	2 A
Output ON impedance	0.2 Ω to ground, plus diode	-	0.120 Ω
Output OFF impedance	2.34 kΩ to ground	-	10 MΩ
External voltage connection	V BAT	-	250 V
Analog Input	**Universal Channels**	**Input-Only Channels**	**Isolated Channels**
Resolution	20-bits	20-bits	-
Maximum Reading Error	0.10%	0.10%	-
Voltage Input Range	-2.5 to 12.5 V	-2.5 to 12.5 V	-
Current Input Range	0 to 22 mA	0 to 22 mA	-
Current Sense Resistor	250 Ω	250 Ω	-
Analog Output	**Universal Channels**	**Input-Only Channels**	**Isolated Channels**
Current Output Range	0 to 22 mA	-	-
Maximum Output Error	0.25%	-	-
Sensor Power	**Universal Channels**	**Input-Only Channels**	**Isolated Channels**
Voltage Output	0.5 V below V BAT	-	-
Current Output	Up to 50 mA	-	-

General Information

Operating Temperature	-40°C to +75°C (-40°F to +167°F)
Humidity	0 to 95%, non-condensing
Dimensions	181.0 L x 79.4 W x 25.4 H (mm) 7.13 L x 3.13 W x 1.0 H (in)
Weight	158.8 g (0.35 lbs)
Mounting	Integrated 35 mm DIN rail clip

Information to Order

Model Number	Description
IOE-4422	Serial Base, 2 Digital Inputs, 2 Digital Outputs
IOE-4404	Serial Base, Digital Outputs
IOEX-4440	Expansion Module, 4 Digital Inputs
IOEX-4422	Expansion Module, 2 Digital Inputs, 2 Digital Outputs
IOEX-4404	Expansion Module, Digital Outputs

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