



IO Expansion Module

1880 S. Flatiron Court, Suite F
Boulder, CO 80301

tf 866.923.6168

p 303.381.9200

f 303.786.9948

www.freewave.com
sales@freewave.com

Overview:

The FreeWave Technologies IO Expansion Module offers a scalable solution to meet the demands of your automation requirements. The IO Expansion Module may either be stacked on an applicable IO radio or can serve as expandable remote IO modules through a serial connection. Regardless of the configuration, up to 16 modules may be stacked on the radio or base module. The IO Expansion Module is Class 1 Division 2 UL approved and adds significant flexibility to an existing Modbus IO network.

Features:

- Base IO Expansion Module offers 4 AIs, 2 Isolated DIs, 2 Isolated DOs and 4 Universal Pins which can be configured as AIs, AOs, DIs, or DOs.
- Affordable - Low installation and long - term maintenance costs.
- Low Latency - Less than one second signal delay.
- High Accuracy - FGRIO System analog signal fidelity is factory calibrated and drift with time and temperature is much less than that of transducers.
- Short Range/Low Power - Suitable for solar powered installations.
- Error-Free Communications - 32 bit CRC with automatic retransmission.
- Industrial Grade Specifications - Temperature range from -40°C to $+75^{\circ}\text{C}$.
- Can function either with a radio or as a standalone module providing additional IO capability for 3rd party devices.
- 16 or 20 bit resolution on AIs.
- Fail Safe - Allows you to set Analog and Digital Outputs to a safe state in the event of a communication failure.
- Point to Multipoint Modbus Communications.
- Modular design, expandable up to 16 modules.
- UL Approved Class 1, Division 2 - Groups A, B, C, & D



IO Radio Module
(with base IO)

IO Expansion Module

Technical Specifications

Analog Inputs	
Channels	4
Types	0-25 V _{DC} , or 0-100 mA
Accuracy	0.1% FSR
Resolution	20 bit
Digital Inputs	
Channels	Up to 4, Isolated
Type	0-30 V (AC or DC)
Low Voltage (0)	<1.2 V
High Voltage (1)	>3.2 V
Frequency Input	Software Selectable Counters to 10kHz
Digital Outputs	
Channels	Up to 4, Isolated
Relay Resistive Load Rating	5A @ 30 V _{DC} /250 VAC
Relay Inductive Load Rating	2A @ 30 V _{DC} /250 VAC
Universal I/O	
Operating Voltage	4 (may be independently configured as AI, AO, DI or DO)
Analog Input	0-25 V _{DC} or 0-100 mA input 0.1% Accuracy, FSR 20 Bit Resolution
Digital Input	0-30 V (AC or DC) Input Range V _{in} <2.5 V = Logic Level 0, V _{in} >3.0 Logic Level 1 Frequency Counter to 10Hz
Digital Output	5A @ 30 V _{DC} /250 VAC Resistive Load Rating 2A @ 30 V _{DC} /250 VAC Inductive Load Rating
Analog Output	0-25 V _{DC} or 0-100 mA Range 16 Bit Resolution 0.25% Accuracy, FSR
Ordering Information	
IOE-X-4422P	Expansion Module - 4 Universal IO, 4 Analog Inputs, 2 Digital Inputs, 2 Digital Outputs On-board logic voltage power supply
IOE-X-4404P	Expansion Module - 4 Universal IO, 4 Analog Inputs, 0 Digital Inputs, 4 Digital Outputs On-board logic voltage power supply
IOE-X-4422PC/IOE-X-4404PC	Note: The "C" in the model number indicates there is a communication option which allows the Expansion Module to operate without a radio. (<i>Only one to be used per stack</i>)
General Information	
Power Requirements	6-30 V _{DC}
Temperature	-40° C to +75° C
Humidity	0 to 95% non-condensing
Dimensions	7 1/8 inch H x 3 1/8 inch W x 1 inch D
Weight	0.35 lbs
Housing	High-Impact Plastic
Mounting	35mm Din Rail

FreeWave Radios Require Professional Installation. Specifications may change at any time without notice. ©2009 FreeWave Technologies, Inc.

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