

ControlWave® Remote Ethernet IO

With the ever-increasing demand for distributed I/O architectures, Emerson's ControlWave® Remote I/O modules are the ideal solution to minimize installation cost. The compact DIN-rail-mount modules provide an open connectivity through 10 Mbps Ethernet and 38.4 KB serial RS-485. The wide range of module I/O configurations brings exceptional flexibility to network diversity. Each module is designed and rated for harsh industrial environments, a perfect complement to the ControlWave Process Automation Management Solution.

Features

- Open Modbus (Modbus TCP) Ethernet connectivity
- RS-485 Modbus RTU or Modbus ASCII
- Easy-to-use ConfigTools software configuration
- Internal 24 Vdc loop power minimizes wiring cost
- "Hot-swappable" I/O module replacement
- 10 – 30 Vdc power input
- -30 to +70 °C operating temperature range
- Approvals include CSA; UL Class I, Div. 2 Groups A-D; and CE

Specifications

All I/O

- Compact 4 ¾" W by 3 ¼" H by 4 1/8" D (121 mm W by 83 mm H by 102 mm D)
- 10 – 30 V dc power input
- 1.2 watt typical per module (48 mA @ 24 Vdc); varies by module and load
- Operating temperature range: -30 to +70 °C
- Humidity: 5 – 95% non-condensing
- RS-485 port Master or Slave up to 38400 baud; up to 32 nodes per line
- Up to 16,000 nodes per network
- 10Base T at 10 Mbps Ethernet port
- 1200 V RMS 1 minute isolation on Ethernet port
- ESD (Electro Static Discharge) withstand: 8KV
- Vibration meets IEC 68-2-6; 1g for 10 Hz to 150 Hz; 0.5g for 150 Hz to 2000 Hz



The family of Remote Ethernet modules is compact and flexible.

Modules

The ControlWave Remote Ethernet I/O series consists of seven modules:

Discrete Input

- Number of inputs: 16
- Input source or sink: Configurable
- Input voltage: 12/24 V AC/DC
- Input resistance: 3.6 KΩ
- One High Speed Counter channel up to 2 KHz
- Scan rate: 2 mS
- Power: 0.75 watt

Discrete Output

- Number of outputs: 16
- Output voltage: 10 to 30 Vdc
- Maximum output current per channel: 1 Amp
- Maximum output current (all 8 channels): 8 Amp
- Maximum off state leakage current: 0.05 mA
- Pulse duration output: configurable
- Scan rate: 2 mS

Analog Input

- Number of inputs: 16
- Input range: 4–20 mA - internal or external loop powered
- A/D resolution: 14-bit (0.01%)
- Full scale accuracy @ 20 °C: ± 0.05%
- Span and offset temp. coefficient: ± 50 ppm per °C
- Input impedance: 100 Ohms

- Input current protection: field-replaceable fusible shunts
- Scan rate: 5 mS

Analog Instrumentation Input

- Number of inputs: 8
- Input range: Isolated Current or Thermocouple
- 4–20 mA - internal or external loop powered
- J, K, E, R, T, B, C, N, S thermocouple Cold- junction compensated and reported as °F, °C, or 0.1°C
- A/D resolution: 16-bit (0.0031%)
- Full scale accuracy @ 20 °C: $\pm 0.02\%$
- Span and offset temp. coefficient: ± 30 ppm per °C
- Common mode isolation: between two input terminals: ± 25 V dc; between inputs and ground: 1200 Volts
- Input impedance: Voltage 200 K Ω ; Current 100 Ohms
- Input current protection: field replaceable fusible shunts
- Scan rate: 100 mS

RTD/DI Input

- Number of inputs: 4 RTD inputs and 4 DI
- RTD inputs: 100-ohm platinum, -200 to +850 °C
- A/D resolution: 16-bit (0.0031%)
- Scan rate: 700 ms (4 RTD)
- DI specifications same as for 16 DI module
- Scan rate: 20 ms (4 DI)

Mixed 8DI/8AI Input

- Number of inputs: 8 DI and 8 AI
- Specification same as 16 AI module and 16 DI module

Mixed 8DI/8DO Input

- Number of inputs: 8 DI and 8 DO
- Specification same as 16 AI module and 16 DI module

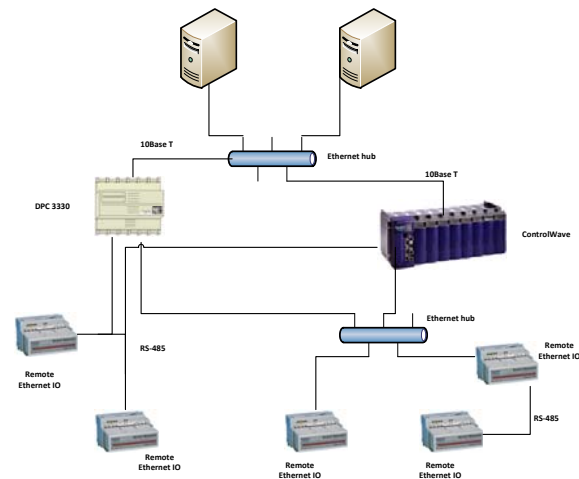
Mixed 8AI/4AO

- Number of inputs: 8 AI and 4 AO
- Specification for AI: same as 16 AI module
- Output range: 4–20 mA
- D/A resolution: 16-bit
- Full scale accuracy @ 20 °C: $\pm 0.02\%$
- Maximum output settling time: 5 mS
- External loop supply: 10 – 30 Vdc
- Load resistance: 0 – 750 Ω
- Short circuit protection: Current limiting
- Scan rate: 5 mS

ControlWave Ethernet I/O Configuration Tools

The ControlWave Ethernet I/O Tool Kit is a Windows-based configuration utility for setting up and testing all Ethernet I/O modules. This easy-to-use utility allows you to assign communication parameters (including I/P address, comm port baud rate, and module address) and set up I/O (including tag name assignment, scaling factors, etc.).


Once you have configured the module, you can test it for proper operation before placing the module in operation.



Remote Setup Module

In conjunction with the configuration software, the Remote Setup Module provides a RS-232 interface to the PC, which enables you to initially configure the Ethernet module base with an I/P module address, RS-485 port, baud rate, etc. The Setup module plugs into any Ethernet I/O base so one Setup module can be used for the entire system. All Ethernet I/O modules can be configured either through a local Ethernet connection (using only the configuration software) or through an Ethernet network (using the Setup module). The Setup module is most useful when configuring a RS-485 network, since it allows configuration through a RS-232 PC port rather than requiring the RS-485 in the PC.

Approvals

Miscellaneous Approvals	RoHS2	RoHS (2) EU Directive 2011/65/EU: This product may be considered out-of-scope when used for the intended design purpose in a Large Scale Fixed Installation (LSFI). Consult https://www.emerson.com/compliance for up-to-date product information.
	RoHS (China)	

For customer service and technical support, visit www.EmersonProcess.com/Remote/Support.

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