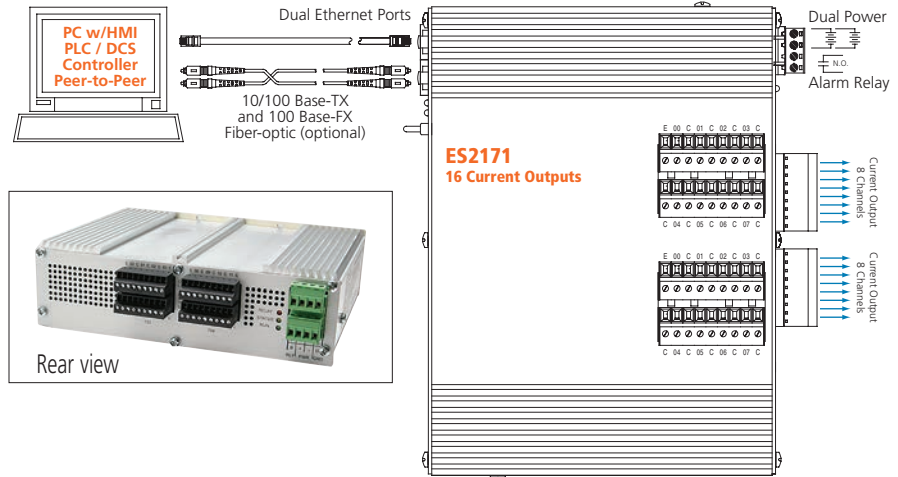


Ethernet I/O: EtherStax® Series

ES2171 Ethernet Analog Output Modules



16 analog current outputs ♦ Modbus TCP/IP, UDP/IP, i2o® peer-to-peer communication

Description

These EtherStax I/O units provide a rugged, high-density, and high-speed solution to interface analog output signals. Each unit provides 16 high-level analog current outputs to control various industrial devices.

Typical applications include driving indicators, display devices, and chart recorders. The outputs can also control variable speed drives, solenoid valves, motors, positioners and other actuators. Another common use is for re-transmission of analog signals to remote SCADA, PLC, or DCS systems.

EtherStax units are built and tested for high reliability and dependable performance in hostile environments. Available in an aluminum enclosure or as an open circuit board, both formats stack vertically to maintain a very small footprint.

Output Ranges

0-20mA, 4-20mA DC

Ethernet Communication

10/100Base-T(X) and 100Base-FX, Automatic MDI/MDI-X on all copper ports, Modbus TCP/IP or UDP/IP protocol i2o peer-to-peer

Power Requirement

18 to 36V DC (redundancy-ready)
9 to 16V DC output excitation required

Approvals

CE, UL/cUL:
Zone 2, Class 1, Division 2, Groups ABCD



Open circuit board versions are also available.

Key Features & Benefits

- 16-channel high-density analog output
- 3-way isolation and surge suppression
- High-resolution 16-bit D/A
- High-speed updates of less than 4 milliseconds for all channels
- Built-in loop-back circuit verifies outputs
- On-demand self-test verifies calibration
- Web browser configuration
- Peer-to-peer i2o communication output target device for Model ES215x inputs

i2o Peer-to-Peer Messaging

With Acromag's i2o technology, you can map inputs from ES215x units to output channels on an ES2171 module. Select updates based on time or on a percent of range change (100mS or 0.1% resolution).





Performance Specifications

◆ Analog Field Outputs

Output Channel Configuration
16 single-ended current outputs.
9-16V DC external excitation required.

Output Ranges (per-channel basis)
0-20mA or 4-20mA DC sourced.
User-configured on a per-channel basis.

Maximum Output Load at Excitation
265 ohms @ 9V.
400 ohms @ 12V.
540 ohms @ 15V.

Output Resolution and Accuracy
Resolution: 13-bit maximum, 0.0122%.
Accuracy: Better than 0.1% of range.

Output Response Time
1 channel: Less than 3mS, typical.
16 channels: Less than 4mS, typical.

◆ Local Alarm Output

Configuration
Failsafe or non-failsafe (user-configurable) relay trips on power or link-loss failure.

Type
SPST-NO, 1 Form A, Class I, Division II approved.

Rating
3A @ 24V DC/250V AC, 100,000 cycles general.
2A @ 24V DC/250V AC, Hazardous locations.

Maximum Switching Voltage and Power
250V AC / 750VA, 125V DC / 90W.

◆ Ethernet Interface

Internal Switch or Hub/Repeater
Dual-port Ethernet switch. User-configurable as a true switch (default mode) or low-latency hub.

Network Connector [10/100 Base-T(X) Copper]
One or two 8-pin RJ-45 connectors. Automatic MDI/MDI-X. 100m communication distance.

Network Connector (100 Base-FX Fiber-optic)
One multi-mode with SC connector. 2km communication distance. Full/half-duplex, selectable.

Protocols
Modbus TCP/IP, UDP/IP, i2o peer-to-peer.

Addressing
StaticIP, DHCP.

Ethernet Modbus TCP/IP Sockets/Sessions
1-10 socket/sessions user-configurable.

Ethernet Redundancy
Compatible with STP, RSTP, or any ring scheme.

| i2o® Configuration Page | | | | | | |
|-------------------------|---------------|--------------------|------------------------|-------------------------|--|--|
| Port Number | % Span Change | Update Time(100mS) | Map To IP Address | Map To Holding Register | Mapping Method | Map To Internal Outputs |
| Port 1 Voltage | 0.0 0.0 | 150 0 | 128.1.1.102 0.0.0.0 | 40351 0 | <input type="radio"/> Unipolar to Unipolar <input type="radio"/> Bipolar to Unipolar <input type="radio"/> Bipolar to Bipolar <input type="radio"/> Unipolar to Bipolar | <input checked="" type="radio"/> NO <input type="radio"/> YES |
| Port 2 Voltage | 0.0 0.0 | 0 0 | 0.0.0.0 0.0.0.0 | 0 0 | <input type="radio"/> Unipolar to Unipolar <input type="radio"/> Bipolar to Unipolar <input type="radio"/> Bipolar to Bipolar <input type="radio"/> Unipolar to Bipolar | <input checked="" type="radio"/> NO <input type="radio"/> YES |
| Port 1 Current | 0.0 0.0 | 0 0 | 0.0.0.0 0.0.0.0 | 0 0 | <input type="radio"/> Unipolar to Unipolar <input type="radio"/> Bipolar to Unipolar <input type="radio"/> Bipolar to Bipolar <input type="radio"/> Unipolar to Bipolar | <input type="radio"/> NO <input type="radio"/> YES |
| Port 2 Current | 0.0 0.0 | 0 0 | 0.0.0.0 0.0.0.0 | 0 0 | <input type="radio"/> Unipolar to Unipolar <input type="radio"/> Bipolar to Unipolar <input type="radio"/> Bipolar to Bipolar <input type="radio"/> Unipolar to Bipolar | <input type="radio"/> NO <input type="radio"/> YES |

Example i2o peer-to-peer mapping configuration screen from input source module (ES215x model).

◆ i2o Peer-to-Peer Communication

Each port of 8 output channels can serve as a target for mapped inputs from ES215x units. Updates are based on time (100mS resolution) or percent of range change (0.1% resolution).

◆ Environmental

Operating and Storage Temperature
Operating: -40 to 70°C (-40 to 158°F).
Storage: -40 to 85°C (-40 to 185°F).

Power Requirements
18-36V DC. Redundant, diode-coupled terminals.
3.3W (copper ports), 4.6W (fiber-optic ports), not including excitation power.
9-16V DC @ 400mA external power required for driving the outputs.

Isolation
I/O, power, relay and Ethernet port-to-port.
Peak: 1500V AC, ANSI/ISA-82.01-1988.
Continuous: 250V AC, 354V DC (150V AC ch-ch).

◆ Enclosure and Physical

Housing Classification and Dimensions
IP20: 8.226 x 2.444 x 7.25", 4 lbs. packed.
PCB: 7.920 x 1.875 x 7.25", 1.65 lbs. packed.

Safety Approvals
CE marked and UL/cUL Listed.
Hazardous Locations: Class I; Div 2; A, B, C, D.
Open board units: UL Recognized.

Shock and Vibration Immunity (in enclosure)
Mechanical Shock: 50g (3ms), 30g (11ms).
Random Vibration: 5g, (5-500Hz).

Ordering Information

◆ Models

ES2171-0000
Current outputs, two Cu ports, IP20 enclosure

ES2171-0010
Current outputs, two Cu ports, open board (no IP20 enclosure)

ES2171-1000
Current outputs, Cu & fiber ports, IP20 enclosure

ES2171-1010
Current outputs, Cu & fiber ports, open board (no IP20 enclosure)

◆ Accessories

Industrial Ethernet Switches
See Page 33.

Hardware Accessories and Power Supplies
See Page 34.

Software Support
See Page 36.