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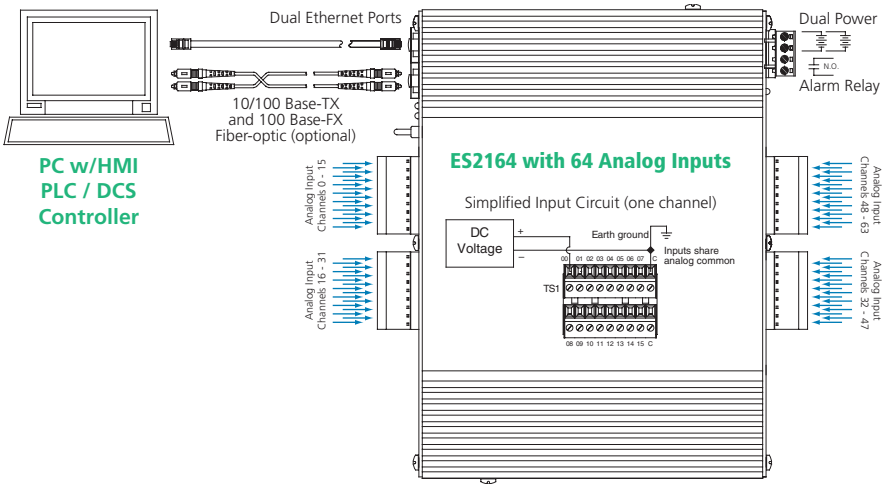
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Ethernet I/O: EtherStax® Series

ES2164 Ethernet Analog Input Modules

c UL us LISTED · 24 HOUR STOCK ITEM · 2 YEAR WARRANTY





64-channel single-ended analog voltage input ◆ Modbus TCP/IP or UDP/IP communication

Description

These EtherStax I/O modules provide a rugged, high-density, and high-speed solution to interface a large quantity of analog input signals to SCADA and distributed I/O systems. Each unit converts up to 64 single-ended analog voltage signals from various sensors and instruments for transmission to an Ethernet-based control network. Typical applications include process control, automated manufacturing, remote data acquisition, test and measurement, embedded computing, and supervisory monitoring systems.

EtherStax units are built and tested to deliver high reliability and dependable performance in hostile environments. Many features help increase reliability, improve performance and protect from harsh environments. Available in an aluminum enclosure or as an open circuit board, both formats stack vertically to maintain a very small footprint.

Input Ranges

±5V, ±10V DC

Ethernet Communication

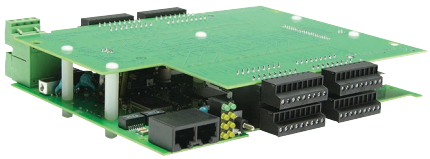
10/100Base-T(X) and 100Base-FX,
Automatic MDI/MDI-X on all copper ports,
Modbus TCP/IP or UDP/IP protocol

Power Requirement

18 to 36V DC (redundancy-ready)

Approvals

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



Open circuit board versions are also available.

Key Features & Benefits

- 64 single-ended analog voltage inputs
- 4-way isolation and surge suppression
- High-resolution 16-bit A/D
- High-speed scanning with 10 millisecond update of all 64 channels
- Automatic zero/span calibration
- On-demand self-test verifies calibration
- Configurable from any web browser
- User-configurable sample averaging and integration/totalization function with non-volatile registers
- Dual-format data registers support 16-bit integers or 32-bit floating point
- Scaling registers on all channels

ISO9001
AS9100
MADE IN USA

Acromag
THE LEADER IN INDUSTRIAL I/O

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Bulletin #8400508c

Ethernet I/O: EtherStax® Series

ES2164 Ethernet Analog Input Modules

Performance Specifications

◆ Analog Field Inputs

Input Channel Configuration
64 single-ended analog inputs. 32 channels on front and rear panels of unit.

DC Voltage Input Ranges (per-channel basis)
±5V or ±10V DC (default).
User-configured on a per-channel basis.

Input Scaling
Floating Point Format: IEEE-754 32-bit configurable for 12 digits with 4 decimal places.

16-bit Signed Integer Format: All channels represented as ±30,000.

Input Resolution and Accuracy
Resolution: 16-bit maximum, 0.00167%.
Accuracy: Better than 0.05% of range.

Input Impedance
Greater than 1M ohms.

Input Scan Groups and Scan Times
Eight user-enabled 8-channel scan groups.
10mS (100Hz) update of all 64 channels.

First 8-channel group updates in 1.80mS (555Hz). Each additional 8-channel group adds 1.20mS to the update time.

Sample Averaging
0 to 500 samples, user-configurable.

Input Overvoltage Protection
Bipolar Transient Voltage Suppressors (TVS), 14V working voltage.

Noise Rejection
Common Mode (50-60Hz): Better than 72dB.

◆ Local Alarm Output

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

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

Rating
5A @ 24V DC/250V AC, 6000 cycles resistive
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. Web-configurable as a true switch (default mode) or low-latency hub.

Network Connector (10/100 Base-TX 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 duplex SC connector. Full-duplex only. 2km communication distance.

Protocols and Addressing
Modbus TCP/IP or UDP/IP. StaticIP, DHCP, BootP. Configurable IP addresses.

Ethernet Modbus TCP/IP Sockets/Sessions
1-10 socket/sessions programmable via web page.

Ethernet Redundancy
Compatible with STP, RSTP, proprietary schemes.

◆ Environmental

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

Power Requirements
18-36V DC. Redundant, diode-coupled terminals.
4.4W (copper ports), 5.5W (fiber-optic ports)

Ambient Temperature Effect
Less than 25ppm/°C (0.0025%/°C)

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

◆ 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
UL/cUL Listed.

Hazardous Locations: Class I; Division 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

Go to on-line ordering page >

ES2164-0000
Voltage inputs, two Cu ports, IP20 enclosure

ES2164-0010
Voltage inputs, two Cu ports, open board

ES2164-1000
Voltage inputs, Cu & fiber ports, IP20 enclosure

ES2164-1010
Voltage inputs, Cu & fiber ports, open board

◆ Accessories

Industrial Ethernet Switches

Hardware Accessories and Power Supplies

Software Support

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