Product Datasheet - Technical Specifications
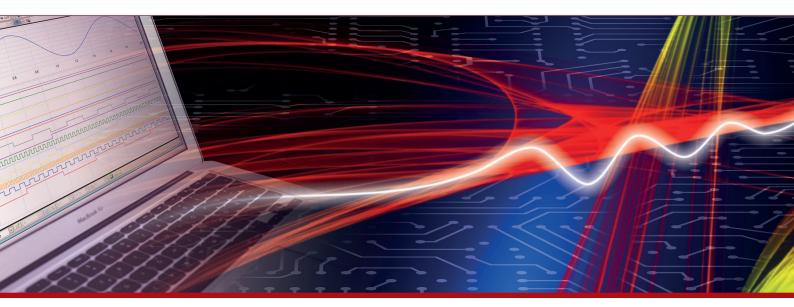

More information in our Web-Shop at ▶ **www.meilhaus.com** and in our download section.

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ES2161 Ethernet Analog Input Modules

ES2161 with 32 Analog Inputs

Dual Ethernet Ports

10/100 Base-TX and 100 Base-FX Fiber-optic (optional)

PC w/HMI PLC / DCS Controller

Dual Power

Alarm Relay

Analog Input Channels 0 – 7

Analog Input Channels 8 – 15

Analog Input Channels 24 – 31

Analog Input Channels 16 – 23

Simplified Input Circuit (one channel)
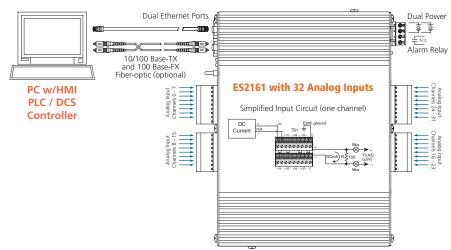
32-channel differential analog current input ◆ Modbus TCP/IP or UDP/IP communication

Description

These EtherStax I/O units provide a rugged, high-density, and high-speed solution to interface a large quantity of analog input signals. Units accept 32 differential analog current inputs, which are ideal for many sensor interface applications in remote zones. Available in an aluminum enclosure or as an open circuit board, both packages stack vertically to maintain a very small footprint. Many other features help increase reliability, improve performance and protect from harsh environments.

Input Ranges
±20mA, 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

Power Requirement
18 to 36V DC (redundancy-ready)

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

Key Features & Benefits

- 32 differential current analog inputs
- 4-way isolation and surge suppression
- Configurable from any web browser
- High-resolution 16-bit A/D
- Fast scanning up to 1KHz
- Dual-format data registers support both 16-bit signed integers and 32-bit floating point formats
- User-configurable IEEE-754 32-bit floating point scaling registers on all channels
- User-configurable integration function on all channels with totalizing 32-bit non-volatile counter registers
- User-configurable sample averaging and integration/totalization function with non-volatile registers
- Built-in precision voltage source for automatic calibration
- On-demand self-test with built-in calibration sources

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THE LEADER IN INDUSTRIAL I/O

Ethernet I/O: EtherStax® Series

Performance Specifications

◆ General Specifications

See Page 7 for communication and other specs.

◆ Analog Field Inputs

Input Channel Configuration
32 differential analog inputs. 16 channels on front and rear panels of unit.

DC Current Input Ranges (per-channel basis)
±20mA, 0-20mA, or 4-20mA DC (default).
User-configured on a per-channel basis.

Input Scaling (per-channel basis)
Floating Point Format: IEEE-754 32-bit configurable for 12 digits with 4 decimal places.
16-bit Signed Integer Format: All channels are represented as ±30,000.

Input Resolution and Accuracy
Resolution: 15-bit maximum, 0.003%.
Accuracy: Better than 0.02% of range.

Input Impedance
100 ohms.

Input Scan Groups and Scan Times
Eight user-enabled 4-channel scan groups.
5mS (200Hz) update of all 32 channels.
8mS (125Hz) update when totalizing.

First 4-channel group updates in 770µS (1.3Khz). Each additional 4-channel group adds 590µS to update time.

Sample Averaging
0 to 500 samples, user-configurable.

Input Overvoltage Protection
Bipolar Transient Voltage Suppressers (TVS), 18V clamp level typical.

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-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 duplex SC connector. 2km communication distance. Full/half-duplex, selectable.

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 Ranges:
-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.
4.2W (copper ports), 5.25W (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; 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

ES2161-0000
Current inputs, two Cu ports, IP20 enclosure

ES2161-0010
Current inputs, two Cu ports, open board

ES2161-1000
Current inputs, Cu & fiber ports, IP20 enclosure

ES2161-1010
Current inputs, Cu & fiber ports, open board

◆ Accessories

Industrial Ethernet Switches
See Page 33.

Hardware Accessories and Power Supplies
See Page 34.

Software Support
See Page 36.

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