Ethernet I/O: EtherStax® Series
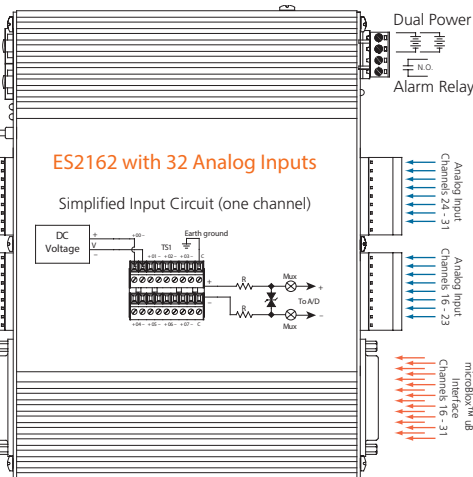
ES2162 Ethernet Analog Input Modules

c UL us LISTED | 24 HOUR STOCK ITEM | 2 YEAR WARRANTY
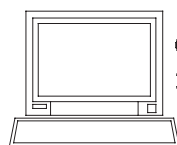
Dual Ethernet Ports
Dual Power
10/100 Base-TX and 100 Base-FX Fiber-optic (optional)
Alarm Relay
PC w/HMI PLC / DCS Controller
ES2162 with 32 Analog Inputs
Analog Input Channels 0 - 7
Simplified Input Circuit (one channel)
Analog Input Channels 24 - 31
DC Voltage
Earth ground
Analog Input Channels 8 - 15
Analog Input Channels 16 - 23
To A/D
Mux
DB25 ports connect to new microBlox® uB signal conditioners
microBlox® uB Interface Channels 0 - 15
microBlox™ uB Interface Channels 16 - 31

32-channel differential analog voltage input with uB interface ◆ 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 natively accept 32 differential high-level analog voltage inputs, which are ideal for most sensor interface applications in remote zones. For systems requiring high channel-to-channel isolation or a variety of input signals (voltage, current, temperature, frequency, load cell, etc.), the ES2162 has two ports that will each interface 16 inputs from a microBlox® uB signal conditioner backpanel. 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 industrial environments.

Interface to microBlox® uB signal conditioning modules.

Input Ranges
±5V, ±10V DC

uB Signal Conditioner Interface
Dual DB25 ports provide alternate interface to microBlox® uB signal conditioner backpanel systems

Ethernet Communication
10/100Base-T(X) and 100Base-FX, Automatic MDI/MDI-X on all copper ports, Modbus TCP/IP or UDP/IP protocol
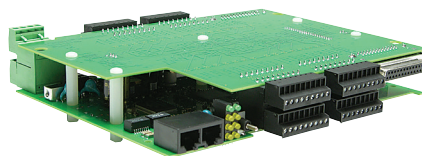
Power Requirement
18 to 36V DC (redundancy-ready)

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

Open circuit board versions are also available.

Select from more than 100 microBlox® uB input and output modules.

Key Features & Benefits

- 32 differential high-level voltage analog inputs
- Dual DB25 ports for alternate interface to microBlox® uB signal conditioning backpanels
- 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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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 Voltage Input Ranges (per-channel basis)
±5V or ±10V 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: 16-bit maximum, 0.00167%
Accuracy: Better than 0.02% of range

Input Impedance
Greater than 1M 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-ch. 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

◆ microBlox® uB External Inputs

Compatible uB Modules and Backpanels
Dual DB25 (front and rear) ports provide cable connection to industry-standard microBlox™ uB backpanels with analog input modules only. Each DB25 port alternately connects up to 16 input channels to any microBlox® uB backpanel via an SCMXCA006 cable. NOTE: Differential input channels are disabled in 8-channel groups when DB25 port(s) are used.

Input Configuration (per-channel basis)
Web page configuration sets channels to sense inputs via screw terminals or DB25 port.

microBlox® uB Input Module Outputs
All microBlox® uB input modules provide 0-5V, 1-5V or ±5V DC outputs.

microBlox® uB Input Module Power
microBlox® uBs require 5V DC ±5%. For other power options, order one (1) supply per backpanel.
10-32V DC: Model uBDC-1 power supply.
AC power: Model PS5R-B05 or PWR-4505.

microBlox® uB Input Isolation
(CMV Input-to-Output)
1500Vrms channel-to-channel isolation.

◆ 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.
4.4W (copper ports), 5.5W (fiber-optic ports).

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

ES2162-0000
ES2162-0010
Voltage inputs, two copper ports.
IP20 enclosure (-0000) or open board (-0010).

ES2162-1000
ES2162-1010
Voltage inputs, one copper and one fiber port.
IP20 enclosure (-1000) or open board (-1010).

◆ Accessories

microBlox® uB Modules and Backpanels
See Page 32.

Industrial Ethernet Switches
See Page 33.

Hardware Accessories and Power Supplies
See Page 34.

Software Support
See Page 36.

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