





## 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

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

#### 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.