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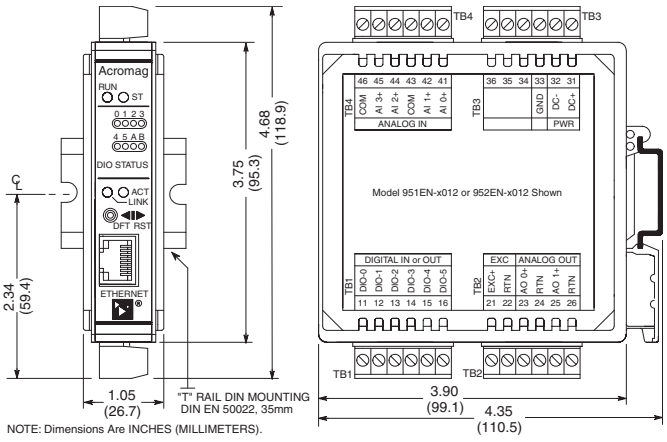
Find the *Acromag BusWorks 951EN-4012* at our website: *Click HERE*

Ethernet I/O: BusWorks® Series

951EN, 952EN Ethernet Analog and Discrete I/O Modules

RoHS Compliant | Ex | cULus LISTED | CE | 24 HOUR STOCK ITEM | 2 YEAR WARRANTY





Standard model includes cage clamp terminal blocks. Optional terminals are available (see Page 26).

EtherNet/IP™ conformance tested

Modbus/TCP conformance tested

4 Analog Inputs, 2 Analog Outputs, 6 Discrete I/O Channels ◆ Ethernet/IP, Modbus TCP/IP, i2o® Peer-to-peer

Description

Models

951EN: Combo module, analog current inputs
952EN: Combo module, analog voltage inputs

These modules provide an isolated Ethernet network interface for analog and discrete I/O signals. Multi-range analog inputs and outputs support a wide variety of industrial devices. High-resolution, low noise, A/D and D/A converters deliver high accuracy and reliability. 3-way isolation further improves system performance. The discrete I/O provide monitoring and control of on/off, high/low, or open/close industrial devices. Tandem I/O provides output level control and status verification in one unit.

The i2o function lets inputs on one module write directly to outputs on another module.

Analog Input Ranges

DC Current (user-selectable ranges)
0 to 1mA, 0 to 11mA, 0 to 20mA, 4 to 20mA
0 to 20 amps AC (with optional AC sensor)

DC Voltage (user-selectable ranges)
±1V, ±5V, ±10V DC

Analog Output Ranges

DC Current (user-selectable ranges)
0 to 1mA, 0 to 20mA, or 4 to 20mA
(0 to 625 ohm loads, typical)

Discrete I/O Range

0 to 35V DC active-high inputs
Current sourcing (high-side switched) outputs

Network Communication

EtherNet/IP or Modbus TCP/IP 10/100 network

Power Requirement

15 to 36V DC supply (3.3 Watts) required

Approvals

CE/ATEX marked.
UL, cUL listed, Class I; Div. 2; Groups A, B, C, D.
EtherNet/IP, Modbus/TCP conformance tested.

Key Features & Benefits

- Configurable from standard web browser
- EtherNet/IP or Modbus TCP/IP communication with automatic 10/100Mbps negotiation
- i2o technology for peer-to-peer communication without a network controller (see Page 6)
- Multi-function, multi-channel stand-alone module is very economical
- High-resolution 16-bit Σ-Δ A/D and D/A converters ensure precise measurements
- 0-35V DC solid-state logic interface can monitor or control a wide variety of devices
- Discrete I/O channels are individually configurable as inputs or outputs in any combination
- Bi-directional discrete I/O facilitates read-back monitoring of the output state
- Built-in 5.6K ohm pull-down SIP resistors (socketed)
- Selectable failsafe modes (0%, off, last-state, or pre-defined) help prevent unsafe conditions
- Compact packaging with pluggable terminals saves space and simplifies wiring
- Wide operational temperature range permits installation in extreme environments

Acromag® THE LEADER IN INDUSTRIAL I/O

Ethernet I/O: BusWorks® Series

Performance Specifications

◆ General Specifications

See Page 9 for communication and other specs.

◆ Analog Input

Configuration
Four input channels. Input range is selectable as a 4-channel group.

Accuracy
Better than ±0.05% of span (0.1% for 0-1mA range), typical. Accuracy near or below 0mA or 0V is degraded if input COM shares AO/DIO RTNs.

Analog to Digital Converter (A/D)
16-bit Σ-Δ converter
Resolution: 0.005% or 1 part in 20000

Noise Rejection
Normal Mode: Better than 40dB @ 60Hz
Common Mode: Better than 140dB @ 60Hz

Input Conversion Rate
Less than 50mS per channel

Input Impedance
DC current input (951EN): 49.9 ohms
DC voltage input (952EN): Greater than 110.5K ohms

◆ Analog Output

Configuration
Two output channels. Individually selectable ranges.

Accuracy
Better than ±0.05% of span (0.1% for 0-1mA range), typical.

Digital to Analog Converter (D/A)
16-bit converter

Current Output Compliance
12V minimum, 13V typical

Current Output Load Resistance Range
0 to 625 ohms, typical

◆ Discrete Input

Input Type
Six independent, active-high, buffered inputs with a common connection. Built-in 5.6K ohm pull-down resistors socketed for 3-channel groups.

Input Signal Voltage Range
0 to 35V DC, maximum

Input Impedance
100K ohms, typical

Input Signal Threshold
TTL compatible with 100mV of hysteresis, typical.

◆ Discrete Output

Output Type
Six independent, open-source, MOSFET switches.

Output Voltage and ON Resistance
Up to 35V DC max. (0 to 330mA/ch continuous).
0.15 ohms maximum ON resistance.

◆ Environmental

Ambient Temperature and Humidity
Operating: -25 to 70°C (-13 to 158°F)
Storage: -40 to 85°C (-40 to 185°F)
Relative Humidity: 5 to 95%, non-condensing

Isolation
1500V AC for 60 seconds or 250V AC continuous.
3-way isolation between I/O, network, and power.

Ordering Information

NOTE: i2o function only on Modbus TCP/IP modules

◆ I/O Modules

951EN-4012
Combo module, current inputs,
Ethernet Modbus TCP/IP interface, i2o communication

951EN-6012
Combo module, current inputs, EtherNet/IP interface

952EN-4012
Combo module, voltage inputs,
Ethernet Modbus TCP/IP interface, i2o communication

952EN-6012
Combo module, voltage inputs, EtherNet/IP interface

◆ Accessories

Industrial Ethernet Switches

Hardware Accessories and Power Supplies

Software Support

i2o® Input-to-Output Peer-to-Peer Communication



Acromag's i2o technology allows modules to talk directly to another module across any Ethernet media without a PLC, PC, or other controller in between. Input channels on one module can write to output channels on a remote module.

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