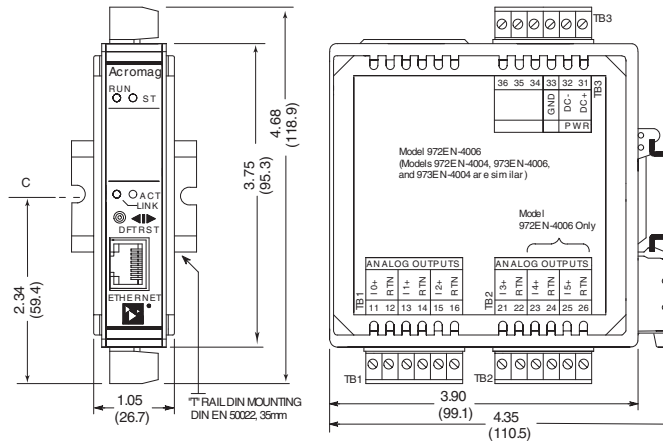


Ethernet I/O: BusWorks® Series

972EN, 973EN Ethernet Analog Output Modules



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

EtherNet/IP™
conformance tested

Modbus/TCP
conformance tested

4 or 6-channel DC Current or Voltage Output ◆ Ethernet/IP, Modbus TCP/IP, i2o® Peer-to-peer Messaging

Description

Models

972EN: DC current output channels
 973EN: DC voltage output channels

These modules provide up to six channels of analog output. Multi-range outputs support a wide variety of industrial devices. They can drive displays and recorders, control drives, or send analog signals to other systems. High-resolution, low noise, D/A converters deliver high accuracy and reliability. 3-way isolation further improves system performance.

Output Ranges

Ranges selectable on channel to channel basis.

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

DC Voltage (user-selectable ranges)
 0 to 1V, 0 to 5V, or 0 to 10V DC

Network Communication

EtherNet/IP or Modbus TCP/IP/100Mbps with automatic data rate negotiation

Power Requirement

15 to 36V DC supply required
 4.6 Watts (972EN) or 2.3 Watts (973EN)

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
- 6-input stand-alone module has much lower start-up cost than multi-piece block I/O systems
- Universal DC outputs support a wide variety of signals and industrial devices
- Three selectable failsafe modes (0%, last-state, or pre-defined) help prevent unsafe conditions
- Wide operational temperature range permits installation in extreme environments

Performance Specifications

◆ Output

Accuracy
 Better than ±0.1% of span, typical.
 1.6% for 0 to 1mA range. 0.8% for 0 to 1V range.

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

Current Output Compliance
 12V minimum, 13V typical

Current Output Load Resistance Range
 0 to 625 ohms, typical

Voltage Output Source Current
 0 to 10mA DC, maximum

◆ Environmental

Ambient Temperature and Humidity
 Operating:
 972EN models: -25 to 60°C (-13 to 140°F)
 973EN models: -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.
 Outputs share a common.

Ordering Information

NOTE: i2o function only on Modbus TCP/IP modules

◆ I/O Modules

972EN-4004
 4-ch. current output, Ethernet Modbus TCP/IP, i2o

972EN-4006
 6-ch. current output, Ethernet Modbus TCP/IP, i2o

972EN-6004
 4-channel current output, EtherNet/IP

972EN-6006
 6-channel current output, EtherNet/IP

973EN-4004
 4-ch. voltage output, Ethernet Modbus TCP/IP, i2o

973EN-4006
 6-ch. voltage output, Ethernet Modbus/TCP, i2o

973EN-6004
 4-channel voltage output, EtherNet/IP

973EN-6006
 6-channel voltage output, EtherNet/IP

◆ Accessories

Industrial Ethernet Switches

Hardware Accessories and Power Supplies

Software Support

