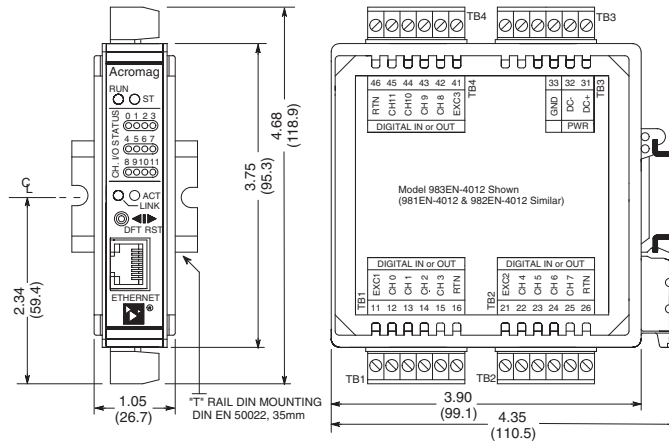


# Ethernet I/O: BusWorks® Series



## 981EN, 982EN, 983EN Ethernet Discrete I/O Modules



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

**EtherNet/IP™**  
conformance tested

**Modbus/TCP**  
conformance tested

### 12-channel discrete input and/or output ♦ Ethernet/IP, Modbus TCP/IP, i2o peer-to-peer messaging

#### Description

##### Models

- 981EN: 12 input channels
- 982EN: 12 output channels
- 983EN: 12 input/output channels

These modules provide an isolated Ethernet network interface for twelve discrete input and/or output channels. The outputs provide direct on/off, high/low, or open/close control of industrial devices. The inputs sense the status of motors, pumps, valves and other equipment. The 983EN model with tandem I/O provides output level control and status verification in one unit.

##### Input Range

0 to 35V DC

##### Output Range

0 to 35V DC

##### Network Communication

EtherNet/IP or Modbus TCP/IP 10/100Mbps with automatic data rate negotiation

##### Power Requirement

15 to 36V DC supply (2 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
- 12-channel stand-alone module has far lower start-up cost than multi-piece block I/O systems
- 0-35V DC solid-state logic interface can monitor or control a wide variety of devices
- Bidirectional I/O models facilitate loopback monitoring of the output state
- Socketed SIP resistors provide input and output 5.6K ohm pull-ups to the excitation supply
- Three selectable failsafe modes (off, last-state, or pre-defined) help prevent unsafe conditions

#### Performance Specifications

##### ♦ Input (981 & 983 models)

###### Input Type

Twelve active-low, buffered inputs, with a common connection. Built-in 5.6K ohm pullups to excitation terminal socketed for 4-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.

##### ♦ Output (982 & 983 models)

###### Output Type

12 independent, open-drain, MOSFET switches.

**Output Voltage and ON Resistance**  
0 to 35V DC max. (0 to 500mA/channel continuous).  
0.28 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

- 981EN-4012**  
Discrete input, Ethernet Modbus TCP/IP
- 981EN-6012**  
Discrete input, EtherNet/IP
- 982EN-4012**  
Discrete output, Ethernet Modbus TCP/IP, i2o
- 982EN-6012**  
Discrete output, EtherNet/IP
- 983EN-4012**  
Discrete input/output, Ethernet Modbus TCP/IP, i2o
- 983EN-6012**  
Discrete input/output, EtherNet/IP

##### ♦ Accessories

- Industrial Ethernet Switches  
See Page 25.
- Hardware Accessories and Power Supplies  
See Page 26.
- Software Support  
See Page 27.

