

981/982/983EN Discrete I/O

12-Channel I/O: Active-Low Inputs, Sinking Outputs (Low-Side Switching)

Models

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

Description

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 983PB 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

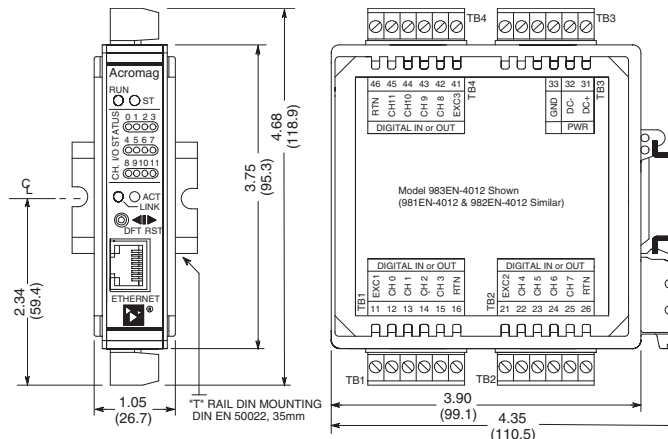
Ethernet Modbus/TCP 10/100Mbps network

Power Requirement

15 to 36V DC supply required

Approvals

CE marked. UL, cUL listed (pending).
Class I; Division 2; Groups A, B, C, D (pending).



Standard model includes cage clamp terminal blocks. Optional terminals are available (see ordering information).

Special Features

- Configurable from standard web browser
- Modbus/TCP communication with automatic 10/100Mbps data rate negotiation
- 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
- Compact packaging with pluggable terminals saves space and simplifies wiring
- Wide operational temperature range

Performance

General Specifications

See Page 11 for communication and other specs.

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, DMOS MOSFET switches.

Output Voltage Range

0 to 35V DC max. (0 to 500mA/channel continuous).

Output ON Resistance

0.28 ohms maximum.

Environmental

Ambient Temperature

Operating: -25 to 70°C (-13 to 158F).
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 Info

Models

- 981EN-4012
Discrete input module, 12 channels
- 982EN-4012
Discrete output module, 12 channels
- 983EN-4012
Discrete input/output module, 12 channels

Accessories (See Pages 12-14)

- 900EN-S005
Ethernet switch, 5-port
- 5035-355
Ethernet cable, CAT5, 3 feet long
- 5035-360
Ethernet crossover cable, CAT5E, 5 feet long, shielded
- P55R-D24
Power supply (24V DC, 2.1A).
- TBK-B03
Optional terminal block kit, barrier strip style, 4 pcs.
- TBK-S03
Optional terminal block kit, spring clamp style, 4 pcs.



General Operation and Performance Specifications

The following specifications are common to all 900EN Series I/O modules.

■ Communication

Connector

Shielded RJ-45 sockets, 8-pin, 10BaseT/100BaseTX.

Wiring

Wired MDI. Unit does NOT support auto-crossover.

Protocol

Modbus TCP/IP with web browser configuration.

IP Address

Default static IP address is 128.1.1.100.

Port

Up to 10 sockets supported.

Data Rate

Auto-sensed, 10Mbps or 100Mbps.

Duplex

Auto-negotiated, full or half-duplex.

Compliance

IEEE 802.3, 802.3u, 802.3x.

Modbus TCP/IP Protocol Support

Up to 10 sockets may be selected. Web page for configuration and control is built-in with Ethernet access via a standard web browser.

Rx/Tx Memory

8K bytes internal SRAM memory for receive and transmit buffers (FIFO).

Communication Distance

Distance between network devices is generally limited to 100 meters using recommended cable. Distances may be extended using hubs and switches.

Address

IP address is automatically acquired at startup. Unit may be configured to retrieve this address from the network server using BOOTP (Bootstrap Protocol), or via DHCP (Dynamic Configuration Protocol). A static IP address is user-programmable. A default toggle switch sets the static IP address to the default factory address of 128.1.1.100.

■ Environmental

Isolation

I/O channel, power, and network circuits are isolated from each other for common-mode voltages up to

250VAC, or 354V DC off DC power ground, on a continuous basis (will withstand 1500VAC dielectric strength test for one minute without breakdown). Complies with test requirements of ANSI/ISA-82.01-1988 for voltage rating specified.

■ Electromagnetic Compatibility (EMC)

Immunity per European Norm EN50082-1. Emissions per European Norm EN50081-1.

Electrostatic Discharge (ESD) Immunity
Per EN61000-4-2.

Radiated Field Immunity (RFI)
Per EN61000-4-3 and ENV50204.

Electrical Fast Transient Immunity (EFT)
Per EN61000-4-4.

Conducted RF Immunity (CRFI)
Per EN61000-4-6.

Surge Immunity
Per EN61000-4-5.

Radiated Frequency Emissions
Per EN55022 Class B.

