



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

966EN Analog Input

4 or 6-Channel Input: RTD or Resistance Signals

Description

These modules provide an isolated Ethernet network interface for up to six input channels. Multi-range inputs accept signals from a variety of sensors and devices. High-resolution, low noise, A/D converters deliver high accuracy and reliability. 3-way isolation further improves the system performance.

Input Ranges

RTD (user-selectable type)

2-wire and 3-wire RTDs are supported.

Platinum 100 ohm (alpha = 1.3850 or 1.3911)

Nickel 120 ohm

Copper 10 ohm

Resistance

0 to 500 ohms

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).

Special Features

- Configurable from standard web browser
- Modbus/TCP communication with automatic 10/100Mbps data rate negotiation
- 6-input stand-alone module has much lower start-up cost than multi-piece block I/O systems
- Versatile RTD or ohmic inputs support a wide variety of industrial sensors and devices
- RTD break detection (upscale or downscale) identifies sensor wiring failures
- High-resolution 16-bit Σ - Δ A/D converters ensure precise, high accuracy measurements
- Compact packaging with pluggable terminals saves space and simplifies wiring
- Wide operational temperature range permits installation in extreme environments

Performance

General Specifications

See Page 11 for communication and other specs.

Input Configuration

Input ranges are selectable for a 3-channel group.

Accuracy

Input Type	Input Range	Accuracy (typical)
Pt 100 ohm	-200 to 850°C	±0.25°C
Ni 120 ohm	-80 to 320°C	±0.25°C
Cu 10 ohm	-200 to 260°C	±1.25°C
Resistance	0 to 500 ohms	±0.05 ohms

RTD Break Detection

Upscale or downscale selection applies to all channels.

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

Noise Rejection

Normal Mode: Better than 40dB @ 60Hz.

Common Mode: Better than 130dB @ 60Hz.

Input Filter Bandwidth

-3dB at 3Hz, typical.

Excitation Current

1mA DC typical, all RTD types.

Environmental

Ambient Temperature

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.

Inputs share a common.

Ordering Info

Models

966EN-4004

4-channel RTD/resistance input module

966EN-4006

6-channel RTD/resistance input module

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.

