

ControlEdge HC900 IO Modules Specifications

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Overview

The Honeywell ControlEdge HC900 Controller is an advanced loop and logic controller offering a modular design sized to satisfy the control and data acquisition needs of a wide range of process equipment.

I/O Modules

The following I/O modules are available to create a custom control solution.

- 16 Channel Universal IO Module Galvanically isolated Input/Output to chassis (p.27)
- 8-point universal analog input modules: Galvanic isolation point to chassis inputs may be mixed on a module and may include multiple thermocouple types, RTDs, ohms, voltage or mill voltage types – all easily assigned using the Process Control Designer configuration tool. High point-to-point galvanic isolation simplifies installation and saves the expense of external isolation hardware (p.6).
- 16-point high level analog input module: each point is configurable for V or mA. Galvanically isolated point to chassis. Galvanically isolated point to point (p.10). 250-ohm shunt resistors can be added per channel.
- 4-point galvanically isolated analog output module. Galvanically isolated point to chassis supports from 0 to 20mA each (p.12).
- 8-point analog output, galvanically isolated in 2 groups of 4 points. Galvanically isolated point to chassis. Supports from 0 to 20mA each (p.13).
- 16-point analog output, galvanically isolated in 4 groups of 4 points. Galvanically isolated point to chassis. Supports from 0 to 20mA each (p.14).
- 16-point digital input modules: Contact closure type, DC Voltage, AC Voltage and AC/DC voltage types (p.15). Galvanically isolated in groups of 8 channel to chassis
- 32-point digital input module: DC voltage. Galvanically isolated point to chassis. Galvanically isolated in 2 groups of 16 points (p.1915).
- 8-point AC or 16-point DC digital output modules (sinking type). Galvanically isolated point to chassis. Galvanically isolated in 2 groups of 8 points (p.18).

- 32-point digital output: DC voltage (sourcing type). Galvanically isolated point to chassis. Galvanically isolated in 2 groups of 16 points (p.23).
- 8-point relay output module: four form C type and four form A type relays. Galvanically isolated point to chassis. Galvanically isolated relay to relay (p.20).
- 4 channel Pulse/Frequency/Quadrature I/O module. Galvanically isolated point to chassis (p.24).

Insert and Removal of I/O under Power

For ease of maintenance, the ControlEdge HC900 controller supports removing and inserting I/O modules from the module rack without removing power from the controller. Each module is sensed for validity by the controller and auto-configured on insertion.

Other Modules

In addition to I/O, the following modules are available.

- Scanner 1 module, single port (p.31)
- Scanner 2 Module, dual port (p.32)
- Universal AC Power Supply, 60W (p.4)
- Power Supply 24VDC, 60W (p.4)
- Redundant Switch Module (p.33)
- Power Status Module (p.33)

Failsafe

All ControlEdge 900 Platform I/O modules support a user specified failsafe value (analog) or state (digital) that the module outputs or inputs will assume if communication between the controller and the module is interrupted. Output modules are also disabled if the controller fails to start. Module diagnostics are not initiated if the control strategy does not call for the inputs or outputs on the modules to execute.

Failsafe is restricted to de-energize in safety applications.

Remote Terminal Panels

Optional DIN rail mounted Remote Terminal Panels (RTPs) are available for use with pre-wired cables to reduce installation time and labor expense. Three types of RTPs are available: analog inputs, relay outputs, and other I/O modules. Three cable lengths are also available to match hardware to installation variations. Analog inputs RTPs include transmitter shunt resistors and transmitter power terminals with individual circuit fuses. The Relay Output RTP includes a fuse and power disconnect switch for each output. All the three types of RTP panels also switch power to allow module removal and installation under controller power. See page 34.

Terminal Blocks

20-screw Barrier style and Euro style terminal blocks are available for use with all ControlEdge HC900 I/O Modules. Red terminal blocks are used for high voltage connections for added safety while black terminal blocks are used for low voltage connections. A 36-terminal Euro style block is available with the 16 AI, the 8 and 16 AO as well as the 32 DC DI and 32 DC DO module types. See page 27.

Specifications for modules

| I/O Module Attributes | |
|---|--|
| Remove & Insert under power | Standard. Modules are automatically sensed and configured on insertion. Field power shall be disconnected before removing field terminal blocks. |
| LED Channel State indicators | Via light pipes at front of module, one state LED for each digital I/O point – green indicates ON, logic side |
| LED Module Status indicator | Via light pipe, one per module, tri-color to represent module status, Green = OK, Red = Fault (# of flashes indicates fault), Amber = Override (Force) |
| I/O Labels | Color-coded, on module door, removable, with write-on area to label I/O |
| Processor | Micro-controller per module for parallel processing |
| Terminal Boards | 20 screw: Barrier or Euro style, tin-plated or gold-plated (for DC connections) 36 screw: Euro style gold plated (Required with certain higher capacity modules) |
| Keying | Hardware keying matches each module to its terminal block with its field wiring. |
| Environmental and Vibration Specifications | |
| Mounting Standard 35mm wide DIN Rail | Provides connection of field wiring to controller I/O within an enclosure only. |
| Dimensions | 4.38" (111.1 mm) x 3.70" (94.0mm) x 2.60" (66.0mm) (L x W x H) |
| Vibration Amplitude Acceleration Vibration | 5Hz to 15.77Hz, 2.03mm (0.08") amplitude (peak to peak) 15.77 to 250Hz, 1.0-g Sweeping, at rate of .33 octave/min. |
| Tray material Tray and end caps Flammability | Polyvinyl Chloride (PVC) UL94-V0 |
| Environmental Temperature Relative Humidity Harsh Environment ** ROHS** | Operating: 0 deg. C (32F) to 60 deg. C (140F) Storage: -40 deg. C (140F) to 70 deg. C (158F) Operating: 10% to 90% Non-condensing Storage: 5% to 95% Non-condensing All the modules including CPU, Scanner, PSU, RTP, Backplane, RSM/PSM, and Backplanes have conformal coating that is suitable for operation in G3 level of harsh environment. Entire system is compliant to RoHS 2 directive |
| ** Except PSU module | |

| | |
|--|--|
| Certifications CE | EN61326-1:2013, EN61326-3-1:2008, EN55011:2009/A1,2010, EN61010-1:2010 |
| UL | Certificate: E201698 UL Listed- Process Control Equipment, Electrical UL 61010-1 2nd Edition |
| ATEX | Certificate: HON 08.0201 II 3 G Ex nA IIC T* Gc EN 60079-0: 2011; EN 60079-15: 2010 |
| CSA | Certificate: 1367757 Class I, Division 2, Groups A, B, C D; T* CAN/ CSA C22.2 No. 0-M91; CAN/ CSA C22.2 No. 94-M94; CAN/ CSA C22.2 No 1010.1-92; CAN/ CSA C22.2 No 1010.1B-97; CSA C22.2 No. 213-M1987 |
| FM | Certificate: 3011798 Class 1, Div. 2 Groups A, B, C, D; T* FM 3600: 2010; FM 3611: 2004; FM 3810: 2005 * Module Temperature: Classifications T3 to T6 |
| Cables High voltage Low voltage | Lengths: 1.0, 2.5, 5.0 meters. Cable power is limited to 24 Amps per module at 60C (140 degrees F) and 32 Amps at 54C (129 degrees F). Lengths: 1.0, 2.5, 5.0 meters. |
| I/O module Compliance | |
| CE Conformity | This product is in conformity with the protection requirements of the following European Council Directives: 2006/ 95/ EC , the Low Voltage Directive (evaluated to EN61010-1:2010) 2004/108/EC , the EMC Directive (evaluated to EN61326-1:2013). Conformity of this product with any other European Council Directive(s) shall not be assumed. |
| General Purpose Safety | Compliant with EN61010-1, UL61010-1 2nd Edition, CSA C22.2 No. 1010-1 |
| Hazardous (Classified) Location Safety | FM Class 1, Div. 2, Groups A, B, C, D Class 1, Zone 2, IIC |
| Module Type | |
| Temperature Classification | |
| Controller (C30, C50, C70, C75) | T4 |
| Safety Module Controller (C30S, C50S, C70S and C75S) | T4 |
| Power Supply (P01, P24) | T4 |
| Power Status (PSM)) | T6 |
| Scanner (1 or 2 Port) | T4 |
| Safety Scanner (1 or 2 Port) | T4 |
| Redundant Switch (RSM) | T6 |
| Analog Input (Universal 8 channel) | T6 |
| Analog Input (High Level 16 channel) | T6 |
| Analog Output (4 Channel) | T4 |
| Analog Output (8 channel) | T4 |
| Analog Output (16 channel) | T3C |
| Digital Input, Contact type (16 Channel) | T5 |
| Digital Input, 24 Vdc (16 channel) | T4 |
| Digital Input, 120/240 Vac (16 channel) | T3C@ Ta = 60 deg. C T4 @ Ta = 40 deg. C |

| | |
|---|--|
| Digital Input, 120/240 Vac (16 channel 125 Vdc) | T3C@ Ta = 60 deg. C T4 @ Ta = 40 deg. C |
| Digital Input Vdc (32 channel) | T3C@ Ta = 60 deg. C T4 @ Ta = 40 deg. C |
| Digital Output, Relay type (8 channel) | T5 |
| Digital Output, 24 Vdc, (16 channel) | T4 |
| Digital Output, 120/240 Vac (8 channel) | T4 |
| Digital Output Vdc (32 channel) | T6 |
| Pulse/Frequency/Quadrature (4 channel) | T5 |
| Universal IO Module (16 channel) | T4 |

Power Supply

P01 Power Supply (900P01-xxxx)

The P01 power supply provides 5VDC and 24VDC to satisfy the power requirements of a rack with a controller and local I/O, a rack with a scanner, and remote I/O. The 60-watt capacity allows for almost any mix of I/O modules in one rack. See Module Specifications starting on page 6. A tool-secured door covers the high voltage connections; test jacks behind the door allow for quick verification of proper operation. An internal non-replaceable fuse limits supply current under certain fault conditions.



P24 Power Supply (900P24-xxxx)

The P24 power supply provides 5VDC and 24VDC to satisfy the power requirements of a rack with a controller and local I/O, a rack with a scanner and remote I/O or a redundant controller rack. The 60-watt capacity requires minimal de-rating of the available ControlEdge HC900 I/O modules. A tool-secured door covers the voltage connections. An internal non-replaceable fuse limits supply current under certain fault conditions.

| | P01 Power Supply (900P01- xxxx) | P24 Power Supply (900P24-xxxx) |
|--------------------------|---|---|
| Wiring | Screw type terminals, Wire gauge #12-22 AWG | Screw type terminals, Wire gauge #12-22 AWG |
| Operating Voltage | Universal Power, 90-264VAC, 47-63 Hz | 21-29VDC |
| Input Rating | 130VA | 72.5W |
| Output Rating | 60W | 60W |
| In Rush Current | 7 Amps peak-to-peak for 150 ms at 240 VAC | In-rush current: 30A for 3ms @29VDC |
| Fuse | Internal, non-replaceable | Internal, non-replaceable |
| Test jacks | 5 volt, 24 Volt | None |
| Hold up time | 20milliseconds @ 115VAC, 60HZ maximum Load | |

See next section for how to choose an AC power supply.

How to choose an AC Power Supply

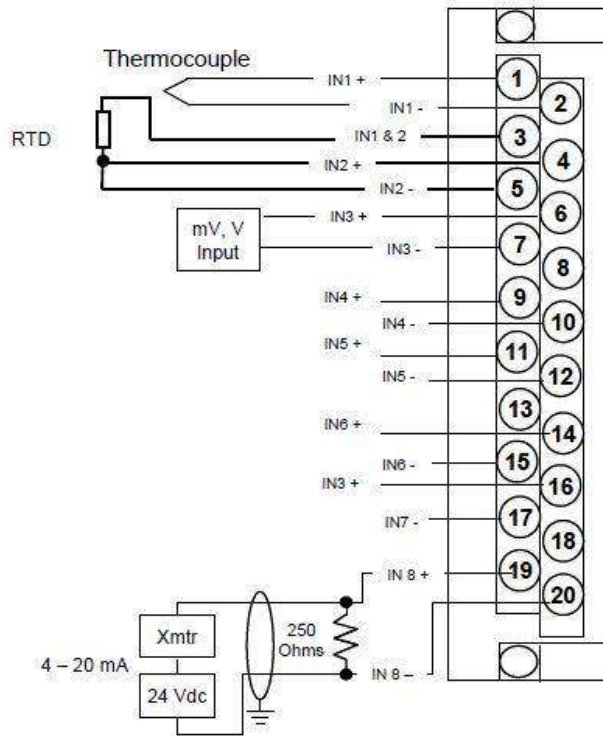
| Module type | A | B | C | D | E |
|---|----------------|-------------------|--------------------|------------------------------------|-------------------------------------|
| | Enter Quantity | Max Current @ 5 V | Max Current @ 24 V | Calculate 5V current (D = A * B) | Calculate 24V current (E = A * C) |
| SIL CPU | | | | | |
| Controller C30S CPU | () | 820 mA | 0 mA | () | (0) |
| Controller C50S CPUL | () | 930 mA | 0 mA | () | (0) |
| Controller C70S CPU | () | 1150 mA | 0 mA | () | (0) |
| Controller C75S | () | 1500 mA | 0 mA | () | (0) |
| I/O Scanner 1 Port (1 per I/O rack) - SIL | () | 670 mA | 0 mA | () | (0) |
| I/O Scanner 2 Port (1 per I/O rack) - SIL | () | 770 mA | 0 mA | () | (0) |
| Non-SIL CPU | | | | | |
| Controller C30 CPU | () | 820 mA | 0 mA | () | (0) |
| Controller C50 CPU | () | 930 mA | 0 mA | () | (0) |
| Controller C70 CPU | () | 1150 mA | 0 mA | () | (0) |
| Controller C70R CPU | () | 1500 mA | 0 mA | () | (0) |
| I/O Scanner 1 Port (1 per I/O rack) | () | 670 mA | 0 mA | () | (0) |
| I/O Scanner 2 Port (1 per I/O rack) | () | 770 mA | 0 mA | () | (0) |
| Power Status Module (PSM) | () | 22 mA | 0 mA | () | (0) |
| Analog Input (8 pts) | () | 40 mA | 25 mA | () | () |
| Analog Input (16 pts) | () | 75 mA | 50 mA | () | () |
| Analog Output (4 pts) * | () | 40 mA | 200 mA | () | () |
| Analog Output (8 pts) *** | () | 225 mA | 350 mA | () | () |
| Analog Output (16 pts) *** | () | 350 mA | 700 mA | () | () |
| AC Digital Input (16 pts) | () | 130 mA | 0 mA | () | (0) |
| DC Digital Input (16 pts) | () | 130 mA | 0 mA | () | (0) |
| AC/DC Digital Input (16 pts) | () | 130 mA | 0 mA | () | (0) |
| Contact Input (16 pts) | () | 130 mA | 40 mA | () | () |
| DC Digital Input (32 pts) | () | 215 mA | 0 mA | () | (0) |
| AC Digital Output (8 pts) | () | 220 mA | 0 mA | () | (0) |
| DC Digital Output (16 pts) | () | 340 mA | 0 mA | () | (0) |
| DC Digital Output (32 pts) | () | 235 mA | 0 mA | () | (0) |
| Relay Output (8 pts) | () | 110 mA | 100 mA | () | () |
| Pulse/Frequency/Quadrature** | () | 110 mA | 250 mA | () | () |
| Universal IO Module (16 pts) | () | 10 mA | 100 mA | () | () |

| | | |
|--|---|---|
| <p>*Limit 10 Analog Output modules per I/O rack. ** Limit 4 PFQ modules per I/O rack. *** Limit 2 16-pt. modules per rack. Limit 5 8-pt. modules per rack with internal power supply. Use 0 mA for 24V value when using an external 24V supply.</p> | <p>Total mA @ 5V = ()</p> | <p>Total mA @ 24V= ()</p> |
| <p>Complete columns A, D and E above.</p> <p>1. Is column D total mA @ 5V less than 2000mA? Yes/No 2. Is column E total mA @ 24V less than 900mA? Yes/No 3. If the answers to 1 and 2 are YES, go to 4. If the answer to 1 or 2 is NO, use power supply 900P01-0001. 4. Multiply 5V total by 5.1. () 5. Multiply 24V total by 24.5. () 6. Sum results of 4 and 5. () 7. Divide results of 6 by 1000 () 8. Is the result of 7 less than 28? Yes/No</p> <p>If the answer to 8 is Yes, use power supply 900P02-0001 If the answer to 8 is No, use power supply 900P01-0001</p> | | |

Analog Input Module (900A01-xxxx)

The Universal Analog Input module supports up to 8 user-configurable inputs on a per point basis for thermocouple, RTD, Resistance, V, mV, mA or slidewire. Point-to-point isolation and back-plane isolation are provided. Modules perform analog to digital conversion in synchronization with CPU control execution, eliminating data interchange latency. All analog input modules are processed in parallel, eliminating scan time increases as modules are added.

A green blinking status LED on the module indicates when the module is being scanned. An amber blinking status LED when input channels are forced and a red status LED when module diagnostics exist. A user-selectable failsafe value is supported on a per channel basis. A warning signal is provided for thermocouple inputs to indicate maintenance is needed prior to a sensor failure. A sensor failure signal is also provided.



| Table 1 - Analog Input Specifications | |
|---------------------------------------|--|
| Inputs per module | 8 (isolated) |
| Input types | mV, V, T/C, RTD, ohms, mA, slidewire assigned to any channel |
| Signal Source | See Table 2 on page 7 for range types. Thermocouple with cold junction compensation RTD, PT100 3 wire, 40 ohms balanced maximum Thermocouples: 100 Ohms/Leg 100 (except Low), 500 & 1000 RTD: 100 Ohms/Leg |

| Table 1 - Analog Input Specifications | |
|--|--|
| | 100 YIS: 100 Ohms/Leg 100-Low RTD & 10 ohm Cu: 10 Ohms/Leg Slidewire 100 to 6,500 Ohms: 10% of total res./leg |
| Input Impedance | 10 megohms for T/C and mV inputs; >1 megohm for volts and 250 ohms for mA inputs |
| Galvanic Input Isolation | 400 VDC point to point, 1K VDC to logic RTDs are isolated in pairs (I _{RTD} is common to two inputs). |
| Noise Rejection | Series Mode >60dB. Common Mode >130dB at 120VAC. |
| Burnout | T/C, mV, V (except for ranges below) configurable to upscale, downscale, defined value, or none. <i>Volt:</i> -500 mV to 500 mV; -1 V to 1 V; -2 V to 2 V; -5 V to 5 V; 0 V to 10 V; -10 V to 10 V; inherent to zero volt <i>RTD:</i> Inherent upscale <i>mA:</i> Inherent downscale |
| Over-range limit | +/- 10% for linear ranges (volts). +/-1% for non-linear ranges (T/C, RTD). |
| T/C Break Detection | Via current pulse |
| Faulty thermocouple detection | If greater than 100 ohms, a warning status is provided as an output for the AI block |
| Accuracy | Factory configured accuracy = ± 0.1 % of range (± 0.2 % of range for 0V to 10V and -10V to 10V) Cold junction accuracy = ± 0.7 °C Field calibration accuracy = ± 0.05 % of range <i>Reference conditions:</i> Temperature = 25 °C \pm 3 °C (77 °F \pm 5 °F) Humidity = 45 % to 55 % RH non-condensing Line voltage = Nominal \pm 1 % Source resistance = 0 ohm Series mode and common mode = 0 V Frequency = Nominal \pm 1 % |
| Temp. Effect on Accuracy | ± 0.01 % of full scale per degree Celsius maximum |
| A/D Converter | One per module |
| A/D Resolution | 15 Bits |
| Reference Junction Sensing | Via 2 RTDs at top/bottom of module |
| Update rate | 500ms (Analog to Digital Converter per module) |
| Long term Stability | 0.1% per year |
| Calibration | Data is stored in non-volatile memory Redundant Factory Calibration Individual Channel Field Calibration |
| Diagnostics | Monitoring of Factory Calibration, Field Calibration, 24 VDC supply, and configuration. |
| Channel Configuration Data | Stored in non-volatile memory |
| Power supply loading | 5V; 40mA max 24V; 25mA max |

| Table 2 – Analog Input Reference Accuracy | | | | |
|--|--------------|--------------|---------------------------|-----------|
| Input Type | Range | | Reference Accuracy | |
| Thermocouple inputs | °F | °C | °F | °C |
| B T/C | 0 to 105 | -18 to 41 | NA | NA |
| | 105 to 150 | 41 to 66 | 55.0 | 30.6 |
| | 150 to 500 | 66 to 260 | 30.0 | 16.7 |
| | 500 to 1000 | 260 to 538 | 8.0 | 4.5 |
| | 1000 to 3300 | 538 to 1815 | 4.0 | 2.3 |
| E T/C | -454 to -202 | -270 to -130 | 25.0 | 14.0 |
| | -202 to 1832 | -130 to 1000 | 2.3 | 1.3 |
| E (low) T/C | -200 to 1100 | -129 to 593 | 2.0 | 1.2 |
| J T/C | 0 to 1600 | -18 to 871 | 1.2 | 0.6 |
| J (low) T/C | 20 to 770 | -7 to 410 | 1.0 | 0.5 |
| J T/C | -292 to 32 | -180 to 0 | 1.0 | 0.5 |
| K T/C | 0 to 2400 | -18 to 1316 | 2.0 | 1.2 |
| K (low) T/C | -20 to 1000 | -29 to 538 | 1.6 | 0.8 |
| K T/C (mid)** | 0 to 1800 | -18 to 982 | 1.8 | 1.0 |
| K T/C | 32 to 2192 | 0 to 1200 | 2.0 | 1.2 |
| Ni-NiMo (NNM68) | 32 to 500 | 0 to 260 | 2.0 | 1.2 |
| | 500 to 2500 | 260 to 1371 | 1.5 | 0.8 |
| Ni-NiMo (low) | 32 to 1260 | 0 to 682 | 1.3 | 0.7 |
| NiMo-NiCo (NM90) | 32 to 500 | 0 to 260 | 2.0 | 1.2 |
| | 500 to 2500 | 260 to 1371 | 1.5 | 0.7 |
| NiMo-NiCo (low) | 32 to 1260 | 0 to 682 | 1.3 | 0.7 |
| N T/C | 0 to 2372 | -18 to 1300 | 2.0 | 1.2 |
| N T/C | 0 to 1472 | -18 to 800 | 1.4 | 0.9 |
| N T/C | 32 to 2192 | 0 to 1200 | 2.0 | 1.2 |
| R T/C | 0 to 500 | -18 to 260 | 5.0 | 2.8 |
| | 500 to 3100 | 260 to 1704 | 2.2 | 1.2 |
| S T/C | 0 to 500 | -18 to 260 | 4.5 | 2.5 |
| | 500 to 3100 | 260 to 1704 | 2.2 | 1.2 |
| T T/C | -300 to 700 | -184 to 371 | 4.0 | 2.3 |
| | -100 to 700 | -73 to 371 | 2.0 | 1.2 |
| T (low) T/C | -200 to 500 | -129 to 260 | 1.0 | 0.5 |
| W ₅ W ₂₆ | -4 to 600 | -20 to 2320 | 27.0 | 15.0 |
| | 600 to 3600 | 316 to 1982 | 4.0 | 2.3 |
| | 3600 to 4200 | 1982 to 2316 | 4.2 | 2.4 |
| W ₅ W ₂₆ T/C * | 0 to 600 | -18 to 316 | 3.5 | 2.0 |
| | 600 to 3600 | 316 to 1982 | 3.0 | 1.7 |
| | 3600 to 4200 | 1982 to 2316 | 3.5 | 2.0 |
| W ₅ W ₂₆ (low) T/C* | 0 to 2240 | -18 to 1227 | 2.5 | 1.4 |

*W₅W₂₆ is also known as type "C" Thermocouple.

** Type K thermocouple (mid-range) has a working range from 75 to 1800 °F, 25 to 982 °C. Input measurements below 75°F or 25°C may cause the input to default to the programmed failsafe value. Use type K low or full ranges if measurements are required outside the mid- working range.

| RTD | °F | °C | °F | °C |
|-----------------------|---|-------------|--|------|
| Platinel | -94 to 1382 | -70 to 750 | 3.0 | 1.7 |
| Platinel (low) | 32 to 2516 | 0 to 1380 | 1.5 | 0.8 |
| 100 Pt. (high) RTD*** | -300 to 1500 | -184 to 816 | 1.8 | 1.0 |
| 100 Pt. (mid) RTD*** | -300 to 1200 | -184 to 649 | 1.4 | 0.8 |
| 100 Pt. (low) RTD*** | -300 to 600 | -184 to 316 | 0.9 | 0.5 |
| 500 Pt. RTD*** | -300 to 1200 | -184 to 649 | 0.9 | 0.5 |
| 1000 Pt RTD***** | -40 to 500 | -40 to 260 | 0.8 | 0.4 |
| 100 JIS | -328 to 932 | -200 to 500 | 1.3 | 0.7 |
| 100 JIS (low) | 0 to 212 | -18 to 100 | 0.5 | 0.3 |
| Cu10 | -4 to 482 | -20 to 250 | 2.0 | 1.0 |
| YSI405 | 50 to 100 | 10 to 37.8 | 0.05 | 0.03 |
| Input Type | Range | | Reference Accuracy | |
| Ohms, 200 | 0 to 200 | | +/- 0.4 ohms | |
| Ohms, 500 | 0 to 500 | | +/- 1.0 ohms | |
| Ohms, 1000 | 0 to 1000 | | +/- 2.0 ohms | |
| Ohms, 2000 | 0 to 2000 | | +/- 4.0 ohms | |
| Ohms, 4000 | 0 to 4000 | | +/- 8.0 ohms | |
| Milliamperes | 4 to 20 mAdc 0 to 20 mAdc | | ± 0.2% F.S. (mA)**** ± 0.2% F.S. (mA)**** | |
| Millivolts | 0 to 10 mVDC 0 to 50 mVDC 0 to 100 mVDC -10 to 10 mVDC -50 to 50 mVDC -100 to 100 mVDC -500 to 500 mVDC | | ± 0.17% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.2% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) | |
| Volts | 1 to 5 VDC 0 to 1 VDC 0 to 2 VDC 0 to 5 VDC 0 to 10 VDC -1 to 1 VDC -2 to 2 VDC -5 to 5 VDC -10 to 10 VDC | | ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.2% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.1% F.S. (mV) ± 0.2% F.S. (mV) | |
| Slidewire | ≤ 250 ohms 250 to 1250 ohms 1250 to 4000 ohms 4000 to 6500 ohms | | | |
| Carbon | 0 to 1250 mVDC | | ± 0.1% F.S. (mV) | |
| Oxygen | -30 to 510 mVDC | | ± 0.1% F.S. (mV) | |

*** Conforms to IEC751

**** Tolerances for these input types include that of the external Dropping Resistors.

***** 0.00375 Ohm/Ohm/ DegC

Calibration standards are based on ITS-90; except Ni-NiMo is based on IPTS-68.

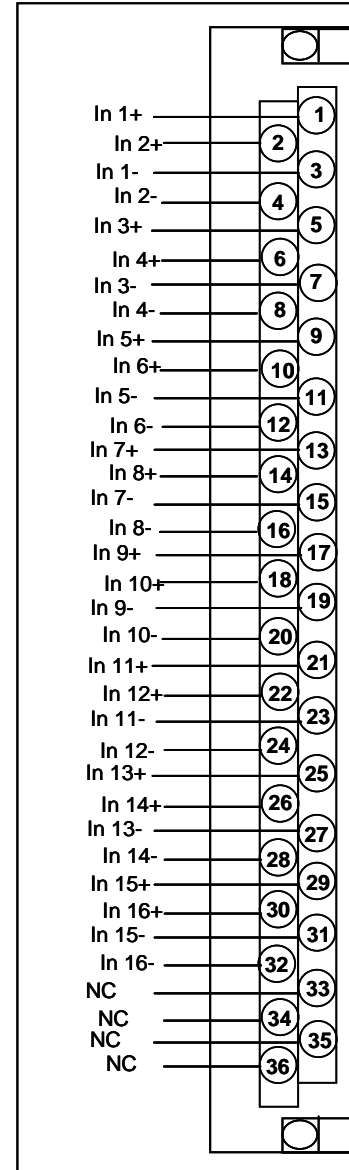
High Level Analog Input Module (900A16-xxxx)

The High-Level Analog Input module supports up to 16 user-configurable inputs on a per point basis for Voltage or current. Point-to-point isolation and back-plane isolation are provided. Modules perform analog to digital conversion in synchronization with CPU control execution, eliminating data interchange latency. All analog input modules are processed in parallel, eliminating scan time increases as modules are added.

A green blinking status LED on the module indicates when the module is being scanned. An amber blinking status LED when input channels are forced and a red status LED when module diagnostics exist. A user-selectable failsafe value is supported on a per channel basis.

The module supports field calibration. Each of the inputs has its own integrated 250-ohm shunt resistor which is activated through DIP switches.

Requires Euro style 36-terminal terminal block.



| Table 3 – High Level Analog Input Specifications | |
|--|---|
| Inputs per module | 16 (isolated) |
| Input types | V, mA |
| Signal Source | See Table 4 on next page for range types. |
| Input Impedance | >1 megohm for volts and 250 ohms for mA inputs |
| Galvanic Input Isolation | 400 VDC point to point, solid state switching; 1K VDC to logic. |
| Noise Rejection | Series Mode >31dB Common Mode >90dB at 120VAC |
| Over-range limit | +/- 10% for linear ranges (volts). |