I/A Series® HARDWARE
Product Specifications

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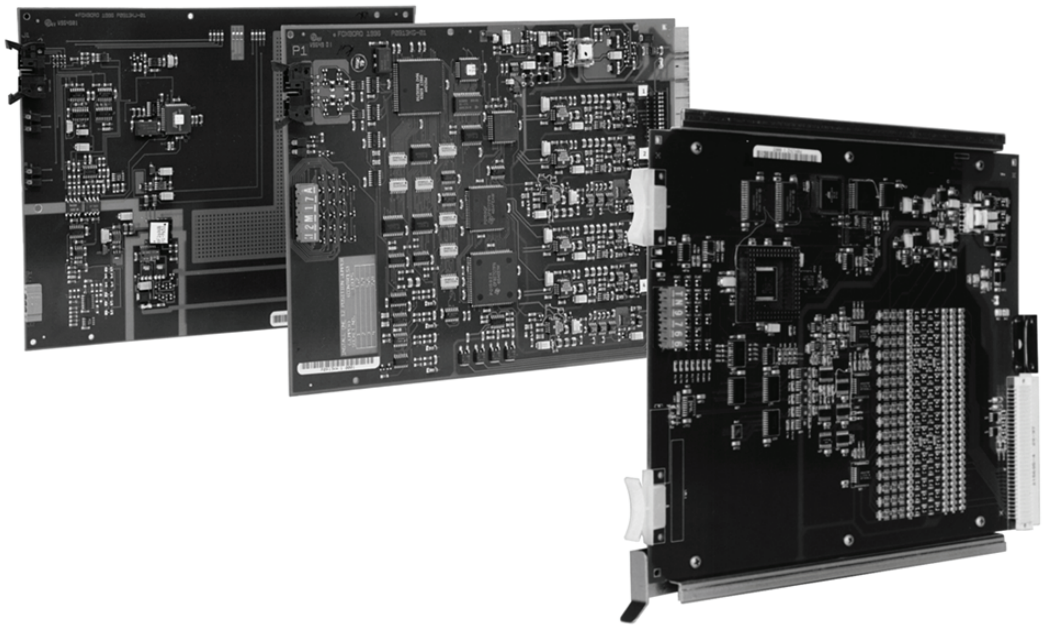
PSS 21H-3A1 B3

DCS Fieldbus Module for Migration of Honeywell Systems



I/A Series® distributed control system (DCS) Fieldbus Modules allow migration from Honeywell TDC 2000 and TDC 3000 process I/O components to an I/A Series process control system.

FEATURES

Key features of the I/A Series system DCS FBMs are:

- DCS FBMs plug directly into TDC 2000 and TDC 3000 control I/O nests
- Migration from proprietary DCS to a state-of-the-art open I/A Series system
- Advanced I/A Series control with single point of configuration
- More direct control performance than any gateway device can offer
- Single vendor service and supply.

OVERVIEW

The I/A Series system DCS FBM family provides a migration path from Honeywell process input and output (I/O) components to I/A Series display, control, and supervisory functions. This can save the significant cost of total system replacement by preserving existing process interface and wiring, and reducing installation effort, engineering, and process down time.

No additional communication devices or multi-vendor communication software licensing is required.

The I/A Series system DCS FBM family replaces all Honeywell I/O devices. Once integrated, the process is controlled entirely by the advanced I/A Series algorithm set. Honeywell DCS control devices are disconnected upon migration, so there is no undesirable interaction caused by the decommissioned system.

The I/A Series system DCS FBM product includes appropriate connectors to enable integration of original process signals to the I/A Series system while keeping the existing field interface and wiring. It provides access to all process signals connected to the Honeywell system by providing the connection between the field terminations and the I/A Series system. All process signals become fully integrated into the I/A Series system.

Operator functions and engineering configuration are accomplished by the I/A Series system at any I/A Series workstation. Because all process values become part of the I/A Series system, all configuration data is maintained by the system as native I/A Series configurations.

This migration path provides plant operations with all the power and flexibility of the I/A Series system. All process values can be used plant wide for control, display, history, alarming, and information management from a single vendor source.

FUNDAMENTAL PRINCIPLE

Foxboro believes that it is only acceptable to interface with competing manufacturers' operating systems in two ways:

- through high level public gateways
- at the lowest level, directly to field devices, without communicating with proprietary buses or components.

The Foxboro migration product offerings adhere to this principle.

PRODUCT DESCRIPTIONS

The Honeywell migration consists of new I/A Series system DCS FBMs and new Fieldbus Isolators. This allows migration to I/A Series control, display and application products while retaining original termination panels and field I/O wiring. All the original process I/O capability of the Honeywell control functions is replaced by direct I/A Series control processor scanning and control.

New I/A Series system DCS FBMs plug directly into existing Honeywell card files (nests) in place of Honeywell I/O cards. These pass process measurement and output signals to and from an I/A Series control processor (CP). The CP provides control in place of the Honeywell Controllers.

Fieldbus Isolators (H3SFBI and H2SFBI)

I/A Series remote Fieldbus communications signals must be isolated and repeated to a local Fieldbus media for use with the DCS FBMs. The Fieldbus Isolator (H3SFBI and H2SFBI) is a special form factor of the standard I/A Series Fieldbus Isolator. The H3SFBI unit mounts in the original TDC 3000 Process Manager nest along with the I/A Series system DCS FBMs. The H2SFBI unit mounts in the CCFA nests of the TDC 2000, Basic, Extended Multifunction, High and Low Level PIUs, and Low Energy PIU.

Local Fieldbus connections are accomplished using existing backplane wiring or quick disconnect connectors on each unit. The remote Fieldbus connects using an appropriate quick disconnect terminal block on each unit. This allows the remote Fieldbus to be disconnected for servicing while maintaining remote Fieldbus continuity.

Honeywell TDC 3000 System Migration

Migration to I/A Series control is effected by replacing Process Manager (PM) and Advanced Process Manager (APM) modules and I/O Processor (IOP) cards in the Honeywell TDC 3000 system with I/A Series Fieldbus Isolators (H3SFBI) and DCS Fieldbus Modules. The DCS FBMs replace I/O Processor (IOP) card types as shown in the following table:

Model	Replaces	Description
H3M01	HLAI	1 to 5 V dc Input (16)
H3M02A	LLMUXAI	TC/mV Input (32)
H3M03	LLAI	TC/mV/RTD Input (8)
H3M06	PI	Pulse Input (8)
H3M07	DI DISOE	Logic Level Input (32) Sequence of Events (32)
H3M09	DO	Logic Level Output (16)
H3M37	AO	4 to 20 mA Output (8)
Choose one of the following to replace the functionality of the Serial Device Interface: FBM230 or FBM231.	SDI	Serial Device Interface

The Honeywell maximum is 40 IOP modules per PM/APM. These can be supported directly by FBM replacement and can be expanded to 64 FBMs per I/A Series system CP, or 128 FBMs for the Z-Module Control Processor 270. (See “Process I/O Capacity” on page 8).

There can be up to 40 Migration DCS FBMs located behind an H3SFIBI or a redundant pair of H3SFBIs.

Honeywell TDC 2000 System Migration

I/A Series system DCS FBMs are used in conjunction with the following Honeywell TDC 2000 equipment:

- Basic Controller
- Extended Controller
- Multifunction Controller
- High Level Process Interface Unit
- Low Level Process Interface Unit
- Low Energy Process Interface Unit.

Honeywell Basic Controller (BC)

The BC is structured to support up to eight interactive analog process control loops in the Common Card File Assembly (CCFA). Inputs and outputs are directed to the CCFA from the I/O termination panel.

The I/O termination panel, CCFA (logic nest), rack, and power system are reused. All I/O wiring remains connected to the I/O termination panel. The CCFA processor cards are removed and replaced by up to four H2M17 DCS FBMs, a pair of redundant Fieldbus Isolators (H2SFBI), and connect directly to the original rack 24 V dc power bus similar to the original CCFA power bus connection.

Migration is accomplished using the BC Migration Kit (P0913RY). This kit replaces the logic cards in the card file assembly. Up to four H2M17 FBMs provide support for up to eight control loops.

Honeywell Extended Controller (EC)

The EC is structured to support up to eight interactive analog process control loops and up to 16 digital inputs in the CCFA. Inputs and outputs are directed to the CCFA from an I/O termination panel and a digital input termination panel.

The termination panels, CCFA (logic nest), rack and power system are reused. All I/O wiring remains connected to the termination panels. The CCFA processor cards are removed and replaced by up to four H2M17 DCS FBMs, one H2M07E, a pair of redundant Fieldbus Isolators (H2SFBI) and connect directly to the original rack 24 V dc power bus similar to the original CCFA power bus connection.

Migration is accomplished using the EC Migration Kit (P0913RZ). This kit replaces the logic cards in the card file assembly. Up to four H2M17 FBMs provide support for up to eight control loops.

Honeywell Multifunction Controller (MFC)

The MFC is structured to support up to eight interactive process control loops and two point card files each with up to eight point cards to control continuous and discontinuous processes. The MFC performs four main control functions:

- Sequence control
- modulating control
- logic control
- I/O monitoring.

Inputs and outputs are directed to the CCFA from an I/O termination panel and to the point card file assemblies from two separate point card termination panels.

The termination panels, CCFA (logic nest), rack and power system are reused. All I/O wiring remains connected to the termination panels. The CCFA processor cards are removed and replaced by up to four H2M17 DCS FBMs, a pair of redundant Fieldbus Isolators (H2SFBI) and connect directly to the original rack 24 V dc power bus similar to the original CCFA power bus connection.

The Point Card File assemblies and Point Card termination panels remain in place. All associated I/O point cards are removed and replaced with DCS FBMs. The Fieldbus Isolators (H2SFBI) are connected to the point card files through the original I/O bus cables and point card file backplanes.

Migration is accomplished using the MFC Migration Kit (P0913SA). This kit replaces the logic cards in the card file assembly. All of the point card file assembly I/O cards are removed and replaced by I/A Series system DCS FBMs. The following are optional DCS FBM selections for MFC (16 max. per MFC, any combination):

Model	Replaces	Description
H2M01A	PXIA11,12,41,42	8AI (1 to 5 V, 0 to 5 V, ±5 V)
H2M01B	PXIA21,22	8AI (4 to 20 mA)
H2M01C	PXIA31,32	8AI (4 to 20 mA) plus Transmitter Power
H2M04	PXOA21	4AO (4 to 20 mA)
H2M06	PXIP11,21	4PI
H2M06A	PXIP31	4PI (125 V dc)
H2M07	PXID51	16DI TTL
H2M09	PXOD21,41	8DO (SS)
H2M24	PXID11,21,31,41	16DI (125 V)
H2M26	PXOD11,31	8DO (125 V)

Low Energy Process Interface Unit (LEPIU)

The LEPIU provides termination and processing for high level and low level analog inputs for process data acquisition in remote locations. The LEPIU is modular in construction, consisting of a CCFA and up to 16 multiplexer (MUX) boxes. Each MUX box provides termination for up to 16 inputs. Two types of MUX boxes are available Basic (TC/Volts) and RTD. The MUX box is a NEMA 4 enclosure.

The CCFA processor cards are removed and replaced with a pair of redundant Fieldbus Isolators (H2SFBI) and a Fieldbus Extender card (H2FBE1) to interconnect the Fieldbus Isolators to the original MUX box field communication wiring. The original MUX box field communication wiring is reused to connect the isolated fieldbus to each of the MUX boxes. The MUX box termination assembly and connected field input wiring stays in place.

Migration is accomplished using the LEPIU Migration Kit (P0915XQ). This kit replaces the logic cards in the CCFA.

I/A Series system DCS FBMs replace the relay multiplexer card in the MUX box. The following are optional MUX Box Migration Kit selections for the Basic (TC/Volts) and RTD MUX boxes:

Migration Kit	Replaces MUX Card	Description
P0915XR	Basic (TC/Volts)	Basic MUX Migration Kit with two H2M02E Modules
P0915XS	RTD	RDT MUX Migration Kit with two H2M03 Modules

High Level Process Interface Unit (HLPIU)

The HLPIU interfaces high level analog and digital inputs, and analog and digital outputs. Inputs and outputs are connected to the HLPIU from I/O termination panels that are hard wired to each of the four point card file assemblies. The point card file assemblies and termination panels, rack, and power system are reused. All I/O wiring remains connected to the termination panels. The CCFA stays in place, however, all associated processor cards are removed and replaced by a pair of redundant Foxboro Fieldbus Isolators. The Fieldbus Isolators (H2SFBI) are connected to the point card files through the original I/O bus cables and point card file backplanes. All of the point card assembly I/O cards are removed and replaced by I/A Series system DCS FBMs.

Migration is accomplished using the HLPIU Migration Kit (P0913SB). This kit replaces the logic cards in the card file assembly. I/A Series system DCS FBMs replace HLPIU point cards. The following are optional DCS FBM selections for HLPIU (32 max. per HLPIU, any combination):

Model	Replaces	Description
H2M01A	PXIA11,12,41,42	8AI (1 to 5 V, 0 to 5 V, ±5 V)
H2M01B	PXIA21,22	8AI (4 to 20 mA)
H2M01C	PXIA31,32	8AI (4 to 20 mA) plus Transmitter Power
H2M04	PXOA21	4AO (4 to 20 mA)
H2M06	PXIP11,21	4PI
H2M06A	PXIP31	4PI (125 V dc)
H2M07	PXID51	16DI TTL
H2M09	PXOD21,41	8DO (SS)
H2M24	PXID11,21,31,41, 61,62	16DI (125 V)
H2M26	PXOD11,31	8DO (125 V)

Low Level Process Interface Unit (LLPIU)

The LLPIU interfaces low level analog inputs. Inputs are connected to the LLPIU from I/O termination panels that are hard wired to each of the four point card file assemblies. The point card file assemblies and termination panels, rack, and power system are reused. All I/O wiring remains connected to the termination panels. The CCFA stays in place, however, all associated processor cards are removed and replaced by a pair of redundant Foxboro Fieldbus Isolators. The Fieldbus Isolators (H2SFBI) are connected to the point card files through the original I/O bus cables and point card file backplanes. All of the point card assembly I/O cards are removed and replaced by I/A Series system DCS FBMs.

Migration is accomplished using the LLPIU Migration Kit (P0913SC). This kit replaces the logic cards in the card file assembly. The following I/A Series system DCS FBM module types replace the LLPIU cards (32 max. per LLPIU, any combination):

Model	Replaces	Description
H2M02	PXIA81	8AI (TC, mV)

PXIA91(Analog Input FBMs) may be installed with various signal level combinations and are implemented in groups of four channels.

Model	Channel 1-4	Channel 5-8	Description
H2C02A	PXSC11	PXSV11	4 (4 to 20 mA) 4 (0 to 5 V dc)
H2C02B	PXSC11	PXSV21	4 (4 to 20 mA) 4 (0 to 40 V dc)
H2C02D	PXSC11	PXSC21	4 (4 to 20 mA) 4 (0 to 1 mA)
H2C02E	PXSC11	PXSC32	4 (4 to 20 mA) 4 (0 to 10 mA)
H2C02F	PXSC11	PXSD11	4 (4 to 20 mA) 4 (TC, mV)
H2C02G	PXSC11	38000032	4 (4 to 20 mA) 4 (0 to 1 V dc)
H2C02H	PXSC11	PXSR11,21,31	4 (4 to 20 mA) 4 (RTD)
H2C02J	PXSC21	PXSV11	4 (0 to 1 mA) 4 (0 to 5 V dc)
H2C02K	PXSC21	PXSV21	4 (0 to 1 mA) 4 (0 to 40 V dc)
H2C02L	PXSC21	PXSC11	4 (0 to 1 mA) 4 (4 to 20 mA)
H2C02M	PXSC21	PXSC21	8 (0 to 1 mA)
H2C02N	PXSC21	PXSC32	4 (0 to 1 mA) 4 (0 to 10 mA)
H2C02P	PXSC21	PXSD11	4 (0 to 1 mA) 4 (TC, mV)
H2C02Q	PXSC21	38000032	4 (0 to 1 mA) 4 (0 to 1 V dc)
H2C02R	PXSC21	PXSR11,21,31	4 (0 to 1 mA) 4 (RTD)
H2C02S	PXSC32	PXSV11	4 (0 to 10 mA) 4 (0 to 5 V dc)
H2C02T	PXSC32	PXSV21	4 (0 to 10 mA) 4 (0 to 40 V dc)
H2C02U	PXSC32	PXSC11	4 (0 to 10 mA) 4 (4 to 20 mA)
H2C02V	PXSC32	PXSC21	4 (0 to 10 mA) 4 (0 to 1 mA)
H2C02W	PXSC32	PXSC32	8 (0 to 10 mA)
H2C02X	PXSC32	PXSD11	4 (0 to 10 mA) 4 (TC, mV)
H2C02Y	PXSC32	38000032	4 (0 to 10 mA) 4 (0 to 1 V dc)
H2C02Z	PXSC32	PXSR11,21,31	4 (0 to 10 mA) 4 (RTD)
H2D02A	PXSD11	PXSV11	4 (TC, mV) 4 (0 to 5 V dc)
H2D02B	PXSD11	PXSV21	4 (TC, mV) 4 (0 to 40 V dc)
H2D02C	PXSD11	PXSC11	4 (TC, mV) 4 (4 to 20 mA)
H2D02D	PXSD11	PXSC21	4 (TC, mV) 4 (0 to 1 mA)
H2D02E	PXSD11	PXSC32	4 (TC, mV) 4 (0 to 10 mA)
H2D02G	PXSD11	38000032	4 (TC, mV) 4 (0 to 1 V dc)
H2D02H	PXSD11	PXSR11,21,31	4 (TC, mV) 4 (RTD)
H2J02A	PXSJ11	PXSV11	4 (TC Reference) 4 (0 to 5 V dc)
H2J02B	PXSJ11	PXSV21	4 (TC Reference) 4 (0 to 40 V dc)
H2J02C	PXSJ11	PXSC11	4 (TC Reference) 4 (4 to 20 mA)
H2J02D	PXSJ11	PXSC21	4 (TC Reference 4 (0 to 1 mA)

Model	Channel 1-4	Channel 5-8	Description
H2J02E	PXSJ11	PXSC32	4 (TC Reference) 4 (0 to 10 mA)
H2J02F	PXSJ11	PXSD11	4 (TC Reference) 4 (TC, mV)
H2J02G	PXSJ11	38000032	4 (TC Reference 4 (0 to 1 V dc)
H2J02H	PXSJ11	PXSR11,21,31	4 (TC Reference) 4 (RTD)
H2M01D	PXSC11	PXSC11	8 (4 to 20 mA)
H2M02	PXSD11	PXSD11	8 (TC, mV)
H2M02B	PXSV21	PXSV21	8 (0 to 40 V dc)
H2M03	PXSR11	PXSR11,21,31	8 (RTD)
H2M03A	PXSR11,21,31	PXSV11	4 (RTD) 4 (0 to 5 V dc)
H2M03B	PXSR11,21,31	PXSV21	4 (RTD) 4 (0 to 40 V dc)
H2M03C	PXSR11,21,31	PXSC11	4 (RTD) 4 (4 to 20 mA)
H2M03D	PXSR11,21,31	PXSC21	4 (RTD) 4 (0 to 1 mA)
H2M03E	PXSR11,21,31	PXSC32	4 (RTD) 4 (0 to 10 mA)
H2M03F	PXSR11,21,31	PXSD11	4 (RTD) 4 (TC, mV)
H2M03G	PXSR11,21,31	38000032	4 (RTD) 4 (0 to 1 V dc)
H2V02B	PXSV11	PXSV21	4 (0 to 5 V dc) 4 (0 to 40 V dc)
H2V02C	PXSV11	PXSC11	4 (0 to 5 V dc) 4 (4 to 20 mA)
H2V02D	PXSV11	PXSC21	4 (0 to 5 V dc) 4 (0 to 1 mA)
H2V02E	PXSV11	PXSC32	4 (0 to 5 V dc) 4 (0 to 10 mA)
H2V02F	PXSV11	PXSD11	4 (0 to 5 V dc) 4 (TC, mV)
H2V02G	PXSV11	38000032	4 (0 to 5 V dc) 4 (0 to 1 V dc)

Model	Channel 1-4	Channel 5-8	Description
H2V02H	PXSV11	PXSR11,21,31	4 (0 to 5 V dc) 4 (RTD)
H2V02J	PXSV21	PXSV11	4 (0 to 40 V dc) 4 (0 to 5 V dc)
H2V02L	PXSV21	PXSC11	4 (0 to 40 V dc) 4 (4 to 20 mA)
H2V02M	PXSV21	PXSC21	4 (0 to 40 V dc) 4 (0 to 1 mA)
H2V02N	PXSV21	PXSC32	4 (0 to 40 V dc) 4 (0 to 10 mA)
H2V02P	PXSV21	PXSD11	4 (0 to 40 V dc) 4 (TC, mV)
H2V02Q	PXSV21	38000032	4 (0 to 40 V dc) 4 (0 to 1 V dc)
H2V02R	PXSV21	PXSR11,21,31	4 (0 to 40 V dc) 4 (RTD)
H2X02A	38000032	PXSV11	4 (0 to 1 V dc) 4 (0 to 5 V dc)
H2X02B	38000032	PXSV21	4 (0 to 1 V dc) 4 (0 to 40 V dc)
H2X02C	38000032	PXSC11	4 (0 to 1 V dc) 4 (4 to 20 mA)
H2X02D	38000032	PXSC21	4 (0 to 1 V dc) 4 (0 to 1 mA)
H2X02E	38000032	PXSC32	4 (0 to 1 V dc) 4 (0 to 10 mA)
H2X02F	38000032	PXSD11	4 (0 to 1 V dc) 4 (TC, mV
H2X02G	38000032	38000032	8 (0 to 1 V dc)
H2X02H	38000032	PXSR11,21,31	4 (0 to 1 V dc) 4 (RTD)

FUNCTIONAL SPECIFICATIONS – COMMON TO ALL DCS FBMs

Calibration Requirements

Calibration of the DCS Fieldbus Modules is not required.

Communication

Redundant IEEE P1118 Fieldbus

Process I/O Capacity

CONTROL PROCESSOR 60 (CP60)
120 DCS FBMs maximum (depending on scan periods). Up to 40 Migration DCS FBMs behind H3SFBI or a redundant pair of H3SFBIs.

FIELD CONTROL PROCESSOR 270 (FCP270)
64 DCS FBMs maximum (depending on scan periods). Up to 40 Migration DCS FBMs behind H3SFBI or a redundant pair of H3SFBIs.

Z-MODULE CONTROL PROCESSOR 270 (ZCP270) WITH FCM100E
128 DCS FBMs maximum (depending on scan periods).Up to 40 Migration DCS FBMs behind H3SFBI or a redundant pair of H3SFBIs.

H2C02 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE RANGE
22.5 to 30 V dc

CONSUMPTION
7.0 W

HEAT DISSIPATION
7.0 W

Input Channel

SIGNAL AND RATED MEAN ACCURACY
Each multiple range input channel individually jumper selectable. See following tables (on the next page).

RESOLUTION
12 to 15 bits, programmable

ISOLATION
600 V ac between any channel and earth (ground), or between channels.

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

H2C02 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS (CONTINUED)

Model	Signal	
	Channel 1-4	Channel 5-8
H2C02A	4 to 20.4 mA	0 to 5 V dc or ±5 V dc
H2C02B	4 to 20.4 mA	0 to 40 V dc or ±40 V dc
H2C02D	4 to 20.4 mA	0 to 1 mA
H2C02E	4 to 20.4 mA	0 to 10 mA
H2C02F	4 to 20.4 mA	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc
H2C02G	4 to 20.4 mA	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt
H2C02H	4 to 20.4 mA	0 to 1 V dc or ±1 V dc
H2C02J	0 to 1 mA	0 to 5 V dc or ±5 V dc
H2C02K	0 to 1 mA	0 to 40 V dc or ±40 V dc
H2C02L	0 to 1 mA	4 to 20.4 mA
H2C02M	0 to 1 mA	0 to 1 mA
H2C02N	0 to 1 mA	0 to 10 mA
H2C02P	0 to 1 mA	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc
H2C02Q	0 to 1 mA	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt
H2C02R	0 to 1 mA	0 to 1 V dc or ±1 V dc
H2C02S	0 to 10 mA	0 to 5 V dc or ± 5 V dc
H2C02T	0 to 10 mA	0 to 40 V dc or ± 40 V dc
H2C02U	0 to 10 mA	4 to 20.4 mA
H2C02V	0 to 10 mA	0 to 1 mA
H2C02W	0 to 10 mA	0 to 10 mA
H2C02X	0 to 10 mA	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc
H2C02Y	0 to 10 mA	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt
H2C02Z	0 to 10 mA	0 to 1 V dc or ±1 V dc

Model	Rated Mean Accuracy	
	Channel 1-4	Channel 5-8
H2C02A	±0.05% of span	±0.05% of span
H2C02B	±0.05% of span	±0.05% of span
H2C02D	±0.05% of span	±0.05% of span
H2C02E	±0.05% of span	±0.05% of span
H2C02F	±0.05% of span	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)
H2C02G	±0.05% of span	±0.025% of span (±0.08 Ω)
H2C02H	±0.05% of span	±0.05% of span
H2C02J	±0.05% of span	±0.05% of span
H2C02K	±0.05% of span	±0.05% of span
H2C02L	±0.05% of span	±0.05% of span
H2C02M	±0.05% of span	±0.05% of span
H2C02N	±0.05% of span	±0.05% of span
H2C02P	±0.05% of span	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)
H2C02Q	±0.05% of span	±0.025% of span (±0.08 Ω)
H2C02R	±0.05% of span	±0.05% of span
H2C02S	±0.05% of span	±0.05% of span
H2C02T	±0.05% of span	±0.05% of span
H2C02U	±0.05% of span	±0.05% of span
H2C02V	±0.05% of span	±0.05% of span
H2C02W	±0.05% of span	±0.05% of span
H2C02X	±0.05% of span	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)
H2C02Y	±0.05% of span	±0.025% of span (±0.08 Ω)
H2C02Z	±0.05% of span	±0.05% of span

H2D02 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
7.0 W

HEAT DISSIPATION
7.0 W

Input Channel

SIGNAL AND RATED MEAN ACCURACY
See following tables.

RESOLUTION
12 to 15 bits, programmable

Input Channel (Continued)

ISOLATION
600 V ac between any channel and earth (ground), or between channels.

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

Model	Signal	
	Channel 1-4	Channel 5-8
H2D02A	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc	0 to 5 V dc or ±5 V dc
H2D02B	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc	0 to 40 V dc or ±40 V dc
H2D02C	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc	4 to 20.4 mA
H2D02D	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc	0 to 1 mA
H2D02E	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc	0 to 10 mA
H2D02G	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 V dc	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt
H2D02H	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc	0 to 1 V dc or ±1 V dc

Model	Rated Mean Accuracy	
	Channel 1-4	Channel 5-8
H2D02A	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)	±0.05% of span
H2D02B	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)	±0.05% of span
H2D02C	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)	±0.05% of span
H2D02D	±0.035% of span (0.5% or 0 to 100 mV and ±100 mV)	±0.05% of span
H2D02E	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV	±0.05% of span
H2D02G	±0.035% of span (0.5% or 0 to 100 mV and ±100 mV)	±0.025% of span (±0.08 Ω)
H2D02H	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)	±0.05% of span

H2J02 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
7.0 W

HEAT DISSIPATION
7.0 W

Input Channel

SIGNAL AND RATED MEAN ACCURACY
See information below.

RESOLUTION
12 to 15 bits, programmable

Input Channel (Continued)

ISOLATION
600 V ac between any channel and earth (ground), or between channels.

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

Model	Signal	
	Channel 1-4	Channel 5-8
H2J02A	Reference RTD for TC cold junction compensation	0 to 5 V dc or ±5 V dc
H2J02B	Reference RTD for TC cold junction compensation	0 to 40 V dc or ±40 V dc
H2J02C	Reference RTD for TC cold junction compensation	4 to 20.4 mA
H2J02D	Reference RTD for TC cold junction compensation	0 to 1 mA
H2J02E	Reference RTD for TC cold junction compensation	0 to 10 mA
H2J02F	Reference RTD for TC cold junction compensation	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc
H2J02G	Reference RTD for TC cold junction compensation	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt
H2J02H	Reference RTD for TC cold junction compensation	0 to 1 V dc or ±1 V dc

Model	Rated Mean Accuracy	
	Channel 1-4	Channel 5-8
H2J02A	±0.025% of span (±0.08 Ω)	±0.05% of span
H2J02B	±0.025% of span (±0.08 Ω)	±0.05% of span
H2J02C	±0.025% of span (±0.08 Ω)	±0.05% of span
H2J02D	±0.025% of span (±0.08 Ω)	±0.05% of span
H2J02E	±0.025% of span (±0.08 Ω)	±0.05% of span
H2J02F	±0.025% of span (±0.08 Ω)	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)
H2J02G	±0.025% of span (±0.08 Ω)	±0.025% of span (±0.08 Ω)
H2D02H	±0.025% of span (±0.08 Ω)	±0.05% of span

H2M01A,B,C,D (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
6.5 W

HEAT DISSIPATION
6.5 W

Input Channel (8 Channels)

H2M01A
0 to 5 V dc, 1 to 5 V dc, or ±5 V (jumper selectable per channel)

Input Channel (8 Channels) (Continued)

H2M01B
4 to 20.4 mA

H2M01C
4 to 20.4 mA (Powered)

H2M01D
4 to 20.4 mA (individually isolated channels)

RATED MEAN ACCURACY
±0.05% of span

RESOLUTION
12 to 15 bits, programmable

H2M02,B,E (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
7.0 W

HEAT DISSIPATION
7.0 W

Input Channel (8 Channels)

H2M02
-10.5 to 71.419 mV dc, 0 to 100 mV dc, or ±100 mV dc

H2M02B
0 to 40 V dc or ±40 V dc

H2M02E
-10.5 to 71.419 mV dc or 1 to 5 V dc

RATED MEAN ACCURACY

H2M02
±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)

Input Channel (8 Channels) (Continued)

RATED MEAN ACCURACY (CONTINUED)

H2M02B
±0.05% of span

H2M02E
±0.035% of span (0.5% for 1 to 5 V dc)

RESOLUTION
12 to 15 bits programmable

ISOLATION
600 V ac between any channel and earth (ground), or between channels.

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

H2M03 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
8.0 W

HEAT DISSIPATION
8.0 W

Input Channel

SIGNAL AND RATED MEAN ACCURACY
See following tables.

RESOLUTION
12 to 15 bits, programmable

Input Channel (Continued)

ISOLATION
600 V ac between any channel and earth (ground), or between channels.

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

Model	Signal	
	Channel 1-4	Channel 5-8
H2M03	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	0 to 320 Ω Pt, 0 to 30 Ω Cu, 120 Ω Ni,
H2M03A	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	0 to 5 V dc or ±5 V dc
H2M03B	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	0 to 40 V dc or ±40 V dc
H2M03C	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	4 to 20.4 mA
H2M03D	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	0 to 1 mA
H2M03E	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	0 to 10 mA
H2M03F	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	-10.5 to 71.419 mV dc or 0 to 100 mV dc or ±100 mV dc
H2M03G	0 to 30 Ω Cu, 120 Ω Ni, 0 to 320 Ω Pt	0 to 1 V dc or ±1 V dc

Model	Rated Mean Accuracy	
	Channel 1-4	Channel 5-8
H2M03	±0.025% of span (±0.08 Ω)	±0.025% of span (±0.08 Ω)
H2M03A	±0.025% of span (±0.08 Ω)	±0.05% of span
H2M03B	±0.025% of span (±0.08 Ω)	±0.05% of span
H2M03C	±0.025% of span (±0.08 Ω)	±0.05% of span
H2M03D	±0.025% of span (±0.08 Ω)	±0.05% of span
H2M03E	±0.025% of span (±0.08 Ω)	±0.05% of span
H2M03F	±0.025% of span (±0.08 Ω)	±0.035% of span (0.5% for 0 to 100 mV and ±100 mV)
H2M03G	±0.025% of span (±0.08 Ω)	±0.05% of span

H2M04 (ANALOG OUTPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
6.5 W

HEAT DISSIPATION
5.2 W

Output Channel (4 Channels)
0 to 20.4 mA dc

RATED MEAN ACCURACY
±0.05% of span

Output Channel (4 Channels) (Continued)

LINEARITY ERROR
±0.025% (monotonic)

RESOLUTION
12 bits

OUTPUT LOAD (MAXIMUM)
750 Ω

COMPLIANCE VOLTAGE
18 V dc nominal at 20 mA at I/O field terminals

SETTLING TIME
100 ms to settle within a 1% band of steady state for a 10 to 90% output step change

H2M06, H2M06A (PULSE INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
4.5 W

HEAT DISSIPATION
4.5 W

Input Channel (4 Channels)
Contact Input

CONTACT RANGE
Open (off) and Closed (on)

OPEN CIRCUIT VOLTAGE
H2M06
24 V dc or 48 V dc (externally supplied)
H2M06A
125 V dc (externally supplied)

SHORT CIRCUIT CURRENT
H2M06
4.5/9 mA (24/48 V dc)
H2M06A
15 mA (125 V dc)

ON-STATE RESISTANCE
1 kΩ (maximum)

Input Channel (4 Channels) (Continued)

OFF-STATE RESISTANCE
100 kΩ (minimum)

ISOLATION [INPUT TO EARTH (GROUND)]
H2M06
500 V ac
H2M06A
600 V ac

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc (for H2M06) or 125 V dc (for H2M06A) violates electrical safety code requirements and may expose users to electrical shock.

COUNTER RANGE
H2M06
0 to 12.5 K counts per second
H2M06A
0 to 12.5 K counts per second

H2M07 (DIGITAL INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
2.5 W

HEAT DISSIPATION
2.5 W

Input Channel (16 Channels)

Contact Input

CONTACT RANGE
Open (off) and Closed (on)

OPEN CIRCUIT VOLTAGE
5 V dc (jumper select input source or power bus)

SHORT CIRCUIT CURRENT
2.5 mA

ON-STATE RESISTANCE
1 kΩ (maximum)

Input Channel (16 Channels) (Continued)

OFF-STATE RESISTANCE
100 kΩ (minimum)

FILTER TIME
Configurable (4, 8, 16, or 32 ms)

ISOLATION
600 V ac inputs to earth (ground)

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

H2M07E (DIGITAL INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirement

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
2.5 W

HEAT DISSIPATION
2.5 W

Input Channel (16 Channels)

Contact Input

CONTACT RANGE
Open (off) and Closed (on)

OPEN CIRCUIT VOLTAGE
24 V dc (supplied at termination panel)

SHORT CIRCUIT CURRENT
2.5 mA

ON-STATE RESISTANCE
1 kΩ (maximum)

Input Channel (16 Channels) (Continued)

OFF-STATE RESISTANCE
100 kΩ (minimum)

FILTER TIME
Configurable (4, 8, 16, or 32 ms)

ISOLATION
Input to earth (ground), 500 V ac

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

H2M09 (DIGITAL OUTPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
4.0 W

HEAT DISSIPATION
4.0 W

Output Channel (8 Channels)
Contact output, solid state switch

APPLIED VOLTAGE
60 V dc (maximum)

LOAD CURRENT
145 mA (maximum)

OFF-STATE LEAKAGE CURRENT
0.1 mA

H2M17 (AI/AO/DO) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
5.75 W

HEAT DISSIPATION
4.6 W

Analog Input Channels (4 Channels)

RANGE
0 to 5 V dc

RATED MEAN ACCURACY
±0.05% of span

RESOLUTION
12 to 15 bits, programmable

Analog Output Channel (2 Channels)
0 to 20.4 mA dc

RATED MEAN ACCURACY
±0.05% of span

Analog Output Channel (2 Channels) (Continued)

LINEARITY ERROR
±0.025% of span (monotonic)

RESOLUTION
12 bits

OUTPUT LOAD (MAXIMUM)
750 Ω

COMPLIANCE VOLTAGE
18 V dc nominal at 20 mA at I/O field terminals

SETTLING TIME
100 ms to settle within a 1% band of steady

Contact Output Channels (4 Channels)

APPLIED VOLTAGE
60 V dc (maximum)

LOAD CURRENT
50 mA (maximum)

OFF-STATE LEAKAGE CURRENT
0.25 mA

H2M24 (DIGITAL INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
3.0 W

HEAT DISSIPATION
6.0 W

Input Channel (16 Channels)
Contact input

Input Channel (16 Channels) (Continued)

CONTACT RANGE
Open (off) and Closed (on)

OPEN CIRCUIT VOLTAGE
125 V dc maximum, externally supplied

SHORT CIRCUIT CURRENT
2.5 mA at 24 V; 5.5 mA at 48 V; 14.2 mA at 125 V

H2M24 (DIGITAL INPUT) FUNCTIONAL SPECIFICATIONS (CONTINUED)

Input Channel (16 Channels) (Continued)

ON-STATE RESISTANCE
10 kΩ at 24 V; 30 kΩ at 48 V; 90 kΩ at 125 V

OFF-STATE RESISTANCE
20 kΩ at 24 V; 40 kΩ at 48 V; 120 kΩ at 125 V

FILTER TIME
Configurable (4, 8, 16, or 32 ms)

ISOLATION
Input to earth (ground), 600 V ac

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 125 V dc violates electrical safety code requirements and may expose users to electrical shock.

H2M26 (DIGITAL OUTPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
3.0 W

HEAT DISSIPATION
3.0 W

Output Channel (8 Channels)
Relay output

APPLIED VOLTAGE
125 V dc (maximum)

LOAD CURRENT
1.0 A (maximum)

Output Channel (8 Channels) (Continued)

OFF-STATE LEAKAGE CURRENT
0 mA

ISOLATION
Output to earth (ground), 1000 V ac; output to output, 2000 V ac

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 125 V dc violates electrical safety code requirements and may expose users to electrical shock.

H2SFBI (FIELDBUS ISOLATOR) FUNCTIONAL SPECIFICATIONS

Maximum Number of DCS FBMs Driven
40

Maximum Length of Local Bus
9 m (30 ft)

Maximum Input Power Voltage
+30 V dc

Maximum Operating Current
100 mA

Maximum Power Dissipation
2.75 W

Minimum Isolation Voltage
2500 V rms

Holdup Time at 24 V dc
250 ms (as provided by the Honeywell power supply)

H3M01 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
4.0 W

HEAT DISSIPATION
4.0 W

Input Channel (16 Channels)
0 to 5 V dc, 1 to 5 V dc

RATED MEAN ACCURACY
±0.05% of span

RESOLUTION
12 bits

H3M02A (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
4.0 W

HEAT DISSIPATION
4.0 W

Input Channel (16 Channels)
-10.5 to 71.4 mV, 0 to 100 mV (jumper selectable)

THERMOCOUPLE TYPES
J, K, E, T, B, S, R, N

RATED MEAN ACCURACY
±0.035% of span

Input Channel (16 Channels) (Continued)

RESOLUTION
12 bits

ISOLATION
Input to earth (ground), 600 V ac; input to input, 600 V ac

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

H3M03 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
8.0 W

HEAT DISSIPATION
8.0 W

Input Channel (8 Channels)
-10.5 to 71.4 mV, 0 to 5 V dc, 0 to 100 mV

THERMOCOUPLE TYPES
J, K, E, T, B, S, R, N

RTD (3 WIRE)
Platinum 100 Ω DIN (4376)
Platinum 100 Ω JIS (C-1604)
Nickel 120 Ω Ed #7
Copper 10 Ω
Each channel jumper selectable

RATED MEAN ACCURACY
±0.035% of span (TC)
±0.025% of span (RTD Channels)
±0.05% of span (mV and 0 to 5 V Channels)

RESOLUTION
12 to 15 bits, programmable

ISOLATION
Input to earth (ground), 600 V ac; input to input, 600 V ac

H3M03 (ANALOG INPUT) FUNCTIONAL SPECIFICATIONS (CONTINUED)

CAUTION

This does not imply that these channels are intended for connection to hazardous voltage circuits. Connection of these channels to voltages greater than 30 V ac or 60 V dc violates electrical safety code requirements and may expose users to electrical shock.

H3M06 (PULSED INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
5.0 W

HEAT DISSIPATION
5.0 W

Input Channel (8 Channels)

Designed to be compatible with Honeywell Pulse Input FTAs.

RATE
Up to 25 kHz (jumper selectable)

H3M07 (DIGITAL INPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
4.0 W

HEAT DISSIPATION
4.0 W

Input Channel (32 Channels)

Designed to be compatible with Honeywell Digital Input FTAs.

H3M09 (DIGITAL OUTPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
4.0 W

HEAT DISSIPATION
4.0 W

Output Channel (16 Channels)

Designed to be compatible with Honeywell Digital Output FTAs.

APPLIED VOLTAGE
21 to 27 V dc

LOAD CURRENT
0.25 A (maximum)

OFF-STATE LEAKAGE CURRENT
0.10 mA

H3M37 (ANALOG OUTPUT) FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE
22.5 to 30 V dc

CONSUMPTION
5.0 W

HEAT DISSIPATION
5.0 W

Output Channel (8 Channels)
0 to 20.4 mA dc (Designed to be compatible with Honeywell Redundant and Non-Redundant Analog Output FTAs.)

RATED MEAN ACCURACY
±0.05% of span

RESOLUTION
12 bits

H3SFBI (FIELDBUS A/B SWITCH EXTENDER) FUNCTIONAL SPECIFICATIONS

Maximum Number of DCS FBMs Driven
40

Maximum Length of Local Bus
9 m (30 ft)

Maximum Input Power Voltage
+30 V dc

Maximum Operating Current
500 mA

Maximum Power Dissipation
3.0 W

Minimum Isolation Voltage
2500 V rms

Holdup Time at 24 V dc
250 ms (as provided by the Honeywell power supply)

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