I/O MODULES
EXPANSION MODULES & WIRING ADAPTER

The I/O Modules are advanced expansion devices designed to integrate with a variety of Honeywell controllers. These are available in 17 models to cover all your application requirements.

The I/O Modules can co-exist with the legacy Panel Bus™ I/O Module on the same bus*.

Note: All I/O Modules not shown.

The I/O Modules connect directly to the controller using the touch flake connections. The touch flakes are the hardware connections that provide the power and communication bus to the I/O Modules. The Wiring Adapter also provides power and communications to the I/O Modules, which is typically used when the power and the communication bus needs to be extended to an additional row of I/O Modules or to a remote panel. The Wiring Adapter can be powered with the same or a separate power supply than the controller. The I/O Modules are programmable using the Optimizer Workbench, the Comfort & Energy Workbench or the ComfortPoint Open Studio Tool. Software updates, configuration, and commissioning are all done automatically by the controller for all I/O Modules.

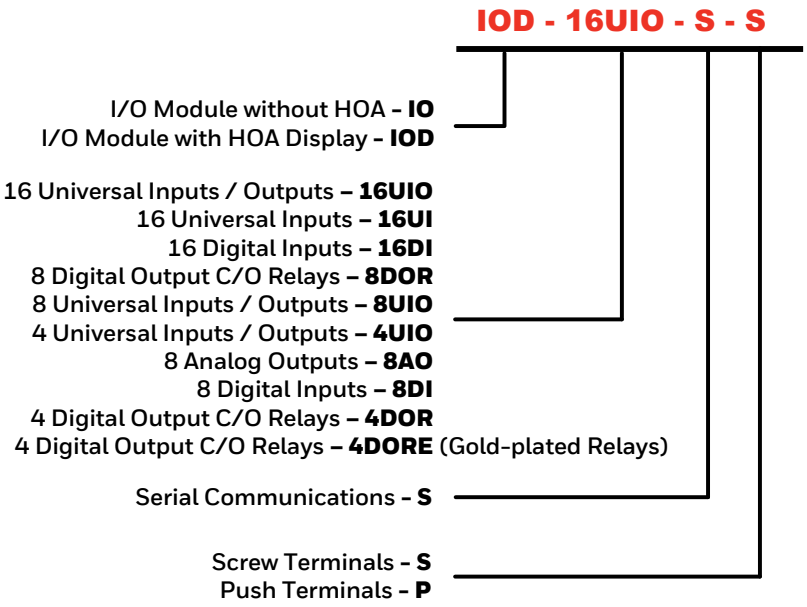
FEATURES AND HIGHLIGHTS

- Plug-and-play functionality for easy installation and maintenance. I/O Modules can be replaced without having to slide or disturb the wiring of the adjacent modules
- Supports a wide range of sensors.
- I/O Modules are equipped with tri-color LEDs for all indications. This includes an RS485 communication LED, input/output channel LEDs, service/alarm LED and a main LED for general operational status of the I/O Module.
- I/O Modules support the Panel Bus™ protocol.
- Includes Hand-Off-Auto override functionality using an intuitive and easy to see display for the selected I/O models.
- Compliant with EN ISO 164-84-2:2004.
- Analog Inputs: 16-bit A/D conversion resolution for accurate measurement.
- Analog Outputs: 13-bit A/D conversion resolution.
- DIN19/DIN43880 (European Fuse Box) compliant. Compact size allows the module to be mounted in small panels and fuse boxes to minimize cost.
- UIO and UI I/O Modules includes an onboard output to power external sensors (24 VDC at 75 mA).
- UIO and UI I/O Modules: 0/4-20 mA sensor inputs with on board resistor (no external resistor required).
- A service button to restore the factory default settings.
- Removable color coded terminal blocks for ease of service and replacement without having to re-wire the I/O Module. I/O Module models are available in both screw terminals and push in terminals.
- DO relay modules include two Jumper Bars to connect the relay commons to save time during installation.
- Supports a software configurable safety position per DO and AO channel in the event of a communication loss with the controller.
- Maximum wiring flexibility with the optional Auxiliary Terminal Block to distribute the signals/power and consolidate the wiring at the location of the I/O Module.
- I/O Modules are addressed manually by the 8-bit DIP switch. The 4-bit DIP switch is factory defaulted to Panel Bus. Additional protocols are not supported by the I/O Modules at this time.
- I/O Modules can be mounted onto the optional Hot Swap Bases, which allows an I/O Module to be replaced without affecting the power and communication of the downstream I/O Modules. This reduces downtime of the system as the controller and remaining I/O Modules in the panel stay powered during service and replacement of an I/O Module.

Note: * See the Compatibility table on page 5.

Honeywell

CONTROLLER PART NUMBERS DESCRIPTION



Note: I/O Modules factory supplied with push terminals are not available in America.

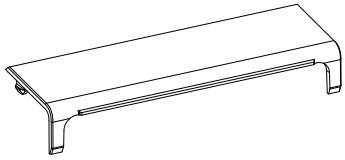
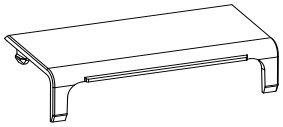
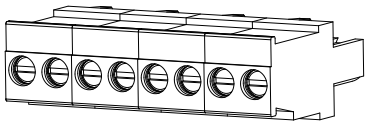
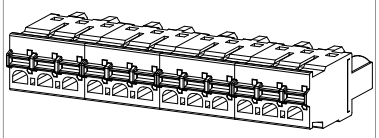
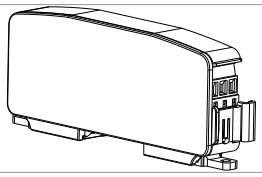
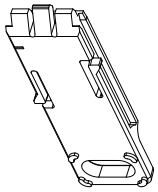
PART NUMBERS

I/O MODULES PART NUMBER						
PART NUMBER	**I/O**	**HOA DISPLAY**	**SERIAL COMMS**	**TERMINAL TYPES**	**C/O RELAYS**	**LENGTH**
IO-16UIO-S-S	16 UIO	No	Yes	Screw	No	4.13" (105 mm)
IOD-16UIO-S-S	16 UIO	Yes	Yes	Screw	No	4.13" (105 mm)
IO-16UI-S-S	16 UI	No	Yes	Screw	No	4.13" (105 mm)
IO-16DI-S-S	16 DI	No	Yes	Screw	No	4.13" (105 mm)
IO-8DOR-S-S	8 DO	No	Yes	Screw	Yes	4.13" (105 mm)
IOD-8DOR-S-S	8 DO	Yes	Yes	Screw	Yes	4.13" (105 mm)
IO-8UIO-S-S*	8 UIO	No	Yes	Screw	No	2.76" (70 mm)
IOD-8UIO-S-S*	8 UIO	Yes	Yes	Screw	No	2.76" (70 mm)
IO-8AO-S-S*	8 AO	No	Yes	Screw	No	2.76" (70 mm)
IOD-8AO-S-S*	8 AO	Yes	Yes	Screw	No	2.76" (70 mm)
IO-4UIO-S-S*	4 UIO	No	Yes	Screw	No	2.76" (70 mm)
IOD-4UIO-S-S*	4 UIO	Yes	Yes	Screw	No	2.76" (70 mm)
IO-8DI-S-S*	8 DI	No	Yes	Screw	No	2.76" (70 mm)
IO-4DOR-S-S*	4 DO	No	Yes	Screw	Yes	2.76" (70 mm)
IOD-4DOR-S-S*	4 DO	Yes	Yes	Screw	Yes	2.76" (70 mm)
IO-4DORE-S-S*	4 DO	No	Yes	Screw	Yes-Gold Plated Relays**	2.76" (70 mm)
IOD-4DORE-S-S*	4 DO	Yes	Yes	Screw	Yes-Gold Plated Relays**	2.76" (70 mm)
IO-16UIO-S-P	16 UIO	No	Yes	Push	No	4.13" (105 mm)
IOD-16UIO-S-P	16 UIO	Yes	Yes	Push	No	4.13" (105 mm)
IO-16UI-S-P	16 UI	No	Yes	Push	No	4.13" (105 mm)
IO-16DI-S-P	16 DI	No	Yes	Push	No	4.13" (105 mm)
IO-8DOR-S-P	8 DO	No	Yes	Push	Yes	4.13" (105 mm)
IOD-8DOR-S-P	8 DO	Yes	Yes	Push	Yes	4.13" (105 mm)
IO-8UIO-S-P*	8 UIO	No	Yes	Push	No	2.76" (70 mm)
IOD-8UIO-S-P*	8 UIO	Yes	Yes	Push	No	2.76" (70 mm)
IO-8AO-S-P*	8 AO	No	Yes	Push	No	2.76" (70 mm)
IOD-8AO-S-P*	8 AO	Yes	Yes	Push	No	2.76" (70 mm)
IO-4UIO-S-P*	4 UIO	No	Yes	Push	No	2.76" (70 mm)

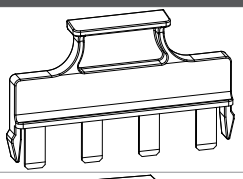
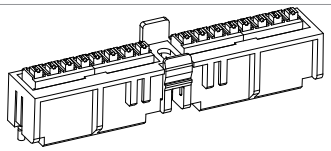
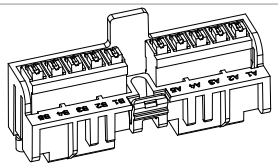
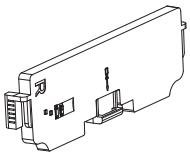
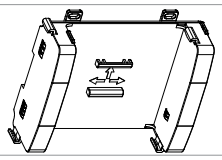
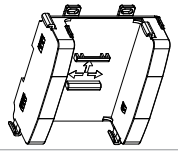
I/O MODULES PART NUMBER						
PART NUMBER	**I/O**	**HOA DISPLAY**	**SERIAL COMMS**	**TERMINAL TYPES**	**C/O RELAYS**	**LENGTH**
IOD-4UIO-S-P*	4 UIO	Yes	Yes	Push	No	2.76" (70 mm)
IO-8DI-S-P*	8 DI	No	Yes	Push	No	2.76" (70 mm)
IO-4DOR-S-P*	4 DO	No	Yes	Push	Yes	2.76" (70 mm)
IOD-4DOR-S-P*	4 DO	Yes	YES	Push	Yes	2.76" (70 mm)
IO-4DORE-S-P*	4 DO	No	YES	Push	Yes-Gold Plated Relays**	2.76" (70 mm)
IOD-4DORE-S-P*	4 DO	Yes	YES	Push	Yes-Gold Plated Relays**	2.76" (70 mm)

Notes:
- *2.76" (70 mm) I/O Modules are not supported by the CPO-PC500 and CPO-PC600 Controllers.
- **Refer to the relay ratings on the I/O Characteristics table.
- I/O Module part numbers ending with "P" (push terminals) are not available for purchasing in America.

ACCESSORIES PART NUMBERS

ACCESSORIES PART NUMBERS			
PART NUMBER	**PART NUMBER**	**DESCRIPTION**	**AVAILABILITY**
	TCVR-105-10	Terminal Covers for 4.13" (105 mm) size I/O Modules - pack of 10. Each I/O Module includes 2 Terminal Covers.	Spare Part
	TCVR-70-10	Terminal Covers for 2.76" (70 mm) size I/O Modules - pack of 10. Each I/O Module includes 2 Terminal Covers.	Spare Part
	SCRW-TB-2-PUR-50 SCRW-TB-3-PUR-50 SCRW-TB-2-BLU-50 SCRW-TB-3-BLU-50 SCRW-TB-2-YEL-50 SCRW-TB-R-3-ORN-50 SCRW-TB-3-BLK-50 SCRW-TB-3-GRY-50 SCRW-TB-2-BLK-50 SCRW-TB-2-GRN-50	Screw terminals - 2 way - purple - pack of 50 Screw terminals - 3 way - purple - pack of 50 Screw terminals - 2 way - blue - pack of 50 Screw terminals - 3 way - blue - pack of 50 Screw terminals - 2 way - yellow - pack of 50 Screw terminals for line voltage relays - 3 way - orange - pack of 50 Screw terminals - 3 way - black - pack of 50 Screw terminals - 3 way - grey - pack of 50 Screw terminals - 2 way - black - pack of 50 Screw terminals - 2 way - green - pack of 50	Spare Part
	PUSH-TB-2-PUR-50 PUSH-TB-3-PUR-50 PUSH-TB-2-BLU-50 PUSH-TB-3-BLU-50 PUSH-TB-2-YEL-50 PUSH-TB-R-3-ORN-50 PUSH-TB-3-BLK-50 PUSH-TB-3-GRY-50 PUSH-TB-2-BLK-50 PUSH-TB-2-GRN-50	Push terminals - 2 way - purple - pack of 50 Push terminals - 3 way - purple - pack of 50 Push terminals - 2 way - blue - pack of 50 Push terminals - 3 way - blue - pack of 50 Push terminals - 2 way - yellow - pack of 50 Push terminals for line voltage relays - 3 way - orange - pack of 50 Push terminals - 3 way - black - pack of 50 Push terminals - 3 way - grey - pack of 50 Push terminals - 2 way - black - pack of 50 Push terminals - 2 way - green - pack of 50	Spare Part
	IO-ADPT-S-2	I/O Wiring Adapters - pack of 2 IO-ADPT-S. Provides wiring connections for power and communications which are used to extend I/O Modules to another DIN Rail or to remotely locate the I/O Modules.	Sold separately
	DIN-CLIP-10	DIN Rail Clip - pack of 10	Spare Part

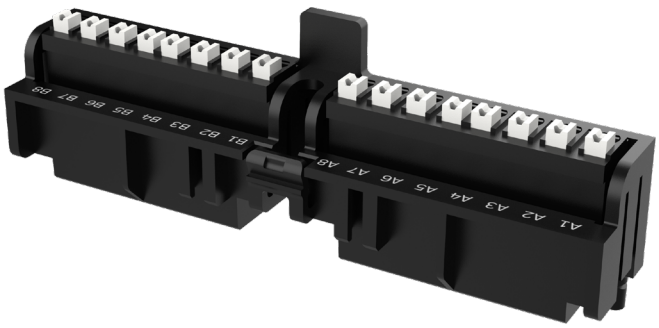
Note: Parts indicated as Spare Parts are included with the Controller or I/O Module.

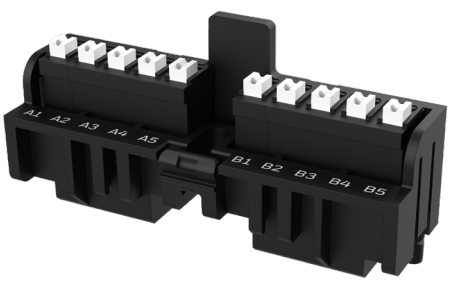
ACCESSORIES PART NUMBERS			
PART NUMBER	**PART NUMBER**	**DESCRIPTION**	**AVAILABILITY**
	IO-JUMPER-4-10	4 pin relay output Jumper Bar - pack of 10. Connects 4 relay commons. Each DO relay module includes 2 Jumper Bars. Compatible with 4.13" (105 mm) I/O Module sizes (8DOR)	Spare Part
	IO-JUMPER-2-10	2 pin relay output Jumper Bar- pack of 10. Connects 2 relay commons. Each DO relay module includes 2 Jumper Bars. Compatible with 2.76" (70 mm) I/O Module sizes (4DOR and 4DORE)	Spare Part
	AUX-TRM-16-10	Auxiliary Terminal Block - 16 way - pack of 10 AUX-TRM-16. Each Auxiliary Terminal Block has two groups of eight internally connected push in terminals for distributing signals/power. Compatible with 4.13" (105 mm) I/O Module sizes (16UIO, 16UI, 16DI and 8DOR).	Sold separately
	AUX-TRM-10-10	Auxiliary Terminal Block - 10 way - pack of 10 AUX-TRM-10. Each Auxiliary Terminal Block has two groups of five internally connected push in terminals for distributing signals/power. Compatible with 2.76" (70 mm) I/O Module sizes (8UIO, 4UIO, 8AO, 8DI, 4DOR and 4DORE).	Sold separately
	ENDCOVER-10	Protective End Covers to cover the power and comms touch flake connections - pack of 10. The Protective End Cover is attached to the Advanced Plant Controller when used without an I/O Module or the Protective End Cover is attached to the last I/O Module in the panel. The Protective End Cover has a built in end of line resistor to terminate the RS485 bus. Each Advanced Plant Controller includes one Protective End Cover. Only one Protective End Cover is needed per Panel Bus connection. This pack is intended for replacement if the original cover is lost.	Spare Part
	IO-HOT-SWP-105-10	I/O Hot Swap Base for 4.13" (105 mm) I/O Modules - pack of 10	Sold separately
	IO-HOT-SWP-70-10	I/O Hot Swap Base for 2.76" (70 mm) I/O Modules - pack of 10	Sold separately

Note: Parts indicated as Spare Parts are included with the Controller or I/O Module.

AUXILIARY TERMINAL BLOCK

The Auxiliary Terminal Block (AUX-TRM-16) can be clipped onto a 4.13" (105 mm) I/O Module and the Auxiliary Terminal Block (AUX-TRM-10) can be clipped onto a 2.76" (70 mm) I/O Module to provide additional common terminals. The AUX-TRM-16 Auxiliary Terminal Block consists of two groups of 8 internally connected push-in terminals for distributing signals/power and the AUX-TRM-10 Auxiliary Terminal Block consists of two groups of 5 internally connected push-in terminals for distributing signals/power.





WIRING ADAPTER

Use the Wiring Adapter when power and the communication bus needs to be extended to the next DIN Rail of I/O Modules or when an I/O Module is remotely mounted from the controller. The Wiring Adapter has a reversible cover that allows wiring left to right or right to left in the panel.

The Wiring Adapter has touch flake connections on both left and right sides and provides a set of terminals for power and a set of terminals for the RS485 communication bus. The power and the communication bus are transferred to the I/O Modules by the touch flake connections.

For terminal information, refer to the I/O Modules and Wiring Adapter Terminals section. The Wiring Adapter has removable factory-installed screw terminal blocks. The electrical ratings, environmental ratings, DIN standards, IP protection of the touch flake, life expectancy, and other compliance standards of the adapter are the same as I/O Modules.

I/O HOT SWAP BASE

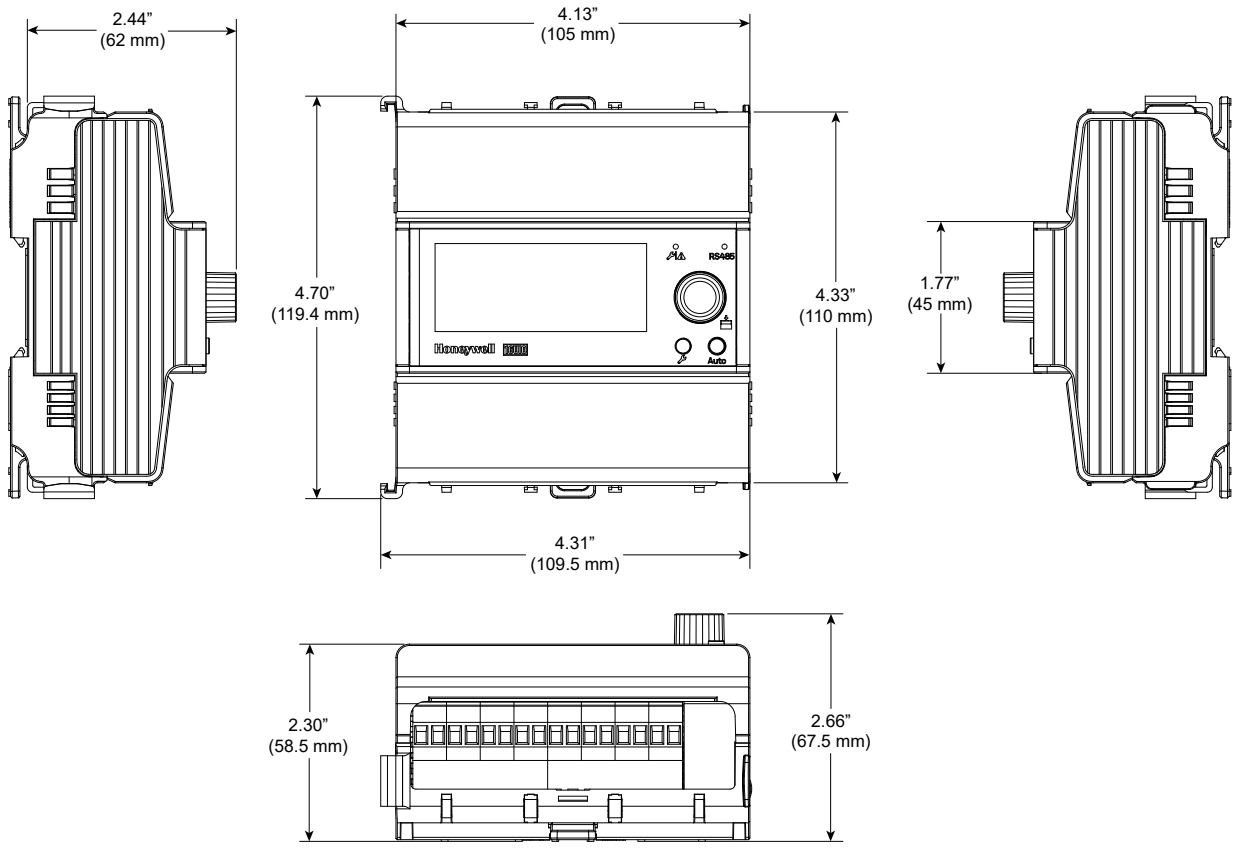
The I/O Hot Swap Base (IO-HOT-SWP-105) can be used to mount a 4.13” (105 mm) I/O Module and the I/O Hot Swap Base (IO-HOT-SWP-70) can be used to mount a 2.76” (70 mm) I/O Module. Both Hot Swap Bases have touch flakes for power and communication to work with controllers and other I/O Modules.

COMPATIBILITY

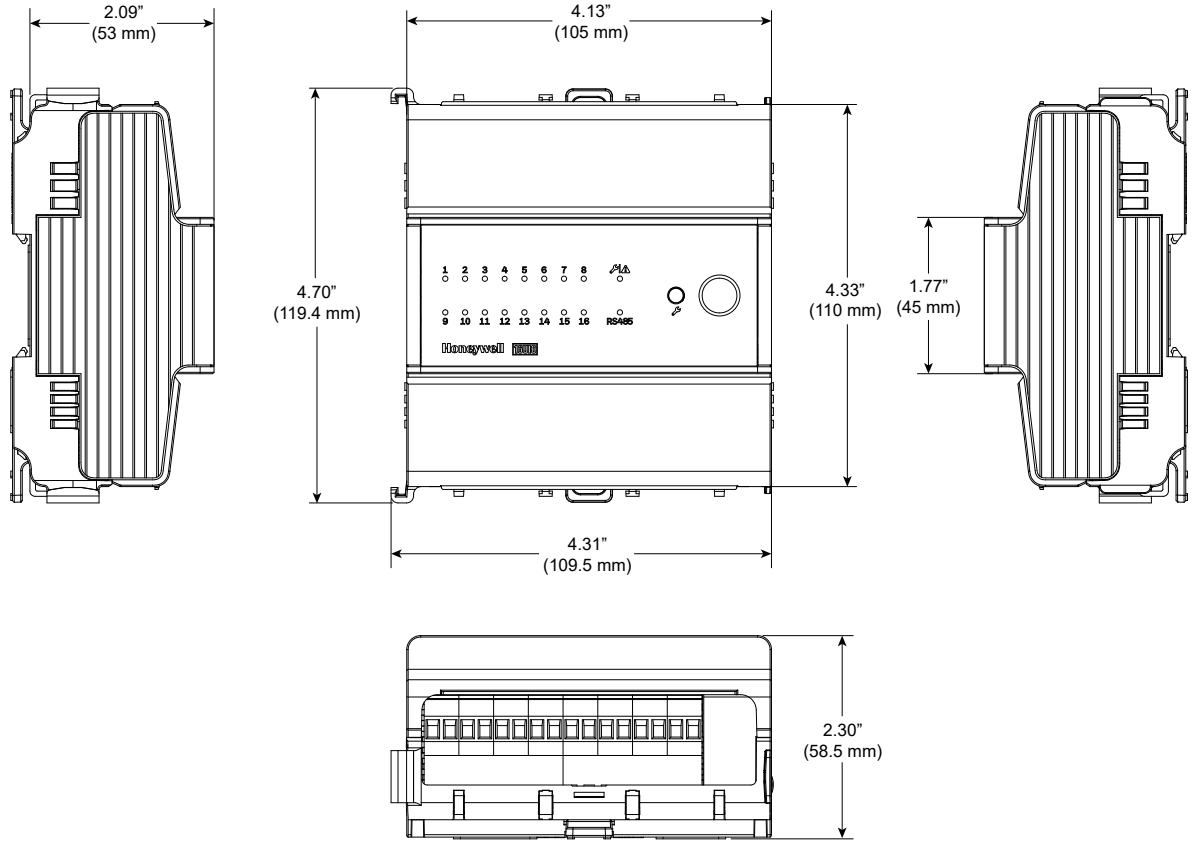
COMPATIBILITY	
CONTROLLER TYPE	**MODELS**
CPO controllers	CPO-PC500/600 - Only 105mm (4.13”) I/O Modules are supported. CPO-PC200/400/410 - Controllers are not supported.
Honeywell branded controllers	Advanced Controllers EAGLEHAWK NX CP-NX HAWK 8000 CP-8000/9000 JACE8000/9000 (Honeywell branded) WEB-8000 HON-9000 CIPer Model 50

DIMENSIONS

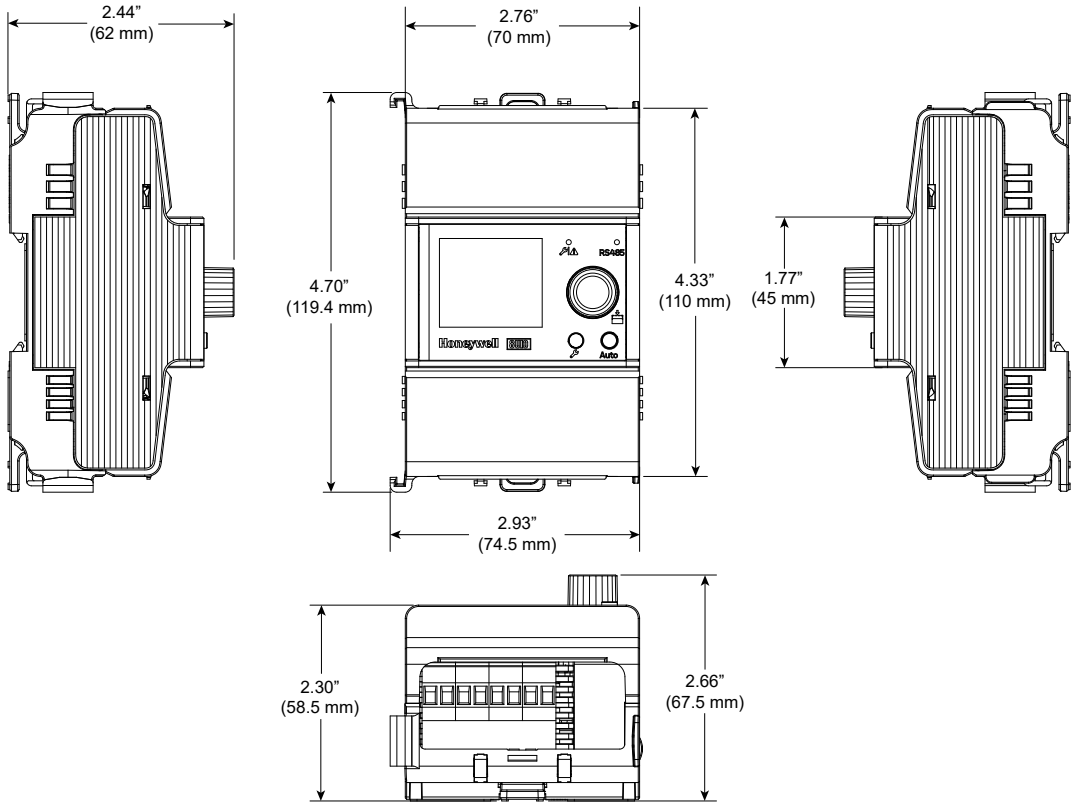
I/O MODULE WITH HOA (4.13” (105 MM))



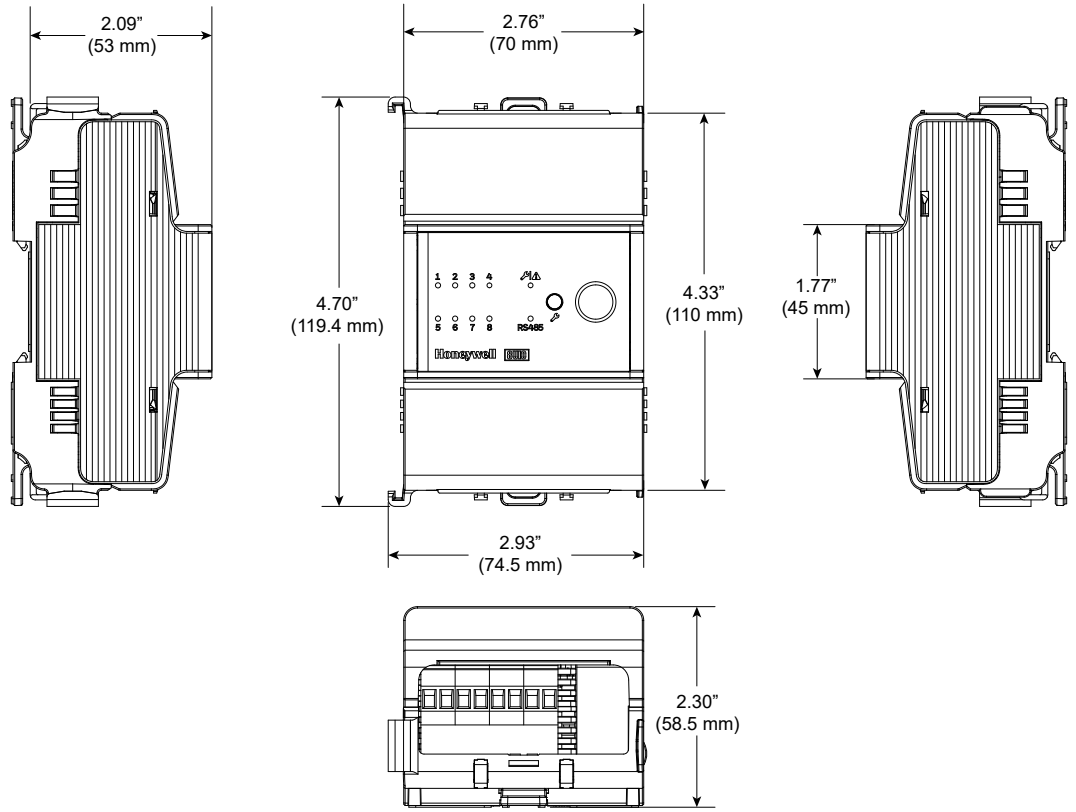
I/O MODULE WITHOUT HOA (4.13” (105 MM))



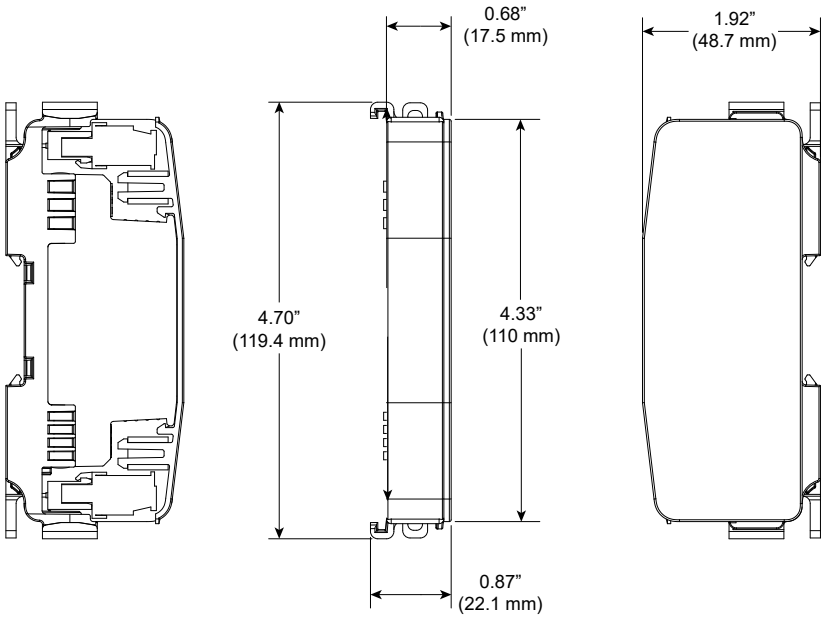
I/O MODULE WITH HOA (2.76” (70 MM))



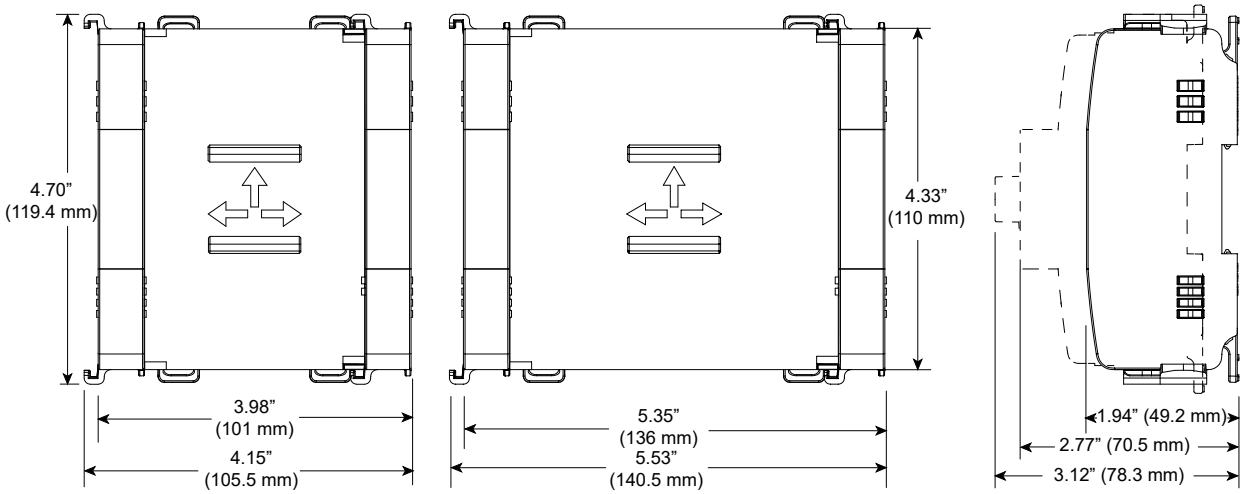
I/O MODULE WITHOUT HOA (2.76” (70 MM))



WIRING ADAPTER



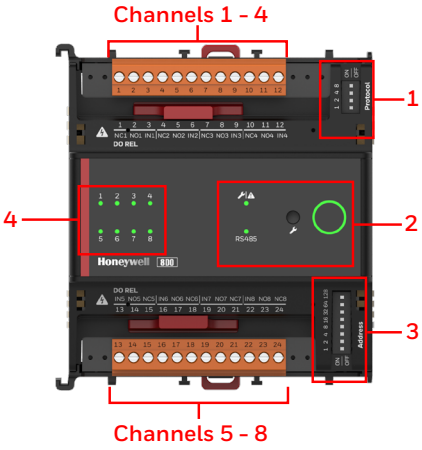
I/O HOT SWAP BASE



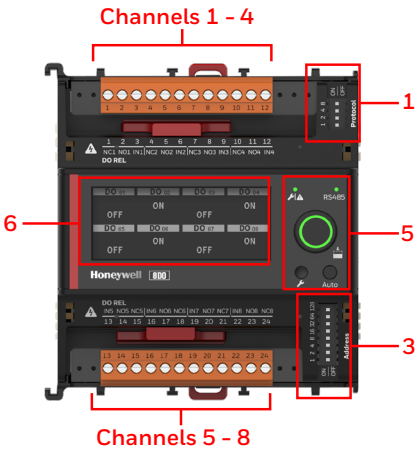
DIMENSIONS	
PARAMETER	**SPECIFICATION**
I/O Module Dimensions (105 mm)	4.31 x 2.44 x 4.7 inches (109.5 x 62 x 119.4 mm)
I/O Module Dimensions (70 mm)	2.93 x 2.44 x 4.7 inches (74.5 x 62 x 119.4 mm)
Wiring Adapter Dimensions	0.87 x 1.92 x 4.7 inches (22.1 x 48.7 x 119.4 mm)
I/O Hot Swap Base (105 mm)	5.53 x 1.9 x 4.7 inches (140.5 mm x 49 mm x 119.4 mm)
I/O Hot Swap Base (70 mm)	4.15 x 1.9 x 4.7 inches (105.5 mm x 49 mm x 119.4 mm)

HARDWARE OVERVIEW

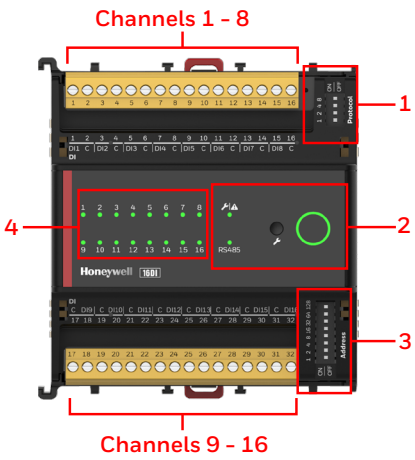
8 Digital Outputs



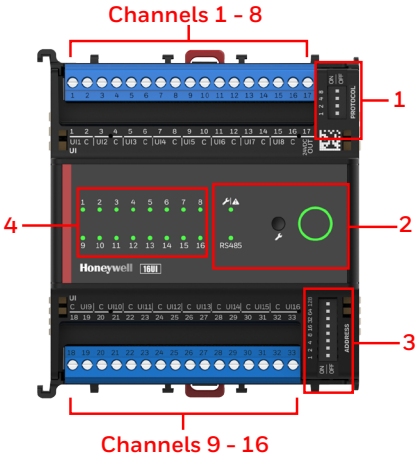
8 Digital Outputs with HOA



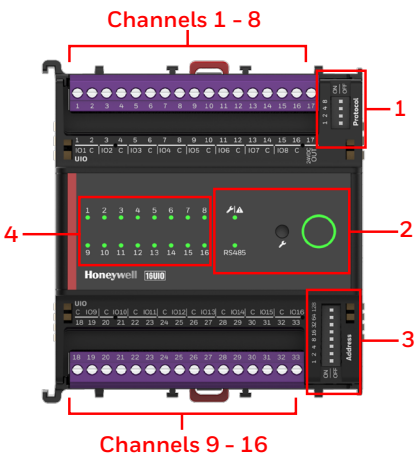
16 Digital Inputs



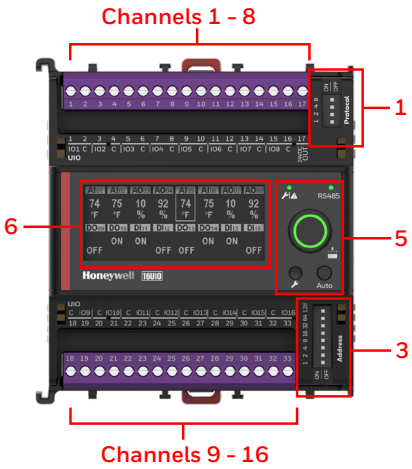
16 Universal Inputs



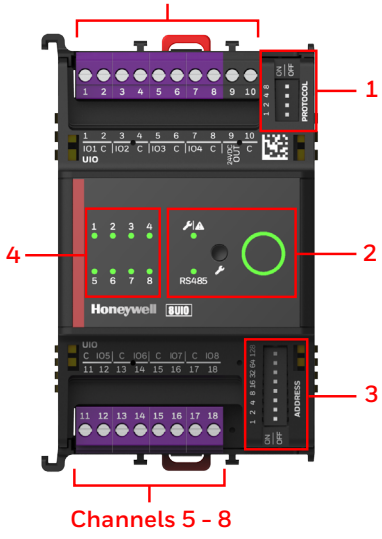
16 Universal I/O



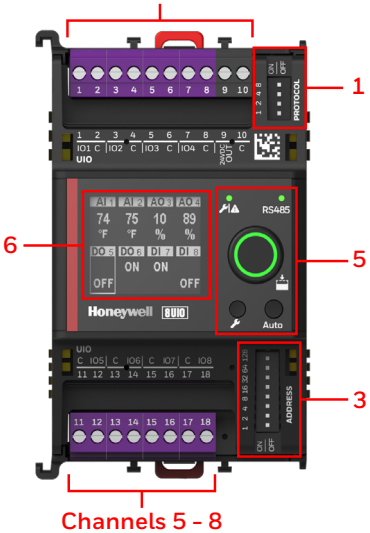
16 Universal I/O with HOA



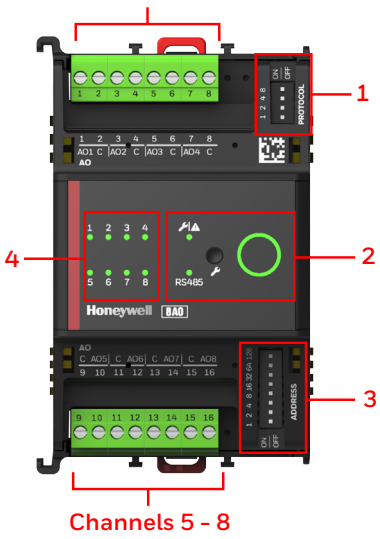
8 UIO



8 UIO - HOA

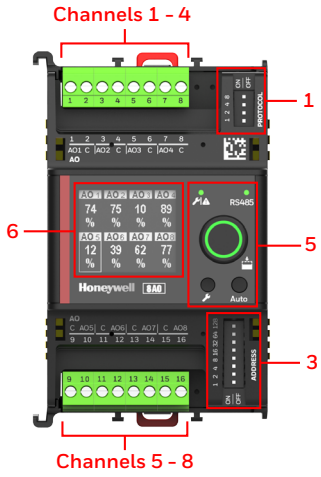


8 AO

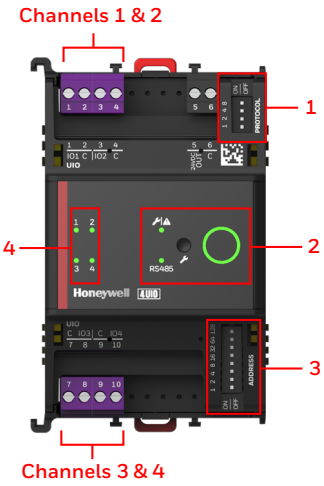


***** Devices subject to local availability. Contact your local sales representative for information on available devices in your region.

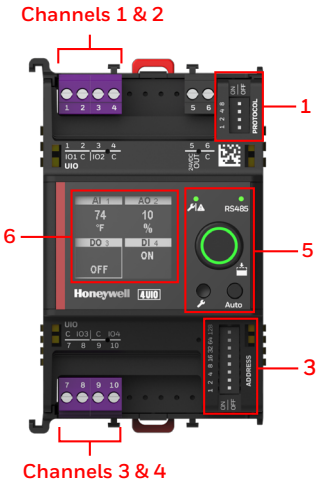
8 AO - HOA



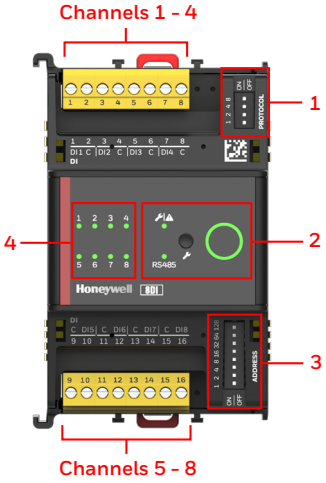
4 UIO



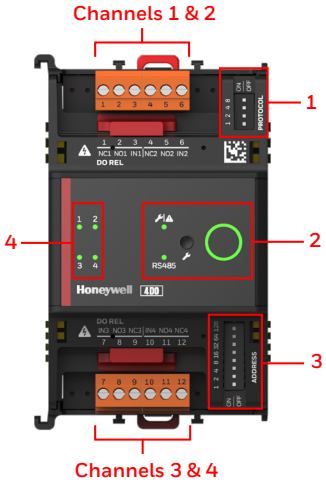
4 UIO - HOA



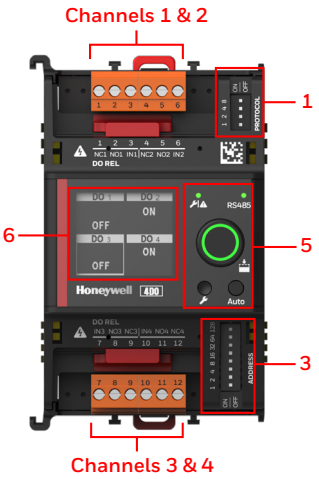
8 DI



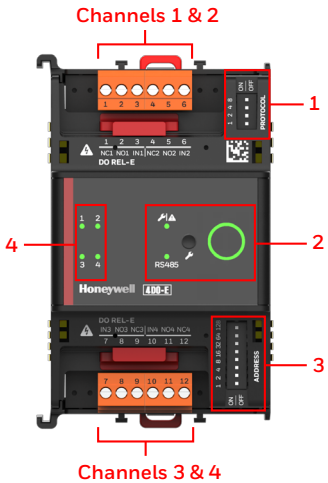
4 DOR



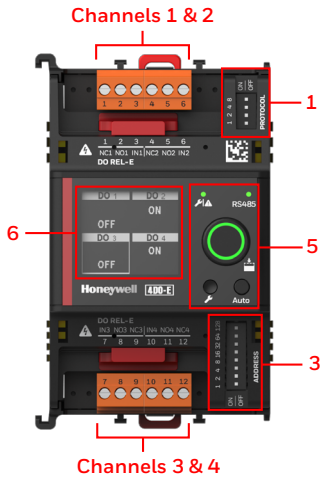
4 DOR - HOA



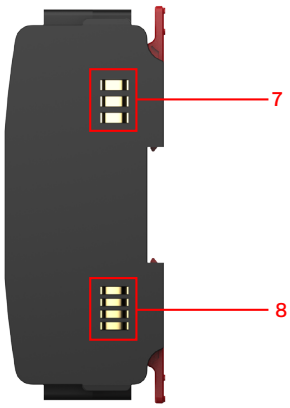
4 DORE



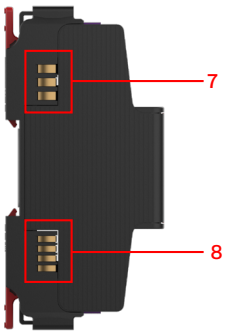
4 DORE - HOA



Hot Swap Base Right/Left side

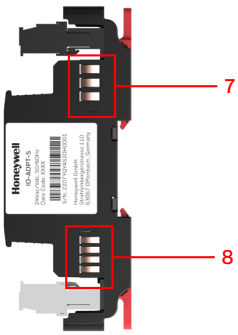


I/O Modules Touch Flakes



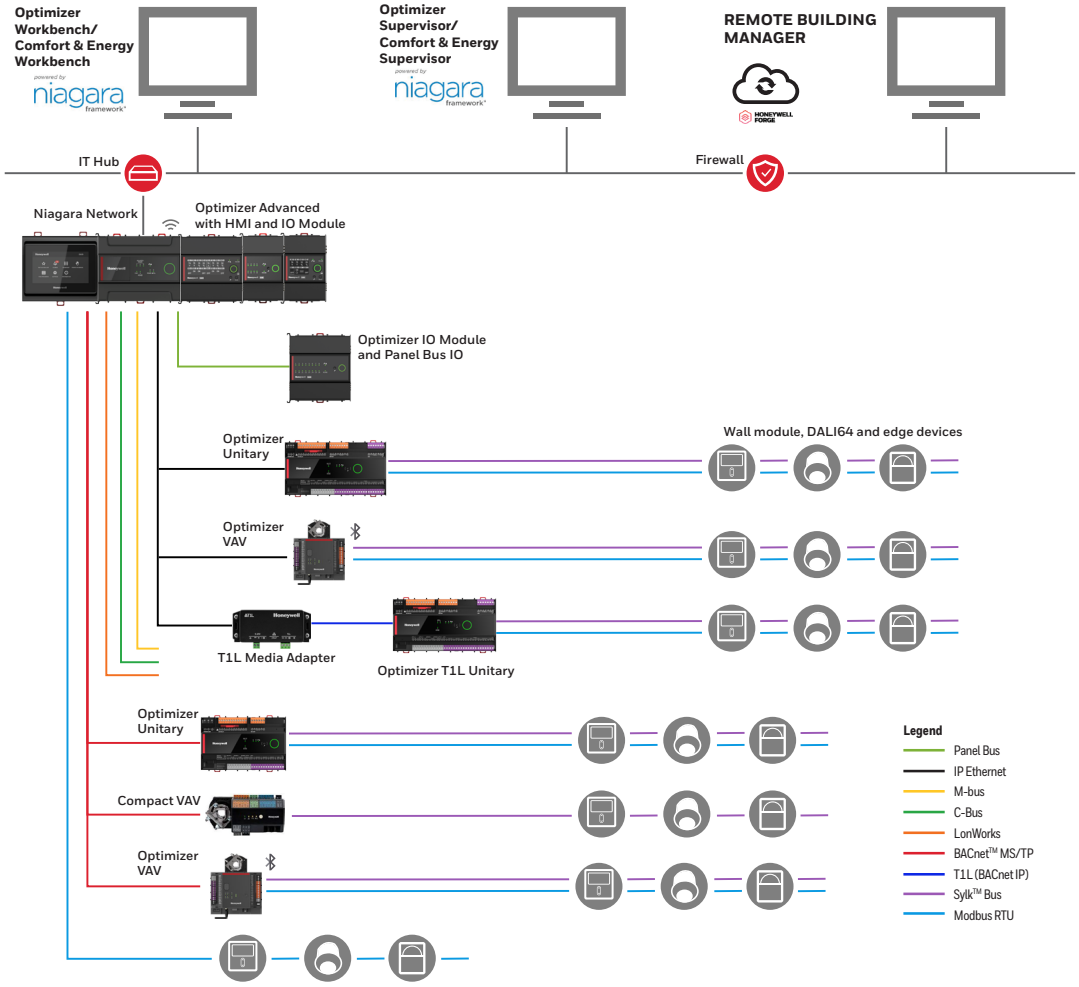
Wiring Adapter Terminals

Wiring Adapter Touch Flakes



I/O MODULE AND WIRING ADAPTER TERMINALS			
TYPE	**LEGEND**	**SIGNAL**	**DESCRIPTION**
Protocol	1		Protocol DIP Switch (4-bit)
LED/Button	2	Service LED	Service status of the I/O Module.
		RS485 LED	Transmit and receive indication for RS485 communication.
		Ring LED	Indicates the operational status of the I/O Module.
		Service button	Reset the device to factory default.
Address	3		Address DIP switch (8-bit)
LED	4	LED	Transmit and receive signal of Input/Output (Off, Green, Yellow, and Red)
LED/Button	5	Service LED	Service status of the I/O Module.
		RS485 LED	Transmit and receive indication for RS485 communication.
		Ring LED	Indicates the operational status of the I/O Module.
		Auto button	Auto button returns the selected channel to the Auto mode.
		Rotary dial	Rotate to the desired channel; then press to select the channel. Rotate to manually override the channel; press to exit to the home screen. DO channels can be set to ON or OFF. AO channels can be set between 0 to 100 %.
		Service button	Reset the device to factory default.
Hand-Off-Auto	6	Backlit Display	Displays the status of each channel, the type of point (AO, DO, AI, DI) and an indication if the channel is manually overridden (hand icon) with reverse background.
Adapter / I/O Module / Hot Swap Base (Touch flakes - Power Terminals) NOTE: Touch flake connections extend power to the I/O Modules	7	24V~	Power supply (24 VAC/VDC)
		24V0	Power supply common
		FGND	Connect to earth ground in the field
Adapter / I/O Module / Hot Swap Base (Touch flakes - Comm Terminals)	8	T1L(+)	Pass through connection to T1L I/O Modules (future).
		T1L(-)	
		RS485(+)	Touch flake connections extend RS485 communications from the Advanced Controller to the I/O Modules.
		RS485(-)	
Wiring Adapter Power Supply Terminals	9	⏚	Connect to earth ground in the field
		V0	Power supply common
		≂	Power supply (24 VAC/VDC)
Wiring Adapter RS485 Port Terminals	10	COM	Common
		RS485(-)	(-) for RS485 port
		RS485(+)	(+) for RS485 port

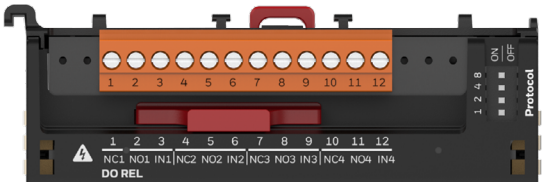
SYSTEM OVERVIEW (NIAGARA)

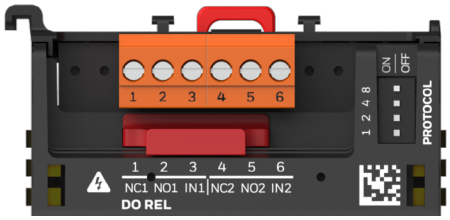


I/O CHARACTERISTICS

I/O CHARACTERISTICS	
I/O TYPE	**SENSOR TYPE**
Analog input	• Software configurable as a Voltage Input, Current Input or as a Thermistor Input • Voltage Input: - 0 to 10 VDC (Direct/Reverse) - 2 to 10 VDC (Direct/Reverse) - 16 bit resolution - Custom characteristic available in the tool - Minimum resolution of 0.01 volts for 0-10 and 2-10 volt types - +/-0.4 % of FSR (Full Scale Range) for voltage input • Current Input: - 0 to 20 mA (Direct/Reverse) - 4 to 20 mA (Direct/Reverse) - 0 to 10 mA (Direct/Reverse) - 4 to 10 mA (Direct/Reverse) - 16 bit resolution - Custom characteristic available in the tool - +/- 0.55 % of FSR (Full Scale Range) • Thermistor/RTD Input: - 16 bit resolution - Input range 0 to 1M ohm - Custom characteristic available in the tool - <= 1 % of accuracy • Configurable offset per Input

I/O CHARACTERISTICS

<table>
<tr><th colspan="2">I/O CHARACTERISTICS</th></tr>
<tr><th>I/O TYPE</th><th>SENSOR TYPE</th></tr>
<tr><td>UIO/Digital Input</td><td>
• UIO/DI channels work with volt-free contacts, logic circuits, open collector (transistor), or open-drain (FET).
• MSI and Accumulator points are displayed as DI points on the HOA display.
Dry contact 0 to 10 VDC typical (40 VDC maximum) - Direct/Reverse
- Closed contact: <= 500 ohm. Voltage: 0 to 2 VDC. Short circuit current: >= 4 mA
- Wetting current: 3.5 mA
- Open contact: >= 3K ohm. Voltage: 4 to 40 VDC
Voltage input 0 to 10 VDC typical (40 VDC maximum) - Direct/Reverse
- Voltage: 0 to 2 VDC. Short circuit current: >= 4 mA
- Voltage: 4 to 40 VDC or open circuit
Pulse inputs with totalizing
- 100 Hz max. Minimum duty cycle (50 %/50 %) = 5 ms ON / 5 ms OFF
</td></tr>
<tr><td>Digital Output</td><td>
• Supports a mix of low voltage and line voltage loads in the same I/O Module.
• 4.13” (105 mm) I/O Modules: Channels 1-4 are Relay Block 1 and Channels 5-8 are Relay Block 2.


• 2.76” (70 mm) I/O Modules: Channels 1-2 are Relay Block 1 and Channels 3-4 are Relay Block 2.


• Line voltage (mains) and low voltage must not be mixed within relay block 1 (ch.1-4 on 8DO, ch.1-2 on 4DO) or relay block 2 (ch.5-8 on 8DO, ch.3-4 on 4DO). If both line voltage (mains) and low voltage are to be switched, connect line voltage (mains) to block 1 and low voltage to block 2, or vice versa.
• Max Load for DO Module (Total):
- 19 to 250 VAC: 12 A
- 12 to 30 VDC: 12 A
<table>
<tr><th colspan="2">MODULE TYPE</th><th colspan="2">8DOR</th><th colspan="2">4DOR, 4DORE</th></tr>
<tr><th colspan="2">CHANNEL NUMBER</th><th>1-4, 6-8</th><th>5</th><th>1,2,4</th><th>3</th></tr>
<tr><td rowspan="2">Voltage</td><td>VAC</td><td colspan="2">19 to 250</td><td colspan="2">19 to 250</td></tr>
<tr><td>VDC</td><td colspan="2">12 to 30</td><td colspan="2">12 to 30 (4DOR)
2 to 30 (4DORE)</td></tr>
<tr><td rowspan="4">Current</td><td>resistive</td><td>5 A</td><td>10 A</td><td>5 A</td><td>10 A</td></tr>
<tr><td>inductive</td><td>3 A</td><td>6 A</td><td>3 A</td><td>6 A</td></tr>
<tr><td>inrush (max)</td><td>7.5 A</td><td>15 A</td><td>7.5 A</td><td>15 A</td></tr>
<tr><td>minimum</td><td colspan="2">10 mA</td><td colspan="2">10 mA (4DOR)
2 VDC @ 25 mA (4DORE)</td></tr>
</table>
• Any two DO channels are software configurable for floating control (one channel in the open direction and the other channel in the close direction). Open Run Time and Close Run Time are set in the Optimizer Workbench or the Comfort & Energy Workbench. Not available in the CPO Studio tool.
• Supports a software configurable safety position per DO channel in the event of a communication loss with the controller.
• MSO points are displayed as DO points on the HOA display.
</td></tr>
</table>

I/O CHARACTERISTICS	
I/O TYPE	**SENSOR TYPE**
UIO/Analog Output	• Software configurable as a Voltage Output, Current Output or as a Floating Output • Voltage Output: 20 mA - 0 to 11 VDC (Direct/Reverse) - 0 to 10 VDC (Direct/Reverse) - 1 to 10 VDC (Direct/Reverse) - 2 to 10 VDC (Direct/Reverse) - 13 bit resolution • Current Output: - 0 to 20 mA (Direct/Reverse) - 4 to 20 mA (Direct/Reverse) - 13 bit resolution • Supports a software configurable safety position per UIO (AO) channel in the event of a communication loss with the controller
UIO	• AI, AO, DI, and DO option per UIO channel • Digital Output Option of 0 to 10 VDC with a max output of 20 mA. • Any two of the UIO channels are software configurable as Digital Outputs for floating control (one channel in the open direction and the other channel in the close direction). Open Run Time and Close Run Time are set in the Optimizer Workbench tool or the Comfort & Energy Workbench tool. Not available in the CPO Studio tool. • Supports a software configurable safety position per UIO (AO/DO) channel in the event of a communication loss with the controller • 24 VDC/GND for externally powered sensors

SUPPORTED SENSORS (SENSOR SCALING IN I/O MODULE)

SUPPORTED SENSORS (SENSOR SCALING IN I/O MODULE)			
TYPE	**SENSOR**	**MODEL/TYPE**	**RANGE**
Thermistor/RTD Input	Temperature	10K3A1	-40 to 257 °F (-40 to 125 °C)
	Temperature	BALCO 500	-40 to 302 °F (-40 to 150 °C)
	Temperature	Johnson Control A99	-40 to 248 °F (-40 to 120 °C)
	Temperature	NI1000TK5000	-22 to 266 °F (-30 to 130 °C)
	Temperature	NI1000TK6180	-40 to 302 °F (-40 to 150 °C)
	Temperature	NTC2K ohm	-49 to 125.6 °F (-45 to 52 °C)
	Temperature	NTC3K ohm	-34.6 to 240 °F (-37 to 115.5 °C)
	Temperature	NTC10K ohm	-22 to 212 °F (-30 to 100 °C)
	Temperature	NTC10K3	-34.6 to 240 °F (-37 to 115.5 °C)
	Temperature	NTC20K ohm	-58 to 302 °F (-50 to 150 °C)
	Temperature	Nickel Class B DIN 43760	-76 to 336.2 °F (-60 to 169 °C)
	Temperature	PRECON 10K Type 2	-34.6 to 240 °F (-37 to 115.5 °C)
	Temperature	PRECON 10K Type 3	-34.6 to 240 °F (-37 to 115.5 °C)
	Temperature	PRECON 20K Type 4	-34.6 to 240 °F (-37 to 115.5 °C)
	Temperature	PT100	-58 to 482 °F (-50 to 250 °C)
	Temperature	PT1000-1	-58 to 302 °F (-50 to 150 °C)
	Temperature	PT1000-2	32 to 752 °F (0 to 400 °C)
	Temperature	PT1000 (IEC751 3850)	-40 to 199.4 °F (-40 to 93 °C)
	Temperature	PT3000	-58 to 302 °F (-50 to 150 °C)
	Temperature	RCC2K ohm	-49.9 to 124.1 °F (-45.5 to 51.7 °C)
Current Input	Pressure	MLH050PSCDJ1235; 4 to 20 mA	0 to 50 psig
	Pressure	MLH150PSCDJ1236; 4 to 20 mA	0 to 150 psig
	Pressure	MLH300PSCDJ1237; 4 to 20 mA	0 to 300 psig
	Pressure	MLH500PSCDJ1240; 4 to 20 mA	0 to 500 psig
	Pressure	MLH01KPSCDJ1241; 4 to 20 mA	0 to 1000 psig
	Light Sensor	ALS-300 (708100000); 19.25 to 4.25 mA	0 to 300 fc
	Light Sensor	ALS-1500 (708101000); 19.25 to 4.25 mA	0 to 1500 fc

SUPPORTED SENSORS (SENSOR SCALING IN I/O MODULE)			
TYPE	**SENSOR**	**MODEL/TYPE**	**RANGE**
Current Input	Space Light Sensor	LLO; 4 to 20 mA	0 to 1000 lux
	Space Light Sensor	LLO; 4 to 20 mA	0 to 2000 lux
	Space Light Sensor	LLO; 4 to 20 mA	0 to 4000 lux
	Space Light Sensor	LLO; 4 to 20 mA	0 to 8000 lux
	Space Light Sensor	LLO; 4 to 20 mA	0 to 20000 lux
	Outdoor Light Sensor	LLS; 4 to 20 mA	0 to 1000 lux
	Outdoor Light Sensor	LLS; 4 to 20 mA	0 to 2000 lux
	Outdoor Light Sensor	LLS; 4 to 20 mA	0 to 4000 lux
	Outdoor Light Sensor	LLS; 4 to 20 mA	0 to 8000 lux
	Outdoor Light Sensor	LLS; 4 to 20 mA	0 to 20000 lux
Voltage Input	Relative Humidity	0 to 10 VDC	0 to 100 %
	Relative Humidity	2 to 10 VDC	0 to 100 %
	Pressure	7330900; 1 to 5 VDC	0 to 100 psig
	Pressure	7330910; 1 to 5 VDC	0 to 400 psig
	Pressure	RCC-SP150-2; 0.5 to 4.5 VDC	0 to 150 psig
	Pressure	RCC-SP150-5; 0.5 to 4.5 VDC	0 to 150 psig
	Pressure	RCC-SP150-M; 0.5 to 4.5 VDC	0 to 150 psig
	Pressure	RCC-SP300-2; 0.5 to 4.5 VDC	0 to 300 psig
	Pressure	RCC-SP300-5; 0.5 to 4.5 VDC	0 to 300 psig
	Pressure	RCC-SP300-M; 0.5 to 4.5 VDC	0 to 300 psig
	Pressure	RCC-SP500-2; 0.5 to 4.5 VDC	0 to 500 psig
	Pressure	RCC-SP500-5; 0.5 to 4.5 VDC	0 to 500 psig
	Pressure	RCC-SP500-M; 0.5 to 4.5 VDC	0 to 500 psig
	CO2	0 to 10 VDC	0 to 2000 ppm
	Pressure	0 to 10 VDC	0 to 5 inches of WC
	Pressure	0 to 10 VDC	0 to 2.5 inches of WC
	Pressure	0 to 10 VDC	0 to 0.25 inches of WC

PRODUCT SPECIFICATION

ELECTRICAL	
PARAMETER	**SPECIFICATION**
Operating Voltage (AC)	19 to 29 VAC (50/60 Hz)
Operating Voltage (DC)	19 to 29 VDC
Overvoltage Protection	Protected against overvoltage of max. 29 VAC or 40 VDC. Terminals protected against short-circuiting.

SERVICE BUTTON

The I/O Module has a physical service button  to reset the device to factory default. In most cases, a factory reset can be achieved while keeping power on to the I/O Module. This is the recommended method as it is easier to perform the reset.

In some side cases (i.e. - application locked up), the only way that a device will reset is if power is interrupted to the I/O Module first. If the I/O Module did not reset with the recommended method, only then try resetting using the alternative method.

With Power On (Recommended method): Press and hold the service button for 10-15 seconds until the service LED blinks Green, then release the button and short press the service button within 5 seconds to confirm the reset to factory default.

With Power Off (Alternative method): Press and hold the service button, continue to press and hold the service button while turning power on to the I/O Module. Continue holding the service button for 10-15 seconds until the service LED blinks Green, then release the button and short press the service button within 5 seconds to confirm the reset to factory default.

The reset performs the following operations:

- Resets the local I/O configuration
- Keeps the current firmware version
- Erases historical data

POWER CONSUMPTION (105 MM DEVICE)

I/O MODULE TYPES	INPUT/OUTPUT STATUS	MAXIMUM CURRENT CONSUMPTION FROM ALL CHANNELS INCLUDING THE I/O MODULE			
		CURRENT @24VAC (A)	CURRENT @ 24VDC (A)	POWER @ 24VAC (VA)	POWER @ 24VDC (W)
IO-16UIO IOD-16UIO	All 16 Channels Configured as AO/DO (max 10 V and 20 mA)	1	0.5	24	12
	All 16 Channels Configured as AI (Thermistor/ Voltage sensor/Current sensor)	0.76	0.34	18.3	8.2
	All 16 Channels Configured as DI - Inputs are ON	0.76	0.34	18.3	8.2
IO-16DI	All 16DI Channels - Inputs are ON	0.38	0.12	9.2	3
IO-8DOR IOD-8DOR	All 8 Relay Channels - Outputs are ON	0.33	0.12	8	3
IO-16UI	All 16 Channels Configured as AI (Thermistor/ Voltage sensor/Current sensor)	0.76	0.34	18.3	8.2
	All 16 Channels Configured as DI - Inputs are ON	0.76	0.34	18.3	8.2

POWER CONSUMPTION (70 MM DEVICE)

I/O MODULE TYPES	INPUT/OUTPUT STATUS	MAXIMUM CURRENT CONSUMPTION FROM ALL CHANNELS INCLUDING THE I/O MODULE			
		CURRENT @24VAC (A)	CURRENT @ 24VDC (A)	POWER @ 24VAC (VA)	POWER @ 24VDC (W)
IO-8UIO IOD-8UIO	All 8 Channels Configured as AO/DO (max 10 V and 20 mA)	0.72	0.34	17.3	8.2
	All 8 Channels Configured as AI (Thermistor/ Voltage sensor/Current sensor)	0.6	0.26	14.4	6.2
	All 8 Channels Configured as DI - Inputs are ON	0.6	0.26	14.4	6.2
IO-8AO IOD-8AO	All 8 Channels Configured as AO/DO (max 10 V and 20 mA)	0.59	0.26	14.2	6.2
IO-4UIO IOD-4UIO	All 4 Channels Configured as AO/DO (max 10 V and 20 mA)	0.58	0.26	14	6.2
	All 4 Channels Configured as AI (Thermistor/ Voltage sensor/Current sensor)	0.52	0.22	12.5	5.3
	All 4 Channels Configured as DI - Inputs are ON	0.52	0.22	12.5	5.3
IO-8DI	All 8DI Channels - Inputs are ON	0.215	0.085	5.2	2
IO-4DOR IOD-4DOR IO-4DORE IOD-4DORE	All 4 Relay Channels - Outputs are ON	0.235	0.08	5.6	2

OPERATIONAL ENVIRONMENT

PARAMETER	SPECIFICATION
Ambient Operating Temperature	-40 to 150 °F (-40 to 65.5 °C) for non-HOA models, Wiring Adapter, Hot Swap Base, and Auxiliary Terminal Block. -4 to 150 °F (-20 to 65.5 °C) for HOA models.
Ambient Operating Humidity	5 to 95 % relative humidity (non-condensing)
Shipping and Storage Temperature	-40 to 158 °F (-40 to 70 °C) for I/O Modules, Wiring Adapter, Hot Swap Base, and Auxiliary Terminal Block.
Vibration Under Operation	0.024" double amplitude (2 to 30 Hz), 0.6 g (30 to 300 Hz)
Dust, Vibration	According to EN60730-1
RFI, EMI	Commercial, light, industrial, residential environments
Elevation	Up to 13123 ft. (4000 meters) from sea level.
MTBF (Mean Time Between Failure)	11.5 years

STANDARDS AND CERTIFICATIONS	
PARAMETER	**SPECIFICATION**
Protection Class	According to final product evaluation, meet requirements of IP20
Testing Electrical Components	IEC68
Emission & Electrical Compliance	• CE - EMC - EN61326-1:201X Immunity: Table 2 - For equipment intended use in industrial location Emission: Class B - EMC- Immunity and Emission EN60730-1 - EMC- EN55032 Class B - EMC- Emission EN61000-6-3 - EMC- Immunity EN61000-6-2 • Safety - EN61010-1:201X; EN60730-1; • America - UL - UL916, UL60730-1, UL60730-2-9 - Emission - FCC Part 15B-Class B
Certification	• IEC68 • EN 60730-1 • EN 60730-2-9 • FCC Part 15, Subpart B • CAN ICES-3 (B)/NMB-3(B) • EN 61326-1 • EN 61010-1 • RoHS II: 2011/65/EU • REACH 1907/2006 • EN ISO 16484-2:2004, section 5.4.3 • UL 916 • CSA C22.2 No. 205 • UL 60730-1 • CAN/CSA E60730-1 • UL 60730-2-9 • CAN/CSA-E60730-2-9:18 • CAN/CSA-E60730-1:02
System Transformer	The system transformer(s) must be safety isolating transformers according to IEC 61558-2-6. In the U.S.A. and Canada, NEC Class 2 transformers must be used.
Mounting compliances	DIN43880 and DIN19

GENERAL SAFETY INFORMATION

- When performing any work (installation, mounting, start-up), all manufacturer instructions and in particular the Installation Instructions (31-00589) are to be observed.
- The I/O Module and other related accessories, manual disconnect modules, and the auxiliary terminal packages) may be installed and mounted only by authorized and trained personnel.
- Rules regarding electrostatic discharge should be followed.
- If the I/O Module is modified in any way, except by the manufacturer, all warranties concerning operation and safety are invalidated.
- Make sure that the local standards and regulations are observed at all times. Examples of such regulations are VDE 0800 and VDE 0100 or EN 60204-1 for earth grounding.
- Use only accessory equipment which comes from or has been approved by Honeywell.
- It is recommended that devices be kept at room temperature for at least 24 hours before applying power. This is to allow any condensation resulting from low shipping/storage temperatures to evaporate.
- The I/O Module must be installed in a manner (e.g., in a lockable cabinet) ensuring that unauthorized persons have no access to the terminals.
- Investigated according to United States Standard UL-60730-1,UL-916, and UL60730-2-9.
- Investigated according to Canadian National Standard(s) C22.2, No. 205-M1983 (CNL-listed).
- Do not open the I/O Module, as it contains no user-serviceable parts inside!
- CE declarations according to LVD Directive 2014/35/EU and EMC Directive 2014/30/EU.
- Product standards are EN 60730-1 and EN 60730-2-9 for indoor use only.
- Important: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
- This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

- If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAFETY INFORMATION AS PER EN60730-1 AND UL60730-1

The I/O Module is intended for residential, commercial, and light-industrial environments.

The I/O Module is an independently mounted electronic control system with fixed wiring.

The I/O Module is suitable for mounting in fuse boxes conforming with standard DIN43880 and DIN19, and having a slot height of max. 1.77" (45 mm).

It is suitable for panel rail mounting on 1.37" (35 mm) standard panel rail (both horizontal and vertical rail mounting possible).

The I/O Module is used for the purpose of building HVAC control and is suitable for use only in non-safety controls for installation on or in appliances.

SAFETY INFORMATION AS PER EN60730-1 AND UL60730-1	
PARAMETER	**SPECIFICATION**
Electric Shock Protection	SELV
Pollution Degree	Pollution Degree 2, suitable for use in industrial environments.
Installation	Safety class: Evaluated in final product
Overvoltage Category	Category II: for mains-powered (relay) controls Category I: for 24V powered controls
Rated Impulse Voltage	330 VAC for Category I 2500 VAC for Relay output (DO)
Automatic Action	Type 1.B (micro-disconnection for relay); Type 1.Y (for others) IP20
Software Class	Class A
Enclosure	According to final product evaluation, meet requirements of
Ball-pressure Test Temperature	>167 °F (75 °C) for all housing and plastic parts >257 °F (125 °C) in the case of devices applied with voltage-carrying parts, connectors, and terminals.
Electromagnetic Interference	Tested at 250 VAC, with the modules in normal condition.
System Transformer	Europe: safety isolating transformers according to IEC61558-2-6 U.S.A. and Canada: NEC Class-2 transformers
Purpose of Control	Operating

WEEE	
	**WEEE Directive 2012/19/EC Waste Electrical and Electronic Equipment Directive** • At the end of the product life, dispose of the packaging and product in an appropriate recycling center. • Do not dispose of the device with the usual domestic refuse. • Do not burn the device.

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