Honeywell WEB-O9056H CIPer30 Expansion IO Module Instruction Manual

Contents

Honeywell

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Introduction

The CIPer Model 30 Expansion IO (EXPIO) are part of the CIPer family. The CIPer Model 30 programming model allows user to connect extra input and output connections along with the on-board IO connections. The I/O points which user can add externally as an expansion to existing on-board points are called as expansion I/O points.

The CIPer Model 30 Expansion IO (EXPIO) modules are available in two models as described in the table below:

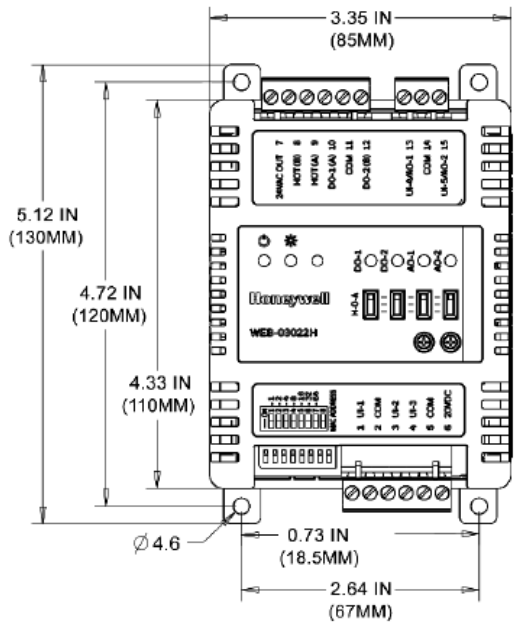
Devices	UI	BO	UIO
WEB-O9056H	9	6	5
WEB-O3022H	3	2	2

Each device is programmable because the user chooses which function blocks to use and how to connect them. It is configurable because each function block has user- defined behavior.

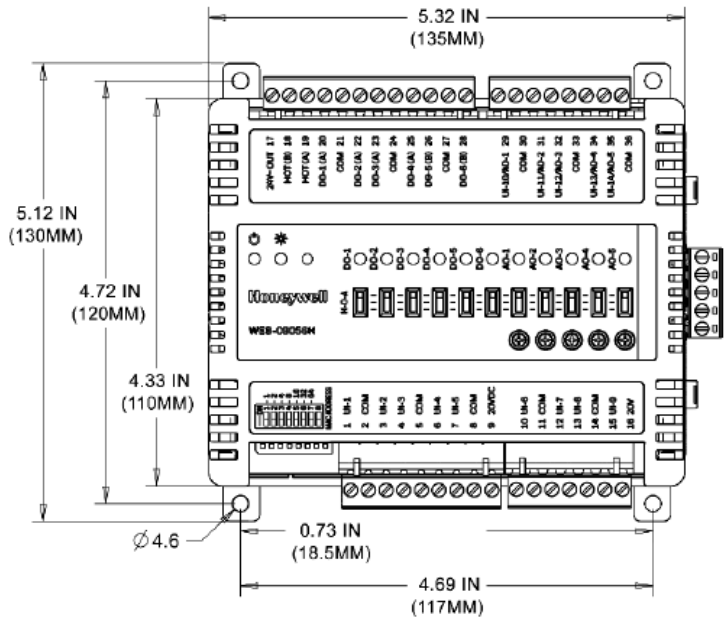
Specifications

Electrical	
Voltage rating	20-30 VAC, 50/60Hz
Power consumption	100 VA for CIPer 30 EXPIO device and all connected loads. **Note:** Power consumption is based on the sum of the VA rating for each controller and should not exceed 100VA. If additional modules are required, then they must be powered from a separate transformer. **WEB-O9056H:** – With all binary output loads connected – 207VA – Without any binary output loads connected – 35VA **WEB-O3022H:** – With all binary output loads connected – 87VA – Without any binary output loads connected – 15VA
Digital Output voltage rating	20 to 30 VAC @ 50/60 Hz
Digital Output type/ rating	Solid-State Relay, 1.5A Continuous, 3.5A inrush for 100 ms
Environmental	
Ambient temperature	-4 to 131F (-20 to 55C)
Storage temperature	-4 to 150F (-20 to 65C)
Humidity	5% to 95% non-condensing
Differential pressure sensor rang e (VAV model)	0-2” WC (0 to 374 Pa), 32 to 122F (0 to 55C)
Purpose of Control	Operating Control, Open Energy Management Equipment
Pulse Inputs	100Hz max, minimum duty cycle: 5 ms ON / 5 ms OFF.

Dimension Drawings



WEB-O3022H



WEB-O9056H

Installation

WARNING

- Install all equipment in accordance with the National Electric Code and in a manner acceptable to the local authority having jurisdiction. Read these instructions and the CIPer 30 Expansion IO Modules (EXPIO) Installation Instructions (31-00319) carefully before installing equipment. Fail-ure to follow all instructions may result in equipment damage or a hazardous condition.
- The CIPer 30 EXPIO module is susceptible to electrostatic discharge (ESD). Use appropriate ESD grounding techniques while handling the product. When possible, always handle the product by its non-electrical components. Review the power, input, and output specifications before installing the controller.

The CIPer 30 EXPIO must be mounted in a position that allows clearance for wiring, servicing, removal, connection of the terminal blocks and access to the IP address and DIP switches. Both the CIPer 30 EXPIO (WEB-O9056H and WEB-O3022H) can be connected directly or remotely with CIPer Model 30 controller (WEB-C3036EPUBNH and WEB-C3036EPVBNH).

Power Guidelines

- For multiple devices operating from a single transformer, the same side of the transformer secondary must be connected to the same power input terminal in each device.
- The earth ground terminal must be connected to a verified earth ground and keep the earth ground con-nection wire run as short as possible.
- Each configuration may not necessarily limit to three devices, but the total power draw, including accesso-ries, cannot exceed 100 VA when powered by the same transformer. In case it exceeds 100VA, use separate transformer to power up the modules.
- Do not connect earth ground to the device’s digital or analog ground terminals.
- In case all binary loads connected to the CIPer Model 30 controller and CIPer 30 EXPIO device, then con-troller must use separate transformers for powering controller and additional transformer for powering EX-PIO

device.

- Use heavier gauge wire for the power run. 14 AWG (2.0 sq mm) wire is the recommended wire size for 24 VAC wiring.
- Locate the transformer closer to the device. This reduces the length of the wire run, and the line-loss.

Transformer VA load for module power only (without any binary output loads connected)

- a) WEB-C3036EPUBNH = 50VA
- b) WEB-C3036EPVBNH = 50VA
- c) WEB-O9056H = 35VA
- d) WEB-O3022H = 15VA

DIN Rail Mounting
The CIPer 30 EXPIO mounts on a standard DIN rail in one of two ways:

- Vertically, with the connections on the right and left sides of the unit.
- Horizontally, with the connections on the top and bottom of the unit.

The CIPer 30 EXPIO has a locking clip, similarly like CIPer Model 30 controller. Mounting on DIN rail ensures accu-rate alignment between all modules and controller. The CIPer 30 EXPIO can also be screw-mounted using the four mounting tabs, accessible under the covers. These mounting tabs can be broken off if user needed to save space when DIN rail mounting.

WARNING

- All the terminals and power connections should be wired before mounting to a panel or DIN rail.
- Make sure the CIPer Model 30 controller is not connected to power supply while mounting CIPer 30 EXPIO device.

To mount the CIPer 30 EXPIO on a DIN rail

1. Hold the EXPIO with its top tilted in towards the DIN rail, hook the two top tabs on the back of the EXPIO onto the top of the DIN rail. Ensure EXPIO serial expansion plug is facing toward the Controller serial ex-pansion socket.
2. Push down the EXPIO and latching all the tabs of the EXPIO onto the DIN rail.
3. Move EXPIO along the DIN rail toward the CIPer Model 30 Controller, ensure both the raised alignment tabs of CIPer Model 30 Controller align to the depression of the EXPIO, and latch them together.
4. Properly ground the panel, then terminate grounded components of power, communications, and I/O wir-ing.

To remove the CIPer 30 EXPIO from the DIN rail

1. Push straight down from the top to release the bottom tabs.
2. Rotate the bottom of the EXPIO out towards you and pull the EXPIO up and away from the DIN rail to release the bottom latching tabs.

   IMPORTANT

Avoid mounting in areas where acid fumes or other deteriorating vapors can attack the metal parts of the controller, or in areas where escaping gas or other explosive vapors are present.

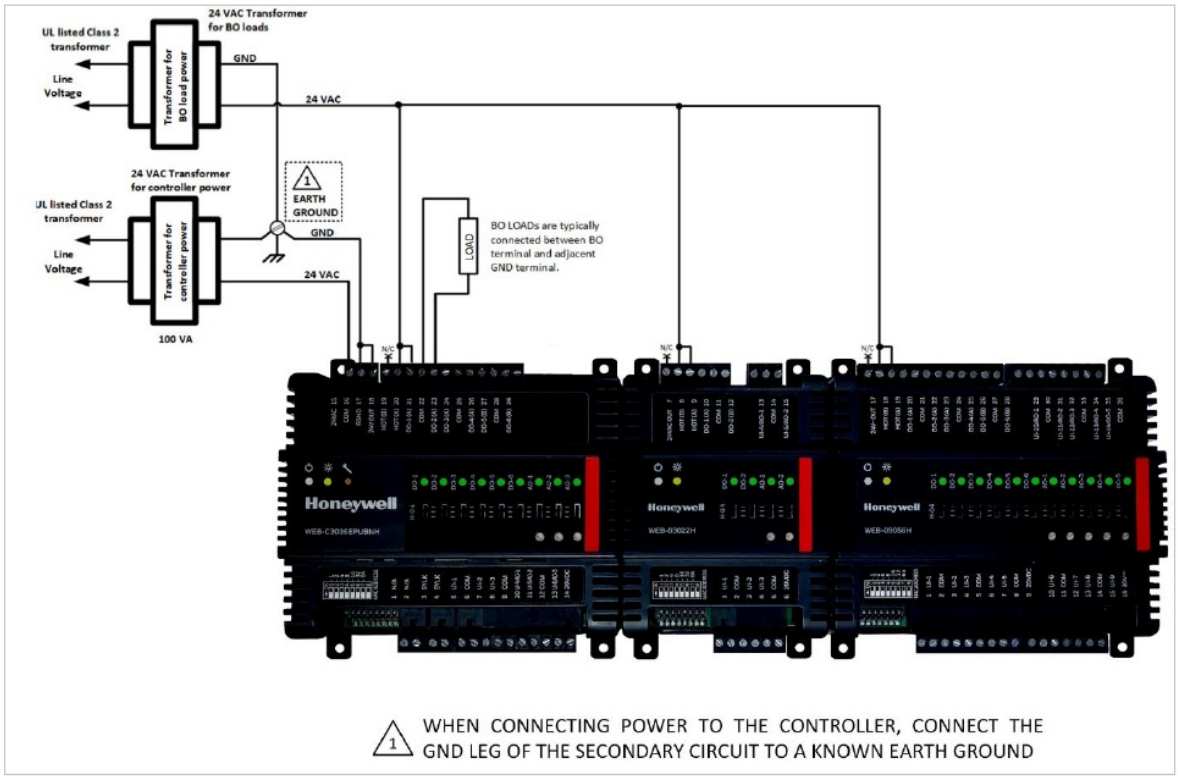


Figure 1: Stacked power wiring connection for CIPer Model 30 Controllers and EXPIO

Remotely Mounting

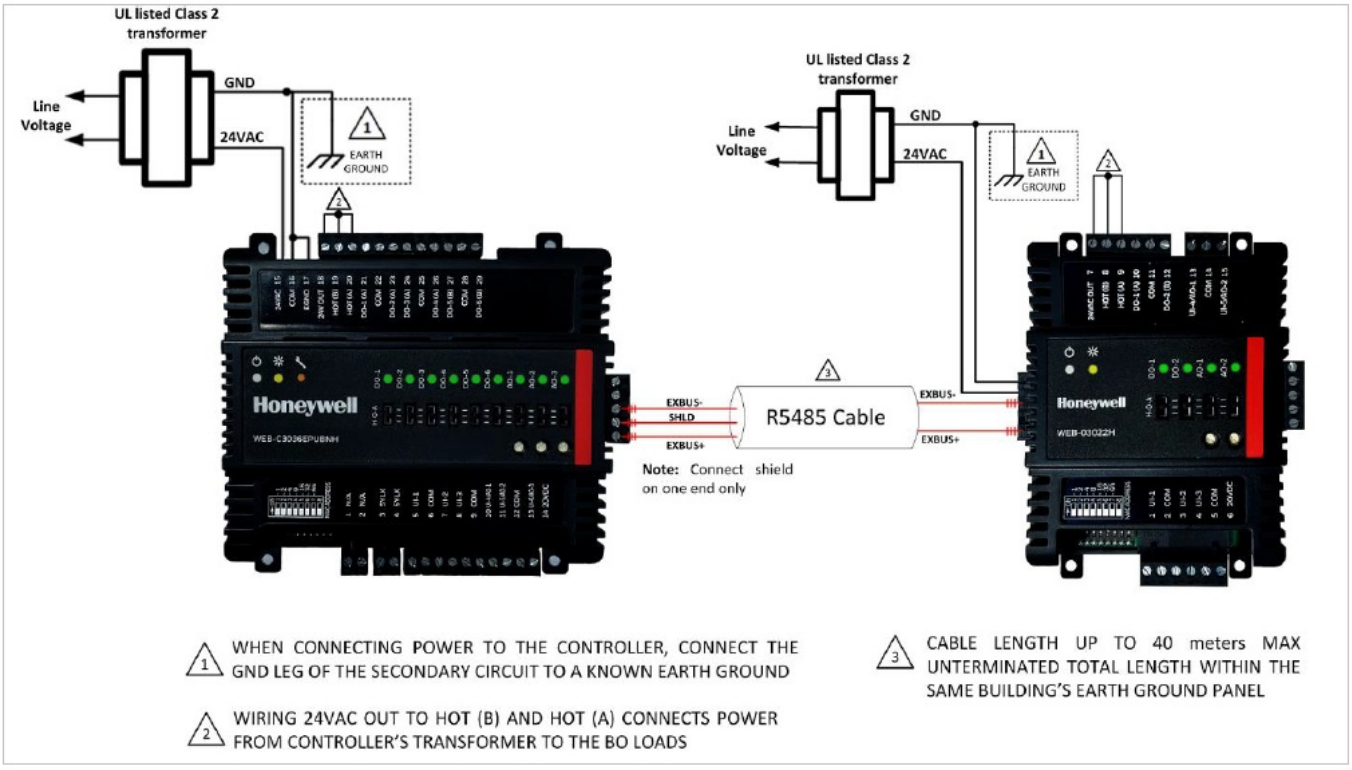


Figure 2: Remotely power wiring connection for CIPer Model 30 Controllers and EXPIO

NOTE

- The cable length is up to 40 meters max unterminated total length within the same building's earth ground plane.
- When you change the HOA switch to Off, Auto, and Hand mode in the physical device, there is a delay of one second. This is to avoid the switch mode to change when it is mistakenly changed. So, if you want to see the switch mode to change, you need to keep the switch in the required mode at least for one second, otherwise the device ignores the change made by switch.

Hand Off Auto (HOA) Switch
HOA switches (physical) are provided for each analog and binary output present on the CIPer Model 30 controller and expansion I/O. You can configure the HOA modes via physical switches on the CIPer Model 30 controller and expansion I/O modules. The HOA switch overrides all the software commands when set to HAND or OFF.

Digital Outputs (DOs)

HOA Switch Mode	**Output Response**
Off	The physical output is disabled regardless of the control program logic output.
Auto	The physical output responses are determined by the value provided by the control pro- gram logic output.
Hand	The physical output is enabled regardless of the control program logic output.

Analog Outputs (AOs)

HOA Switch Mode	**Output Response**
Off	The output is at 0 %. The trimpot value covers the full output range regardless of the con- trol program logic output.
Auto	The physical output responses are determined by the value provided by the control pro- gram logic output.
Hand	The HOA trimpot drives the output from 0 to 100 % (0 to 20 mA or 0 to 10 VDC as appro- priate), ignoring the control program logic output.

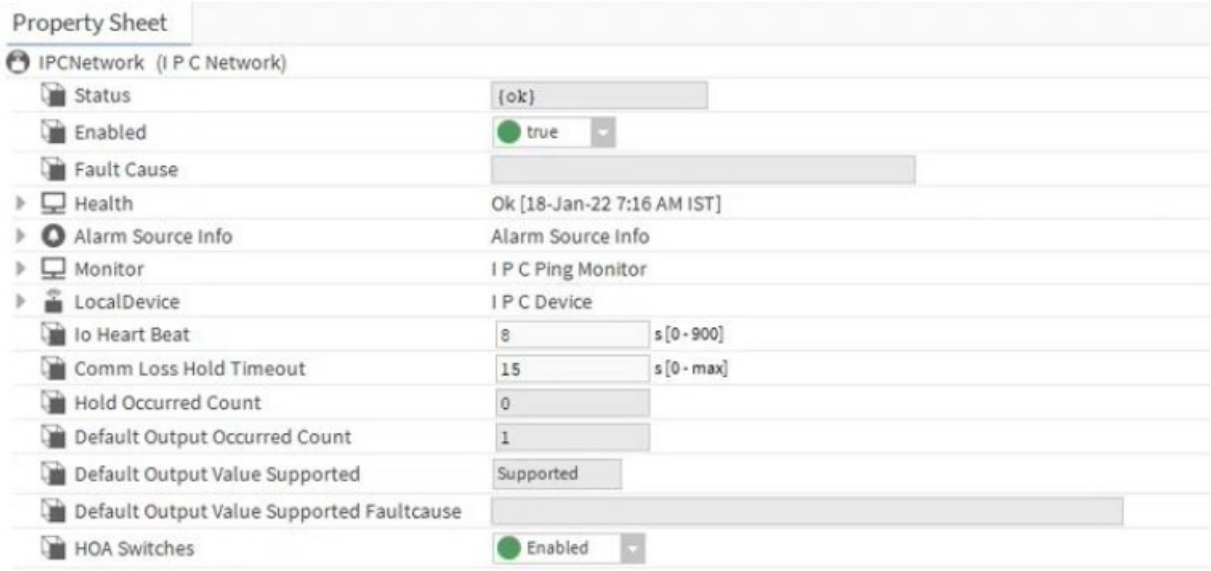
Note:
When you toggle the HOA switch to Off, Auto, or Hand in the physical device, a one-second delay is applied to prevent the switchmode from changing when it is mistakenly changed. Therefore, to see the switch-mode change, the switch must be in the desired mode for at least one second; otherwise, the device ignores the change.

Enable or Disable the HOA Switches

This function allows you to enable or disable the HOA switches from the workbench. This applies to all HOA on the CIPer Model 30 controller and all I/O modules connected to that CIPer Model 30 controller.

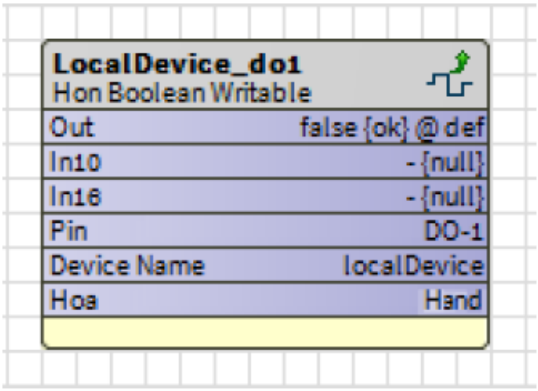
To enable or disable the HOA switches:

1. In the Nav tree, open the CIPer Model Controller IP Address > Station (CIPer Model 30 controller station name) > Config > Drivers folder.
2. Right-click IPC Network and select View > AX Property Sheet to display sthe IPC network property sheet.

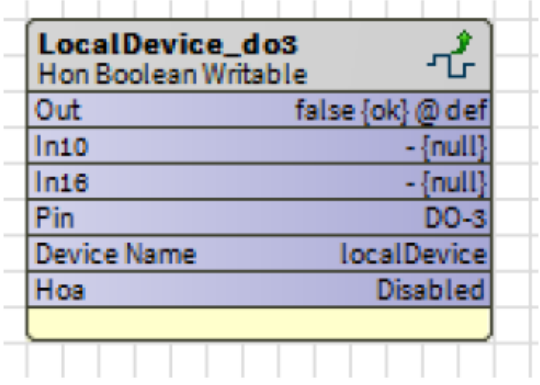


3. In HOA Switches, select Enabled or Disabled.

- **Enabled:** Enables the HOA switches to function in the physical device. For example, the HOA switch status in the wiresheet when it is enabled.

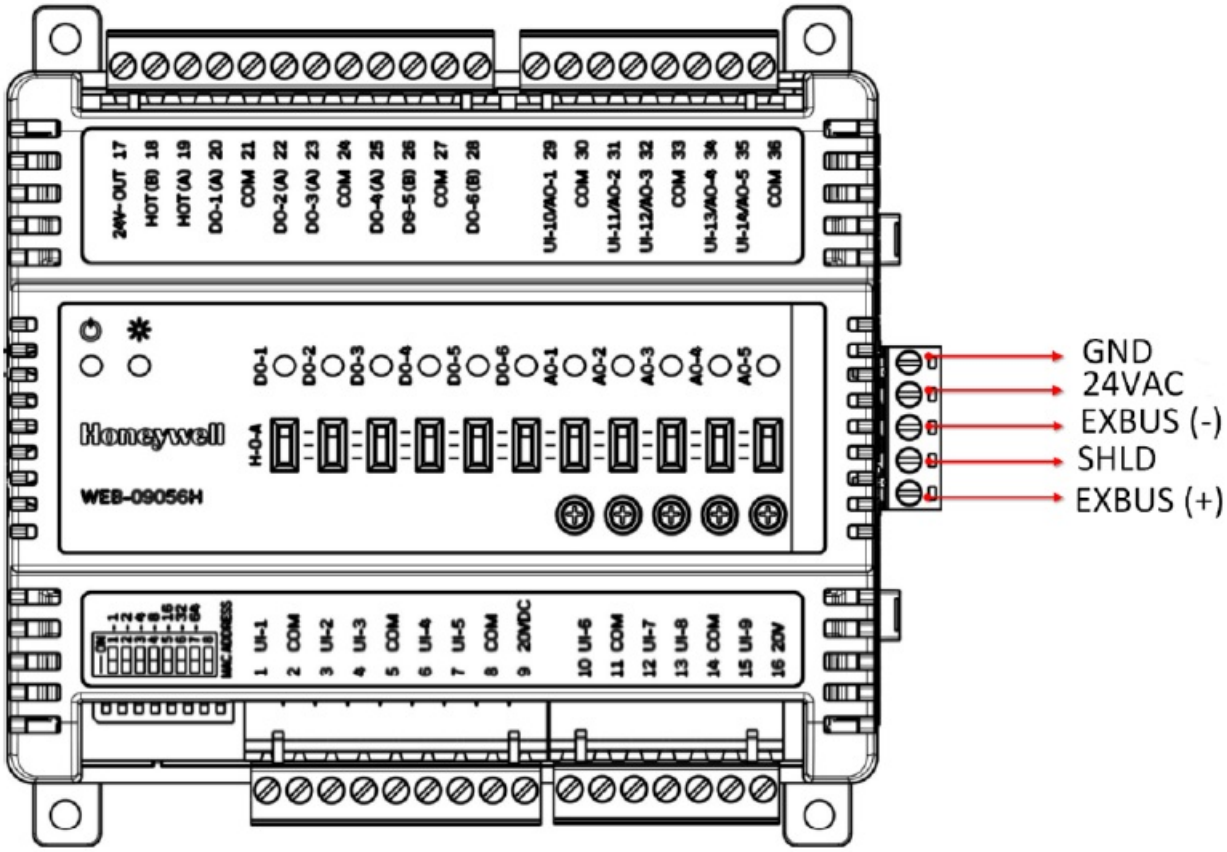


- **Disabled:** Disables the HOA switches to function in the physical device. The position of the HOA switches will be ignored by the program logic.
  For example, the HOA switch status in the wiresheet when it is disabled.



4. Click Save to complete the switch configuration.

Expansion IO Serial Bus
CIPer 30 expansion IO uses dedicated RS-485 2-wire non-isolated serial bus to communicate with CIPer 30 Controller.



Terminal Blocks
The CIPer 30 Expansion IO uses removable terminal blocks to simplify field wiring of power and cabling. If desired, you can remove the terminal blocks from the unit, terminate cable, and reset the block when you finish.

To terminate cable:

1. Strip a wire jacket from the end of the cable.
2. Use a small screwdriver to turn the adjustment screw fully counter-clockwise. The clamps in the wire slot separate as you turn the screw.
3. When the clamps in the wire slot are fully open, insert the stripped end of the cable (the insulation end must be flush with the terminal block). Be sure to insert all cable strands into the wire slot.
4. Hold the cable in place and turn the adjustment screw clockwise to tighten it until the clamps in the wire slot secure the cable. Tug gently on the cable to ensure that it’s securely terminated
5. Both Expansion I/O modules WEB-O3022H and WEB-O9056H can be connected directly to the WEB-C3036EPVBNH controller as shown in Fig. 2.

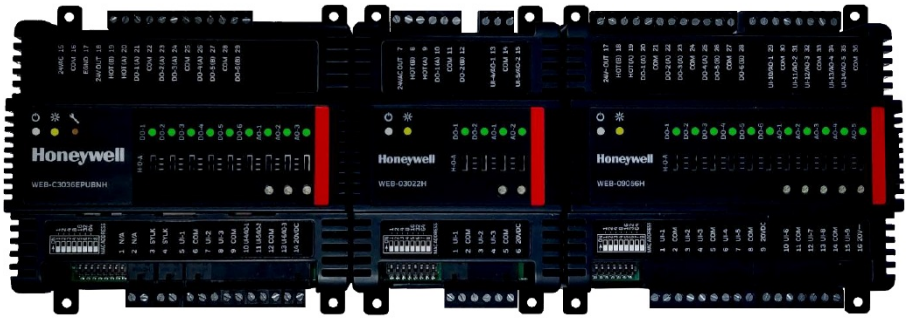


Figure 3: Stacked CIPer Model 30 controllers with EXPIO modules

Terminal Description

WEB-O3022H

Terminal	Description
1, 3	Universal inputs UI-1 & UI-2
2	COM terminal for UI-1 & UI-2
4	Universal inputs UI-3
5	COM terminal for UI-3
6	Supplies 20V DC
7	24V AC output from controller for DO devices
8	HOT (B) terminal. Supplies power to common side of controller’s DO-2
9	HOT (A) terminal. Supplies power to common side of controller’s DO-1
10	DO-1(A)
11	GND terminal for DO-1(A) & DO-2(B)
12	DO-2(B)
13, 15	Universal inputs UI-4/AO-1 & UI-5/AO-2
14	COM terminal for UI-4/AO-1 & UI-5/AO-2

WEB-O9056H

Terminal	Description
1, 3	Universal inputs, UI-1 & UI-2
2	COM terminal for UI-1 & UI-2
4,6	Universal inputs, UI-3 & UI-4
5	COM terminal for UI-3 & UI-4
7	Universal input, UI-5
8	COM terminal for UI-5
9	Supplies 20V DC
10, 12	Universal inputs, UI-6 & UI-7
11	COM terminal for UI-6 & UI-7
13, 15	Universal inputs, UI-8 & UI-9
14	COM terminal for UI-8 & UI-9
16	Supplies 20V DC
17	24V AC output from controller for DO devices
18	HOT (B) terminal. Supplies power to common side of controller's DO-5 & DO-6
19	HOT (A) terminal. Supplies power to common side of controller's DO-1 to DO-4
20, 22,	DO-1(A) & DO-2(A)
21	GND terminal for DO-1(A) & DO-2(A)
23, 25	DO-3(A) & DO-4(A)
24	GND terminal for DO-3(A) & DO-4(A)
26, 28	DO-5(B) & DO-6(B)
27	GND terminal for DO-5(B) & DO-6(B)

29, 31	Universal inputs UI-10/AO-1 & UI-11/AO-2
30	COM terminal for UI-10/AO-1 & UI-11/AO-2
32, 34	Universal inputs UI-12/AO-3 & UI-13/AO-4
33	COM terminal for UI-12/AO-3 & UI-13/AO-4
35	Universal inputs UI-14/AO-5
36	COM terminal for UI-14/AO-5

Wiring

All wiring must comply with applicable electrical codes and ordinances, or as specified on installation wiring diagrams. Device wiring is terminated to the screw terminal blocks located on the top and the bottom of the device.

WARNING
Electrical shock hazard can cause severe injury, death or property damage. Disconnect power supply before beginning wiring or making wiring connections, to prevent electrical shock or equipment damage.

The 24 VAC power from an energy limited Class II power source must be provided to the controller and device. To conform to Class II restrictions (U.S. only), the transformer must not be larger than 100 VA.

IMPORTANT

- Power must be off prior to connecting to or removing connections from the 24 VAC power (24 VAC/24 VAC COM), earth ground (EGND), and 20 VDC power (20 VDC) terminals.
- Use the heaviest gauge wire available, up to 14 AWG (2.0 sq mm), with a minimum of 18 AWG (1.0 sq mm), for all power and earth ground wiring.
- Screw-type terminal blocks are designed to accept up to one 14 AWG (2.0 sq mm) conductor or up to two 18 AWG (1.0 sq mm) conductors. More than two wires that are 18 AWG (2.0 sq mm) can be connected with a wire nut. Include a pigtail with this wire group and attach the pigtail to the terminal block.
- If the device is not connected to a good earth ground, the device's internal transient protection circuitry is compromised and the function of protecting the device from noise and power line spikes cannot be fulfilled. This could result in a damaged circuit board and require replacement of the device. Refer to installation diagrams for specific wiring.
  Each terminal can accommodate the following gauges of wire:
  - Single wire: 22 AWG to 14 AWG solid or stranded
  - Multiple wires: up to two 18 AWG stranded, with 1/4 watt wire-wound resistor

NOTES

- When attaching two or more wires to the same terminal, other than 14 AWG (2.0 sq mm), be sure to twist them together. Deviation from this rule can result in improper electrical contact (see Fig.4).

Prepare wiring for the terminal blocks, as follows:

1. Strip 1/2 in. (13 mm) insulation from the conductor.
2. Cut a single wire to 3/16 in. (5 mm). Insert the wire in the required terminal location and tighten the screw.
3. If two or more wires are being inserted into one terminal location, twist the wires together a minimum of three turns before inserting them (see Fig. 4).
4. Cut the twisted end of the wires to 3/16 in. (5 mm) before inserting them into the terminal and tightening the screw.
5. Pull on each wire in all terminals to check for good mechanical connection.

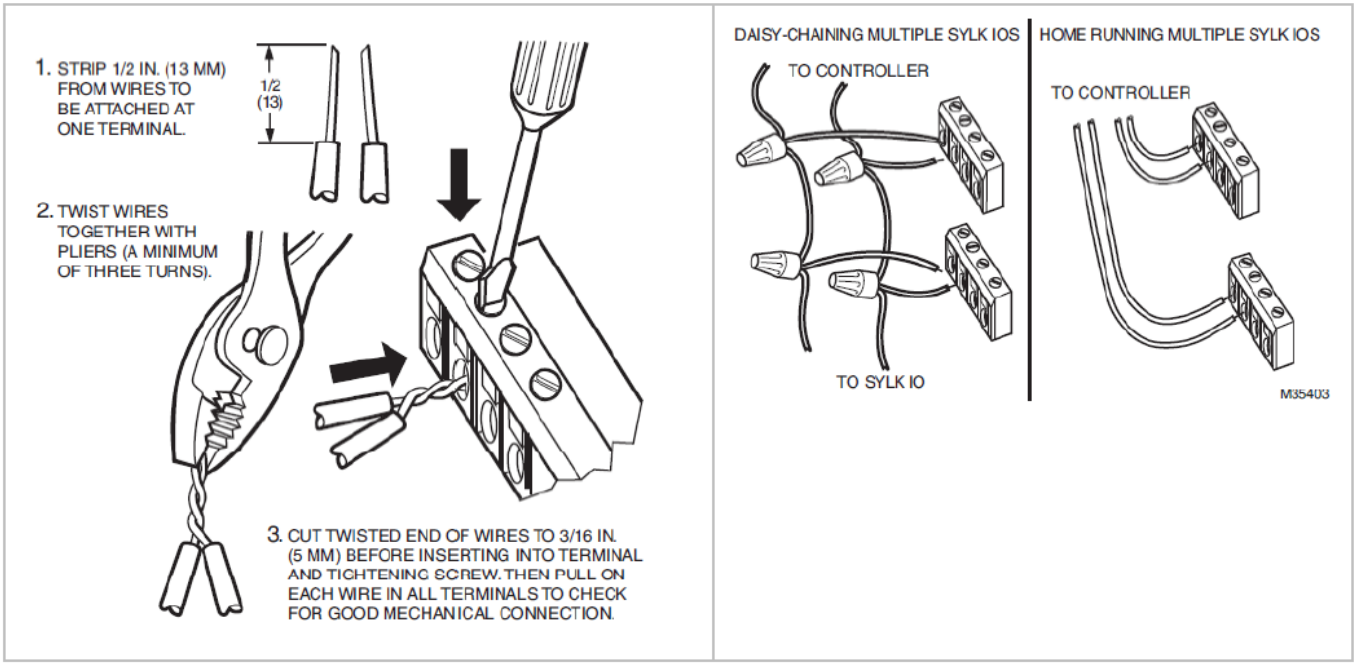


Figure 4: Attaching two or more wires at terminal blocks.

NOTES

- For multiple controllers and devices operating from a single transformer, the same side of the transformer secondary must be connected to the same power input terminal in each controller. Controller and device configurations will not necessarily be limited to three devices, but the total power draw, including accessories, cannot exceed 100 VA when powered by the same transformer (U.S. only). A controller can use separate transformers for controller power and output power (refer Fig 1 on page 5).
- The earth ground terminal must be connected to a verified earth ground for each controller or device in the group.
- Keep the earth ground connection wire run as short as possible.
- Do not connect the universal input COM terminals, analog output COM terminals or the digital input/output COM terminals to earth ground.

Disposal
The product should not be disposed of with other household waste. Check for the nearest authorized collection centers or authorized recyclers. The correct disposal of end-of-life equipment will help prevent potential negative consequences for the environment and human health. Do not burn this device.

Electrostatic Sensitivity
The VIP controller and its components may be susceptible to electrostatic discharge (ESD).
Use appropriate ESD grounding techniques while handling the product. When possible,always handle the product by its non-electrical components.

Conformance statement

This digital apparatus complies with CAN ICES-003 (B)/ NMB-3 (B). This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
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. Suppose this equipment does cause harm-ful interference to radio or television reception, which can be determined by turning the equipment off and on. In that case, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

FCC Notice
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

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Documents / Resources

	Honeywell WEB-O9056H CIPer30 Expansion IO Module [pdf] Instruction Manual WEB-O9056H, WEB-O3022H, WEB-O9056H CIPer30 Expansion IO Module, CIPer30, Expansion IO Module, CIPer30 Expansion IO Module, IO Module, Module