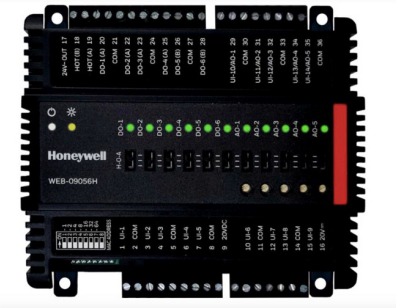


Honeywell CIPer Model 30 Controller And Expansion IO User Guide

Honeywell

CIPer Model 30
CONTROLLER AND EXPANSION IO

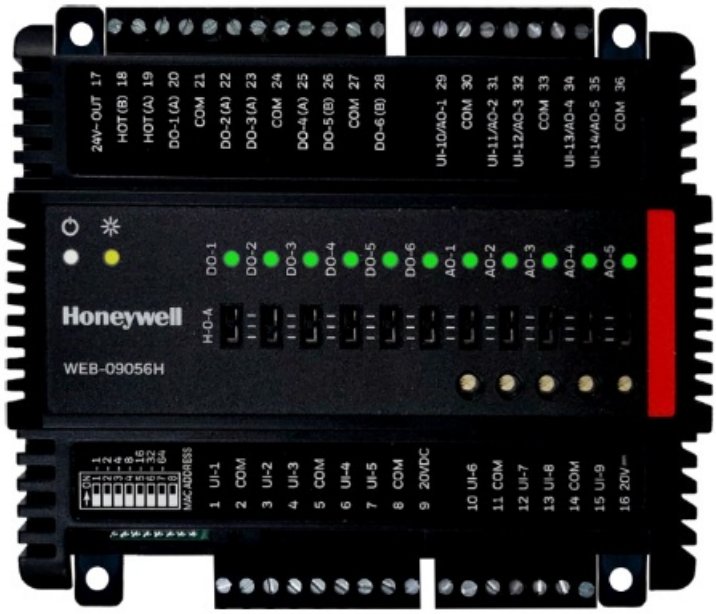
CIPer Model 30 controller

CIPer Model 30 controllers are available in two models WEB-C3036EPUBNH and WEBC3036EPVBNH.

Contents

CONTROLLER

These are Internet Protocol (IP) based “EDGE” controllers that can be used for VAV, unitary, equipment, and plant applications. Each controller is programmable and configurable using the open Niagara 4 Framework. Each controller is equipped with a four-port Gigabit network switch, that can integrate with broader IP peripheral devices including cameras, variable frequency drives, utility meters, lighting systems, etc. The CIPer Model 30 controllers can communicate over TCP/ IP (FOXS), BACnet, and Modbus protocols. These controllers can be used to aggregate information (including real-time data, alarms, trends, and history) and integrate this data to maximize the efficiency and lifespan of expensive facility equipment (assets) while helping prevent unplanned downtown. Additional physical I/O points are available using Expansion IO modules WEB-O9056H and WEB-O3022H.



WEB-O9056H

EXPANSION IO

Expansion IO can be directly connected to the CIPer Model 30 controller or remotely mounted up to 100 ft away. The CIPer Model 30 supports up to 8 Expansion IO modules (WEB-O9056H and WEB-O3022H). The WEB-O9056H module is a large Expansion module that adds 20 additional I/O points, and the WEB-O3022H module is a small Expansion module that adds 7 additional I/O points. You can mix the small WEB-O3022H and the large

WEB-O9056H in any combination to meet specific project I/O requirements. The Expansion IO modules feature removable terminal blocks, Hand-Off-Auto switches, and indicator LEDs. They can be powered by the CIPer Model 30 controller.

WEB-O3022H

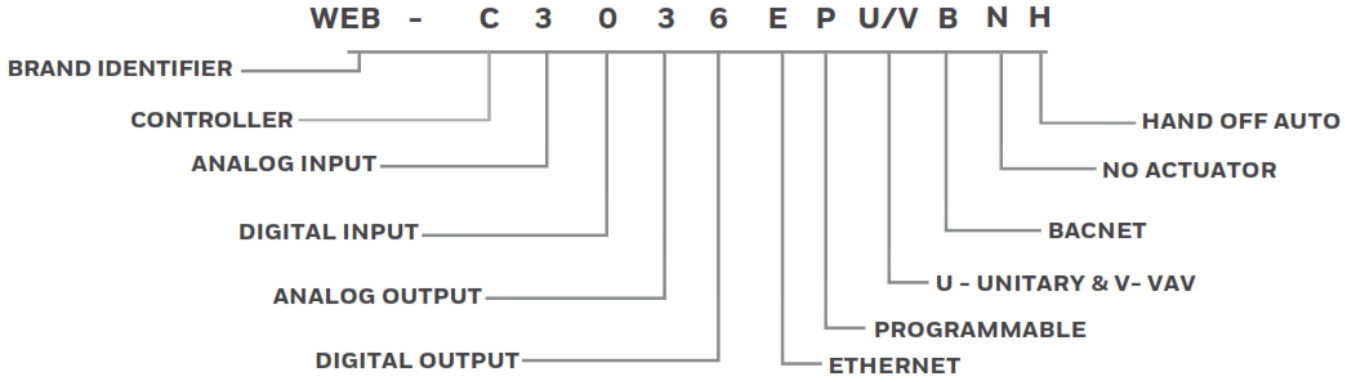
ORDERING PART NUMBERS

MODEL	DESCRIPTION
WEB-C3036EPUBNH	CIPer IP Unitary Controller, Niagara N4 license for BACnet, 150 Points, 3 Devices, SMA included
WEB-C3036EPVBNH	CIPer IP VAV Controller, Niagara N4 license for BACnet, 150 Points, 3 Devices, SM A included
FOC-EDGE-CONV	Software license conversion to BACnet, Modbus, 100 Points, 3 devices, SMAinclud ed
WEB-O9056H	CIPer IP Large Expansion Module, 20 I/O Points (9-UI, 6-BO, 5-UIO)
WEB-O3022H	CIPer IP Small Expansion Module, 7 I/O Points (3-UI, 2-BO, 2-UIO)

EXPANDABLE LICENSE UPGRADE

PIN-EDGE-UPG	Upgrade existing CIPer Model 30 to expandable license for 100 points and 5 de
PIN-DEV-UP-1	1 Device & 50 Point Upgrade. Only available with an expandable license.
PIN-DEV-UP-2	2 Device & 100 Point Upgrade. Only available with an expandable license.
SMA-0002-xYR	Software Maintenance Agreement – available in 1,3, or 5-year increments.

CONTROLLER PART NUMBERS DESCRIPTION



FEATURES AND HIGHLIGHTS

CONTROLLER

- Full Niagara 4 stack with 12 points of onboard I/O expandable up to 172 channels (including 9 monitored Hand-Off-Auto).
- 1Gbps 4-Port IP switch integrates demanding IP peripheral devices (like color cameras) 1000 times faster than serial MSTP.
- Full Niagara N4 license includes,
- 150 points (including data sharing points from the third-party BACnet devices) and 3 devices.
- The CIPer Model 30 supports up to 8 Expansion IO modules.
- Rapid Spanning Tree Protocol (IEEE 802.1w) supports 120 controllers on a daisy chain bus with fewer home runs for faster and lower cost wiring.
- Up to 40 controllers can be connected in a ring or loop, to provide high resilience to network failure.

EXPANSION IO

- Plug-and-play functionality for each installation and maintenance.
- All wiring connections are made to removable terminal blocks to simplify device installation and replacement.
- Wide range of supported sensors such as 20 KNTC, PT1000, and other resistive sensors.
- 16-bit A/D conversion resolution for accurate measurement.
- Supports Star network topology.
- Spyder program and Venom conversion application standard.
- BACnet B-BC listed product.
- The CIPer Model 30 controller features a Sylk™ bus interface that facilitates the connection of room sensor, Sylk™ actuator, and display devices (e.g. the TR40 and TR42 series).
- Direct supervisor connectivity (Cloud or on-premise); simplifying system architecture and reducing programming, commissioning & installation time.
- Niagara 4 Framework eliminates the extra cost, proprietary software, and tools.
- SSL encrypted communications (FOXS PKI Certificate) protect the facility's expensive assets and infrastructure with
- Indication LEDs for all Digital and Analog Outputs (DO & AO).
- HOA (Hand-Off-Auto) switches on DOs and AOs. HOA is configurable and can be monitored.
- Compact size for small installation housings.
- Field configuration and programming for Expansion IO input and output functions can be performed using

world-class cyber-security.

- FIPS 140-2 Level 1 compliance for critical high-risk facilities.
- Industry-standard TCP/IP connectivity, enabling the use of CAT5 or CAT6 Ethernet cables.
- 16-bit A/D conversion resolution for accurate measurement.
- VAV model includes an onboard airflow sensor.
- Live “real-time” programming; no time-consuming downloads.
- Solid State Relay (SSR) outputs reduce the need for external relays.
- Ready to use open-protocol Niagara 4 wire-sheet, alarming, history, schedules, web server, HTML graphics, standard tools and palettes, pre-configured common application macro library, analytic points, and Haystack Tagging.

  CIPer Model 30 programming tool.
- The CIPer Model 30 supports up to 8 Expansion IO modules(WEB-O9056H and WEB-O3022H).

DIMENSIONS

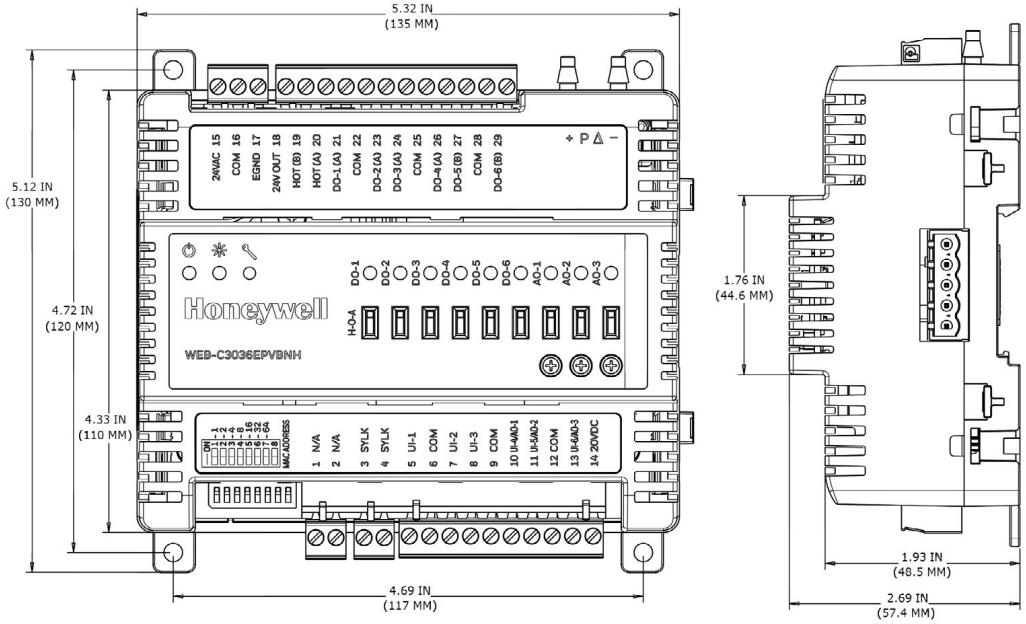


Fig. 1 Different views of CIPer Model 30 controller

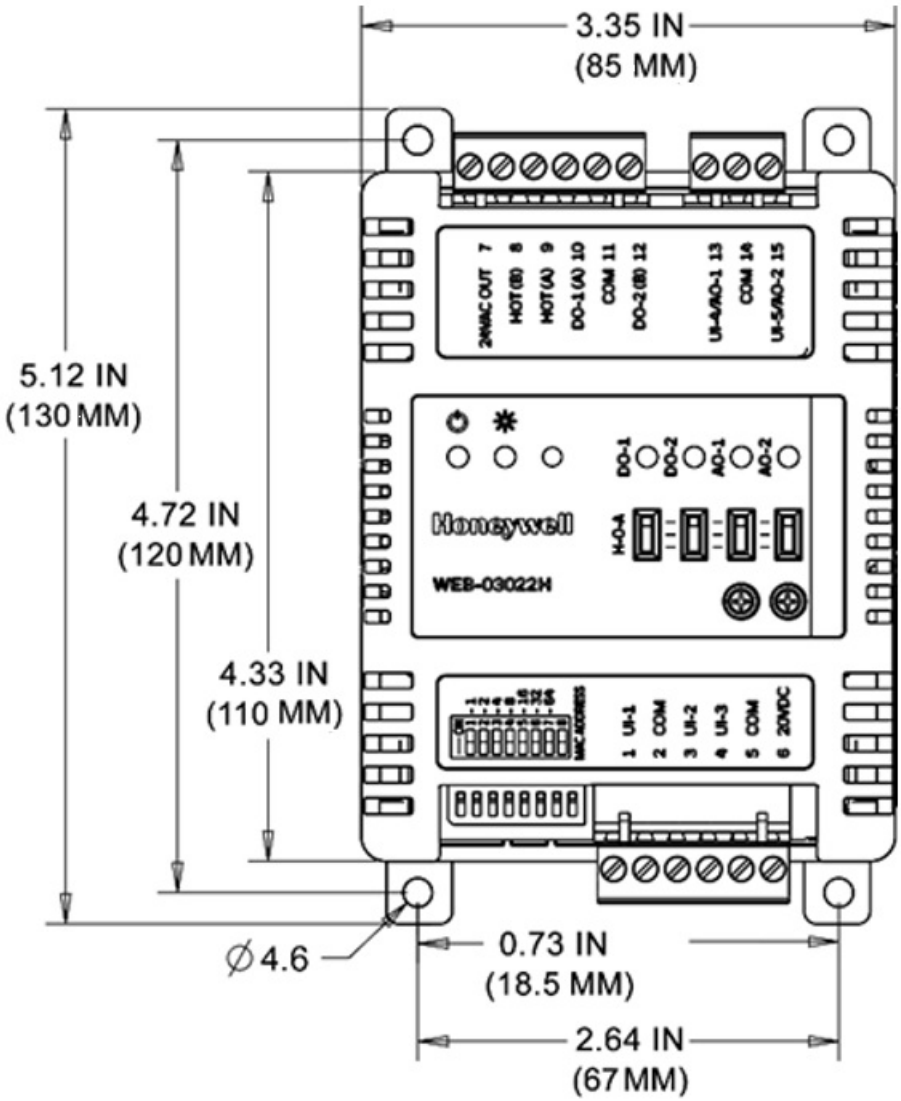


Fig. 2 WEB-O3022H

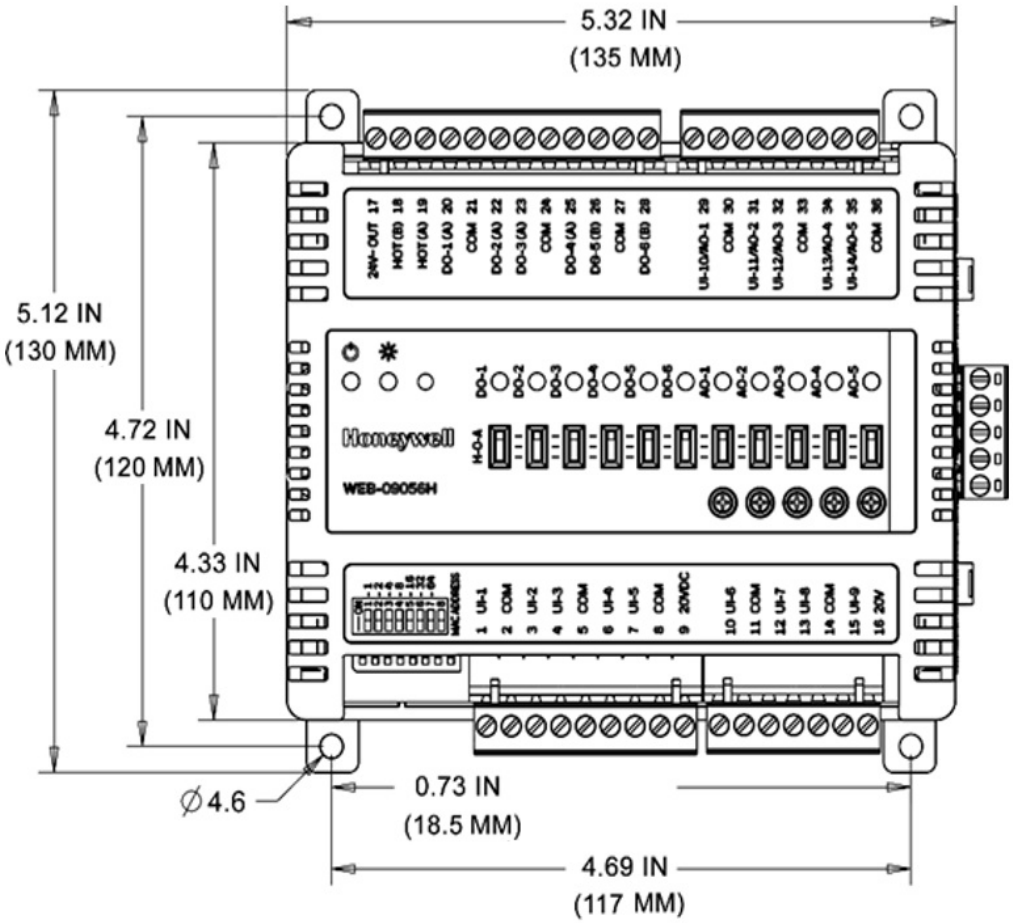


Fig. 3 WEB-O9056H

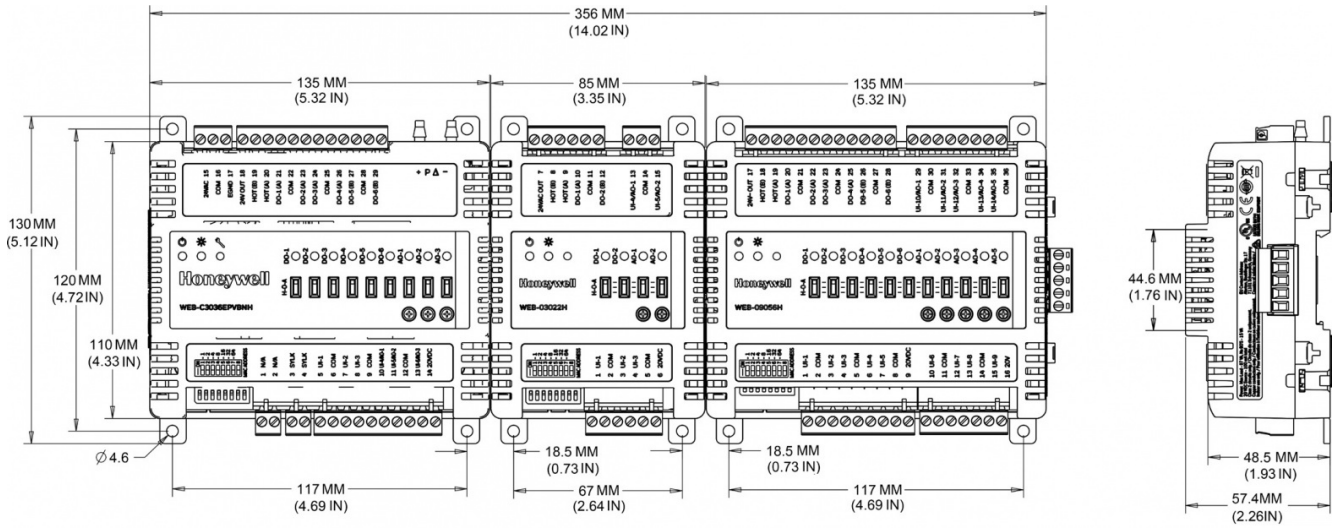
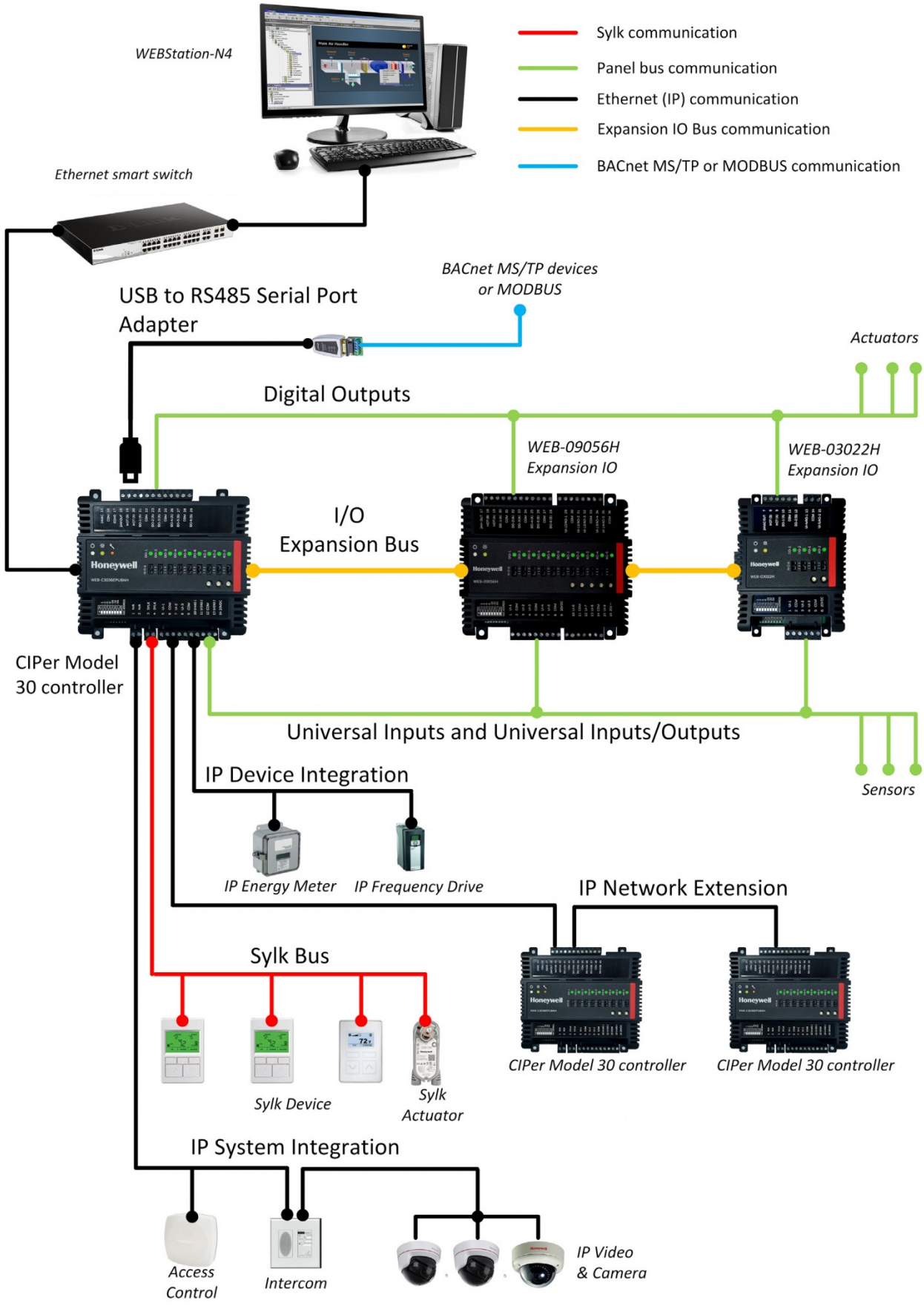


Fig. 4 Dimensional view of stacked Controller and Expansion IO modules

SYSTEM OVERVIEW



PRODUCT SPECIFICATION

HARDWARE SPECIFICATION

MRAM	512 KB
RAM	1 GB
FLASH RAM	4 GB
CPU	Cortex A9 32-bit processor 1 GHz, Cortex-M4 227 MHz
Operating system	QNX based
Real-Time clock ti mekeeping accuracy	24-hour, 365-day, multi-year calendar including the day of week and configuration for automatic daylight savings time adjustment to occur at 2:00 am. local time on configured start and stop dates. Minimum 48 hours backup.
Power failure mem ory backup	24-hours at 32 °F to 100 °F (0°C to 38 °C), 22-hours at 100 °F to 122 °F (38 °C to 50 °C)
Time accuracy	±1 minute per month at 77 °F (25 °C)

ELECTRICAL

Rated input voltag e	24 VAC (20 to 30 VAC) 50/60 Hz	
Rated impulse vol tage	330 VAC for Category I (SELV)	
Rated output volta ge	20 to 30 VAC ® 50/60 Hz	
Rated output type	Solid-State Relay, 1.5 A Continuous, 3.5 A inrush for 100 ms.	
Power consumption•	CIPer Model 30 Controller	100 VA maximum for the controller and all connected loads 5 0 VA maximum for controller only load
	WEB-09056H	207 VA maximum for I/O module with all connected loads 35 VA maximum for I/O module without any load
	WEB-03022H	87 VA maximum for I/O module with all connected loads 15 V A maximum for I/O module without any load
*Power consumption is based on the sum of the VA rating for each controller and should not exceed 100 VA. In case it exceeds 100 VA, use a separate transformer to power up the modules.		

OPERATING ENVIRONMENT

Ambient temperature•	– 4 °F to 131 oF (-20°C to 55 °C)
Storage temperature	– 4 °F to 150°F (-20°C to 65 °C)
Humidity	5% to 95% RH non-condensing
Protection	IP20
• When utilizing differential pressure transducer. operating temperature ambient rating:32°F to 122°F (0 °C to 50°C).	

DIFFERENTIAL PRESSURE SENSOR (VAV MODEL)

Media type	Air, N2, O2 (non-condensing)
Media temperature	32 °F to 122 °F (0 °C to 55 °C)
Pressure range	WEB-C3036EPVBNH: ±2” WC (±500 Pa) Expansion IO: ±2” WC (±374 Pa)

SUPPORTED SYLK DEVICES

Wall modules sensors	TR40, TR40-H, TR40-CO2, TR40-H-CO2, TR42, TR42-H, TR42-CO2, TR42-H-CO2, TR71 TR120, TR120-H
Sensors	C7400S Sylk™ Sensor
Sylk Actuator	MS3103, MS3105, MS4103, MS4105, MS7403, MS7405, MS7503, MS7505, MS8103, MS8 Coupled Actuators (DCA) are used within the heating, ventilating, and air-conditioning (HVA variety of quarter-turn; final control elements requiring spring return fail-safe operation.

CONTROLLER AND EXPANSION IO UNIVERSAL INPUT/OUTPUT DETAILS

CONTROLLER	**CONTROLLER TYPE**	**UI**	**UIO**	**UIO**
WEB-C3036EPUBNH	Unitary	3	3	6
WEB-C3036EPVBNH	VAV	3	3	6
WEB-O3022H	IO module	3	2	2
WEB-O9056H	IO module	9	5	6

INPUT/OUTPUT SPECIFICATION

	UNIVERSAL INPUTS (UI)	**UNIVERSAL INPUT/OUTPUT (UIO)**	**DIGITAL OUTPUTS (DO)**
Function	Voltage, current, resistive or di gital input	Voltage, current, resistive or di gital input or analogue (voltage/ current) output	Direct (on/off); Slow PWM
Resoluti on	16 bit (65536 steps)		NA
Pulse in puts	Frequency: 100 Hz max, minimum duty cycle: 5 mS ON / 5 mS OFF		NA
Voltage Input	**Input range:** 0 to 10 VDC, Input **resistance:** 189 kQ, **Accuracy :** 55% of full-scale (i.e. ±50 mV		As per supply voltage (20 – 30 VA C), Output Type solid-state relays.
Current Input	Input range: 0 to 20 mA, **Current source:** Internal (loop power) or external PSU, Input resistance: 50012.w, **Accuracy:** 5±0.5% of full-scale (i.e. 100 A)		1.5 A continuous, 3 5 A (100 ms i nrush)
Resistiv e Input	**Resistance** Input **range:** 0 to 300 Ica Accuracy. Not specified, **Bridge resistor** 10 kit, **Bridge supply.** 3.3 V		NA
Digital I nput	Voltage (open circuit): 3.3 V. Wetting current 330 A (3.3 V / 10 kit)		
Analog Output	NA	**Voltage mode** **Range: 0** to 10 VDC (source 1 0 mA max, sink 1 mA max, load 21kW) **Accuracy.** ±0.5% of full-scale (i.e. 50 mV) **Current mode Range:** 0 to 20 mA (load 5550 W) **Accuracy. ±1%** of full-scale (i.e. ±200 A)	

UNIVERSAL INPUTS SPECIFICATIONS FOR EXPANSION IO

INPUT TYPE	SENSOR TYPE	OPERATING RANGE
Room/Zone Discharge Air Outdoo r Air Temperature	20K ohm NTC	-40 °F to 199 °F (-40 °C to 97.77 °C)
Outdoor Air Temperature	C7031G	-40 °F to 120 °F (-40 °C to 49 °C)
	C7041F	-40 °F to 250 °F (-40 °C to 121 °C)
	PT1000 (IEC751 3850)	-40 °F to 199 °F (-40 °C to 93 °C)
TR23 Setpoint Potentiometer	500 Ohm to 10,500 Ohm	50 °F to 90 °F (10 °C to 32 °C)
Resistive Input	Generic	100 Ohms to 100K Ohms
Voltage Input	Transducer, Controller	0 – 10 VDC
Discrete Input	Dry Contact closure	OpenCircuit ≥ 3000 Ohms ClosedCircuit < 3000 Ohms

STANDARDS AND APPROVALS

UL/CUL (E87741) listed under UL 60730-1 and CSA E60730-1, UL 60730-2-9:2010.

- Meets FCC Part 15, Subpart B:2017, Class B (radiated emissions) requirements.
- Meets Canada ICES-003:2016.
- EMC Directive: 2014/30/EU. Standards Applied:
- EN 61000-6:2005
- EN 61000-6-3:2007 + A1
- EN 60730-1: 2011, EN 60730-2-9: 2010
- RoHS Directive: 2011/65/EU. Standards Applied:
- EN 50581: 2012

CONFORMANCE STATEMENT

This digital apparatus complies with CAN ICES-3 (B)/ NMB-3 (B).
FCC NOTICE
This device complies with Part 15 of the FCC rules.
Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

APPLICABLE TECHNICAL LITERATURE

TITLE	REFERENCE
CIPer Model 30 Installation Instruction	31- 00183
CIPer Model 30 System	31- 00207
Engineering User Guide	NA
CIPer Model 30 Software	
Release Bulletin	

SAFETY INFORMATION AS PER EN60730-1

The Open System is intended for residential, commercial, and light-industrial environments. The Open System is an independently mounted electronic control system with fixed wiring.
The CIPer 30 controllers (WEB-C3036EPUBNH and WEB-C3036EPVBNH) and Expansion IO (WEB-O9056H and WEB-O3022H) are suitable for mounting in the fuse boxes conforming with standard DIN43880, and having a slot height of max. 1.77 inches (45 mm). It is suitable for panel rail mounting on 1.38 inches (35 mm) standard panel rail (both horizontal and vertical rail mounting possible).

Safety information as per EN-60730-1

PARAMETER	**DESCRIPTION**
Electric Shock Protection	PELV
Pollution Degree	Pollution Degree 2, suitable for use in industrial environments.
Installation	Class 3
Overvoltage Category	24 V – powered controls: Category I
Rated Impulse Voltage	330 VAC for Category I (SELV)
Automatic Action	Type 1
Software Class	Class A
Purpose of control	Operating Control, Open Energy Management Equipment.
Enclosure degree of protection	IP20
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 p arts, connectors, and terminals.
Electromagnetic	Tested at 230 VAC, with the
Interference	Modules in normal condition.
System	Europe: safety isolating
Transformer	transformers according to I EC61558-2-6. U.S.A. and Canada: NEC Cl ass-2 transformers.

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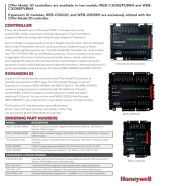
Documents / Resources

	Honeywell CIPer Model 30 Controller And Expansion IO [pdf] User Guide CIPer Model 30 Controller And Expansion IO

References

- Honeywell Building Technologies
- Honeywell - The Future Is What We Make It