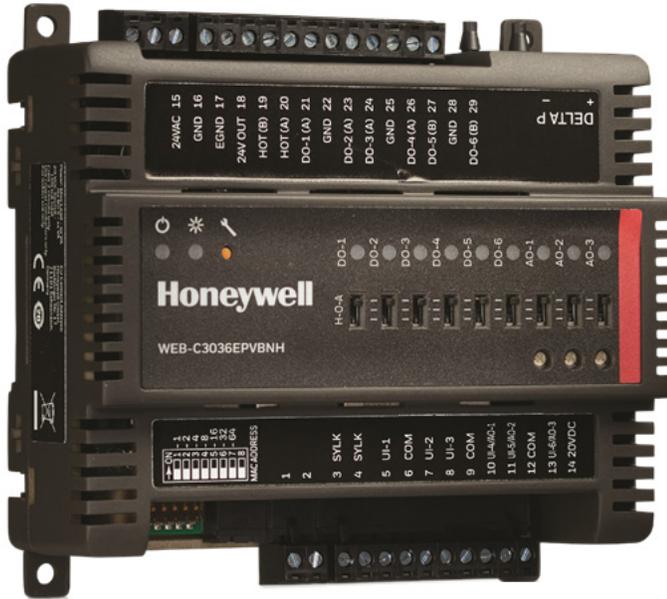# CIPer Model 30 Controller

Features

APPLICATION

The WEB-C3036 controllers are part of the Honeywell WEBs CIPer family. CIPer MODEL 30 controllers are available in two models WEB-C3036EPUBNH and WEB-C3036EPVBNH. These are Internet Protocol (IP) based "edge" controllers that can be used for VAV, Unitary, equipment and Plant applications. Each 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 both TCP/IP (FOXS) and BACnet IP protocols. These controllers can be used to aggregate information (including real-time data, alarms, trends, and history) and integrate this data to the Honeywell "FORGE" Cloud for value-added data analytics to maximize the efficiency and lifespan of expensive facility equipment assets while helping prevent unplanned downtown. Additional physical I/O points available using expansion IO modules WEB-O9056H and WEB-O3022H.

- Full Niagara 4 stack with 12 points of on-board I/O (including 9 monitored Hand-Off-Auto), expandable to 312.
- 1Gbps 4-Port IP switch, integrates demanding IP peripheral devices (like color cameras) 1000 times faster than serial MSTP.
- Full Niagara N4 License included,
  - 150 points (including data sharing points from third party BACnet devices) and 3 devices.
  - Expansion I/O capability support up to 15 modules and 300 additional points.
- Rapid Spanning Tree protocol (IEEE 802.1w) supports 200+ controllers on a daisy-chain bus with fewer home runs for faster and lower cost wiring.
  - Up to 40 controllers in a redundant ring configuration for enhanced fault tolerance.
  - Supports Star network topology.
- Spyder Program and Venom conversion application standard.
- BACnet B-BC listed product (pending).
- Sylk™ bus for use with Honeywell Sylk wall modules.
- Direct supervisor connectivity (Cloud or on premise); simplifying system architecture and reducing programming, commissioning & installation time.
  - Open Niagara 4 Framework, eliminates extra cost proprietary software and tools.
- SSL encrypted communications (FOXS PKI Certificate) to protect the facility's expensive assets and infrastructure with 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.
- VAV model includes on-board airflow sensor.
- Live "real-time" programming; no time-consuming downloads.
- Solid State Relay (SSR) outputs reduces 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.

Controller Part Numbers

Table 1   Controller part number description

Model	WEB–C3036EPUBNH / WEB C3036EPVBNH
WEB	Brand Identifier
C	Controller
3	Analog input
0	Digital input
3	Analog output
6	Digital output
E	Ethernet
P	Programmable
U/V	U - Unitary & V- VAV
B	BACnet
N	No Actuator
H	Hand off Auto

The CIPer Model 30 controller is compatible with two expansion or external I/O models—WEB-O9056H and WEB-O3022H. The WEB-O9056H module is a large expansion module which adds 20 additional I/O points, and the WEB-O3022H module is a small expansion module which adds 7 additional I/O points. A total of 15 expansion I/O modules can be added to a controller.

Ordering part numbers

Table 2   Ordering Part numbers

| OS Number (SKU)	Description
WEB-C3036EPUBNH	CIPer IP Unitary Controller, 150 Point/4-Device Niagara 4 License, SMA
WEB-C3036EPVBNH	CIPer IP VAV Controller, 150 Point/4-Device Niagara 4 License, SMA
WEB-O9056H	CIPer IP Large Expansion Module, 50-Point Niagara 4 License, 20 I/O, 9-UI, 6-BO, 5-UIO
WEB-O3022H	CIPer Small Expansion Module, 50-Point Niagara 4 License, 7 I/O, 3-UI, 2-BO, 2-UIO

Interfaces and Terminals

System overview
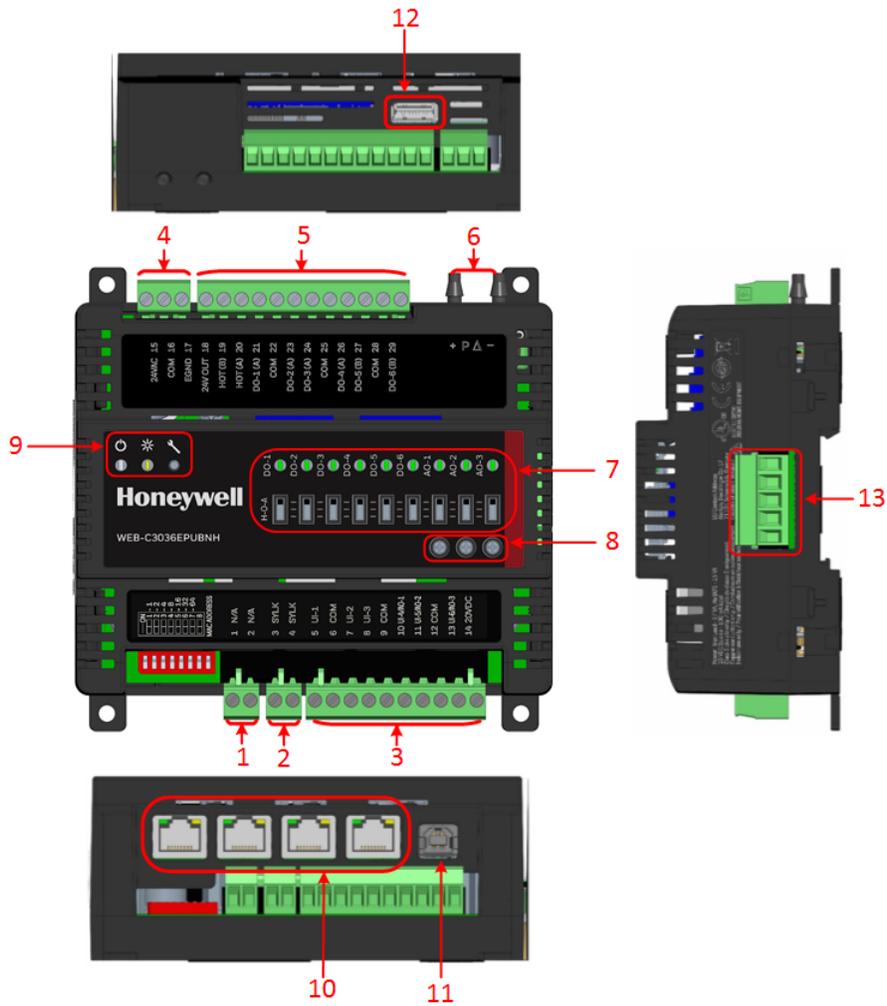
Fig. 1   CIPer 30 Controller Interfaces and Terminals

Table 3   Terminal Assignment

Type	Legend	Terminal	Description
MAC Address	1	1, 2	Not Used
SYLK	2	3,4	2 wire Sylk™ bus to connect Honeywell Sylk modules.
Terminals Universal Inputs/ Analog Outputs	3	5, 7, 8	Universal inputs UI-1 to 3. Software controlled input type selection supports 10k Thermistor (type II), Dry Contact, 0-10Vdc, 0-20mA, and Pulse (In-1, -2, -3), 20K NTC. See specifications on the page 4.
		6	COM terminal for UI-1 and UI-2.
		9	COM terminal for UI-3 and UI-4/AO-1.
		10, 11, 13	Universal Inputs/Outputs as UI-4 to 6 Analog Outputs AO-1 to 3: selectable 0-10vDC or 4-20mA.
		12	COM terminal for UI-5/AO-2 or UI-6/AO-3.
		14	Supplies 20V DC out.
Input Power Supply	4	15	24VAC Controller input supply voltage.
		16	Supply voltage GND.
		17	Electrical grounding / Earth.

Table 3 Terminal Assignment

Type	Legend	Terminal	Description
Terminals Digital Outputs	5	18	24VAC output from controller's power (terminal 15) for DO devices.
		19	HOT B. Supplies power to common side of controller's DO (For DO 5,6).
		20	HOT A. Supplies power to common side of controller's DO (DO 1, 2, 3, 4).
		21, 23, 24, 26	DO-1 to DO-4. See next page for specification.
		22, 25, 28	COM terminal for DO-1&2, DO-3&4, DO-5&6 respectively.
		27, 29	DO-5 to DO-6.
Air flow sensor	6		Differential pressure/ air flow sensor inputs.
H-O-A Switches	7		H-O-A switch for DO-1 to DO6 & AO-1 to AO-3: 1. If the switch is in the middle position it means that it is in OFF position for digital outputs and 0% for modulating (PWM, FM, AO) outputs. 2 If the switch is moved to the left side/ HAND, it indicates that the input can be given manually, and output can be collected from respective terminal. For example, if the switch is indicating that input is manual for DO-1 then output can be collected from terminal 21 manually and BAS logic will be disabled for terminal 21. ON for digital outputs, 100% for PWM and Floating Motor outputs, trim potentiometer value for Analog outputs (Voltage/Current). 3 If the switch is moved to Right side, it indicates the AUTO mode. The input given to BAS logic will be enabled and the output will be received automatically at the respective output terminal.
Trim pots	8		Trim pots for AO-1 to AO-3. For giving variable Analog input to AOs when the respective H-O-A switch is in HAND position.
LEDs	9	⏻	Power LED: White/Blue color (See below table 4 for more details).
		❄	Status LED: Amber color (See below table 4 for more details).
		🔧	Service Request Button. A notification shall appear on the software tool when button is Pushed or when the service request is cleared.
Ethernet Interface	10		1 Giga bit 4 post Ethernet switch.
USB Interface	11		USB Type B to connect with laptops, mobile, and tablets.
	12		USB Type A port to mount memory stick/flash drive for data transfer.
Serial Expansion	13	RS-485	RS-485 terminal to expand I/O by connecting to additional devices or Expansion IO modules. * Refer below RS-485 section for terminal details.

Below is the description of various LED states

Table 4 Power and Status LED States

Status or Condition	LED State	Blink Rate
No power to processor, LED damaged, low voltage to board, first second of power up, or loader damaged.	Power LED OFF	OFF
	Status LED OFF	OFF
Baseboard bootloader running (approx. first 10-15 seconds after power on or baseboard reset).	Power LED OFF	OFF
	Status LED Blinks continuously	0.5 Second ON; 0.5 Second OFF
Bootloader completes and hands control to main baseboard firmware.	Power LED ON (stays ON as long as baseboard is running)	ON steady
	Status LED ON (Indicates station is NOT running)	ON steady
Station starts up.	Status LED Blinks continuously (indicates baseboard is running normally, presumably with a station running in Niagara)	1 Second ON; 1 Second OFF

Specifications

Electrical

Rated input voltage: 20-30 VAC; 50/60Hz
Power consumption:
- 100VA maximum for controller and all connected loads.
- 50 VA maximum for controller only load

Operating Environment

Ambient temperature: -4 to 131F (-20 to 55C)
Storage temperature: -4 to 150F (-20 to 65C)
Humidity: 5% to 95% non-condensing

Inputs and Outputs

VAV
Air flow sensor range (VAV model): 0-2" WC (0 to 374 Pa) 32 to 122F (0 to 55C)

Universal Inputs (UI)
Universal Inputs: 6 UI / 3 configurable as AO.
Flexible UI's to connect external sensors like 20KNTC, PT1000 and other resistive sensors.

Pulse Inputs: 100Hz max, minimum duty cycle: 5 mS ON / 5 mS OFF

Analog Outputs (AO)
3 of the 6 UIs (UI 4,5,6) are configurable as AOs (AO 1,2,3) AOs are individually configurable for current or voltage.

Analog Current Outputs
Current Output Range: 4.0 to 20.0 mA
Output Load Resistance: 550 Ohms maximum

Analog Voltage Outputs
Voltage Output Range: 0.0 to 10.0 Vdc
Maximum Output Current: 10.0 mA

Digital Outputs (DO)
6 Digital Outputs: Solid-State Relay
Current rating: 1.5A Continuous, 3.5A in-rush for 100 milliseconds
Voltage rating: 20 to 30 VAC @ 50/60Hz

Hardware Specifications

Table 5 Hardware Specifications

Feature	Specifications
MRAM	512 KB
RAM	1GB
FLASH RAM	4GB
CPU	Cortex A9 32-bit processor 1 GHz, Cortex-M4 227 MHz
Operating System	QNX based
Real-Time Clock timekeeping accuracy	24 hour, 365 day, multi-year calendar including day of week and configuration for automatic daylight savings time adjustment to occur at 2:00 a.m. local time on configured start and stop dates. Minimum 48 hours backup.
Power failure Memory 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)

Mounting
This CIPer controller 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.

This controller also has a locking clip, as do both type of I/O expansion modules. Mounting on DIN rail ensures accurate alignment of connectors between all modules. The controller can also be screw-mounted using the four mounting tabs, accessible under the covers. These mounting tabs may be broken off if needed to save space when DIN rail mounting.

Note: 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.

DIMENSIONS (H/W/D)
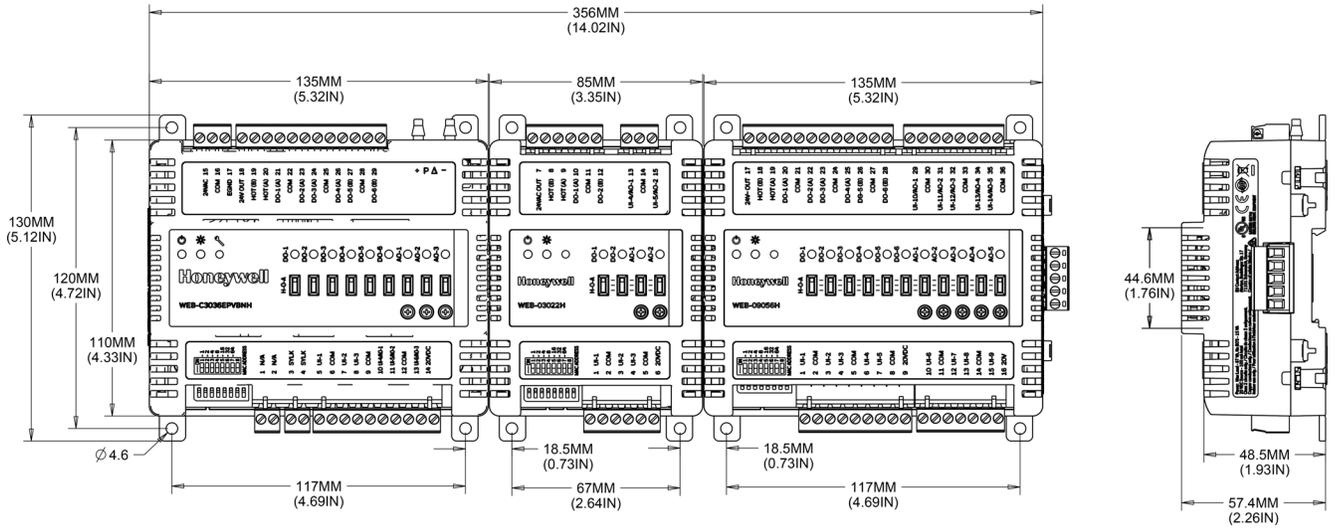
See Fig. 2 and Fig. 3 below for dimensional drawings.

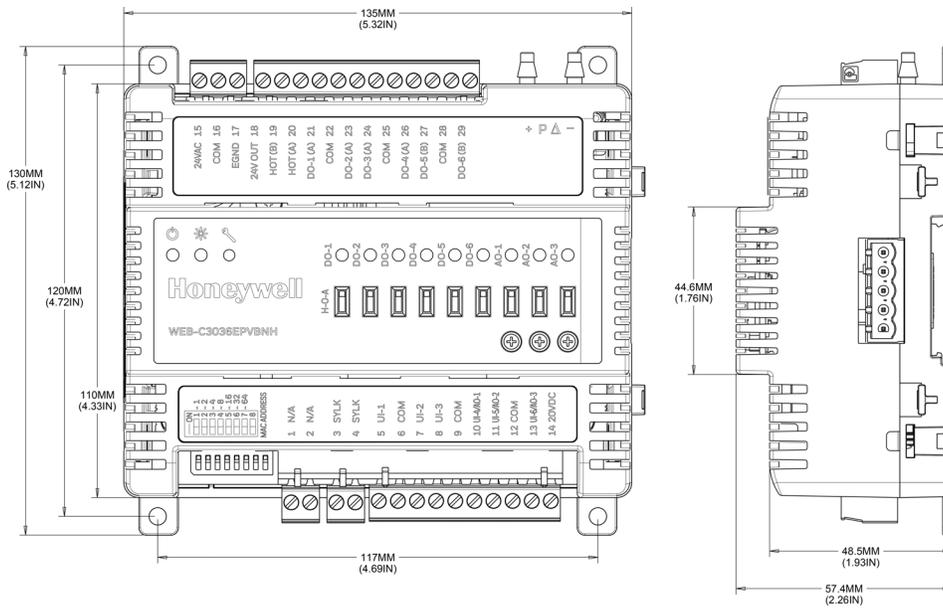**Fig. 2** Dimensional view of Stacked Controller and Expansion IO modules

Fig. 3 Different views of CIPer Model 30 controller

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: (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

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 WEB-C3036EPUBNH/WEB-C3036EPVBNH is suitable for mounting in fuse boxes conforming with standard DIN43880, and having a slot height of max. 45 mm.

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

Table 6   Safety information as per EN-60730-1

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	>75 °C for all housing and plastic parts. >125 °C in the case of devices applied with voltage-carrying parts, connectors, and terminals.
Electromagnetic Interference	Tested at 230 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.

Honeywell