



ECLYPSE™ Connected System Controller



ECLYPSE™

Overview

The ECLYPSE Connected System Controller is a modular and scalable platform that is used to control a wide range of HVAC applications. It supports BACnet/IP communication and is a listed BACnet Building Controller (B-BC).

The ECLYPSE Connected System Controller consists of an automation and connectivity server, power supply, and I/O extension modules.

This programmable Connected System Controller provides advanced functionality such as customizable control logic, Web-based design and visualization interface (ENVYISION embedded), logging, alarming, and scheduling.

Applications

The ECLYPSE Connected System Controller is typically used as:

- A controller for medium/large sized Air Handling Units (AHU), central plant, and other applications.
- Small building server and equipment controller with embedded ENVYISION. For example, it can be used to control and serve a boiler room.

Features & Benefits

IP Communication

- Communicate over IP for increased speed. Experience faster response and save time when programming, configuring, creating and viewing graphics, and upgrading your system.
- Control technicians can connect the ECLYPSE Wi-Fi Adapter to the Connected System Controller enabling a Wi-Fi Hotspot network. The control technician can then connect wirelessly to the system using a mobile device or laptop, for faster, easier system configuration, programming, commissioning and servicing.

Robust Protection

The I/O modules are protected against mis-wiring and faults to prevent damage caused by incorrect wiring or other mishaps.

The power supply module contains over-voltage and over-current output protection to protect the electronics in unstable power supply conditions and against mis-wiring.

I/O Status LEDs

The status LEDs on the I/O modules allow the user to confirm the status of the inputs/outputs and facilitate commissioning and troubleshooting.

Ease of Installation

The Connected System Controller modules are plug & play devices. They are equipped with DB-15 connectors that transmits power and communications to the next module for fast and easy assembly.

Auto-Addressing

The auto-addressing feature eliminates the need to manually assign an address to each I/O module therefore reducing installation and configuration time.

Hot-Swappable Tool-Less Design and Unique Latching Mechanism

The I/O modules are hot-swappable for replacement without interrupting power and communications to other modules.

The front assembly of I/O modules separate from the wiring base by pushing the two latches up to unlock a module's front assembly and then opening and pulling the hinged gull-wing covers. The latch design locks the front assembly to the wiring base.

The hinged gull-wing design protects and covers the stacked dual row detachable I/O terminal strips.



Color-Coded I/O

Terminal blocks are uniquely identified and color-coded for clarity and to prevent wiring mistakes.

Hand/Off/Auto Switches and Potentiometers

The front assembly of Hand/Off/Auto (HOA) equipped I/O models allow users to override the control outputs for commissioning and maintenance purposes.

Potentiometers provide manual analog signal and output control to override voltage or current signal.

High-Efficiency Design

The power supply uses the latest high-efficiency switch-mode circuitry to make more power available to operate additional modules and for cooler operation.

Model Selection

The ECLYPSE Connected System Controller consists of a power supply, an automation and connectivity server, and I/O extension modules. The different models for each are shown in the tables below.

Power Supply

ECY-PS24	24VAC/VDC power supply module for the ECY-S1000.
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Automation and Connectivity Servers

ECY-S1000	Connected System Controller for medium/large sized AHU and plant applications and small building server/controller applications. Supports up to 20 ECY I/O extension modules.
ECY-S1000 with ENVYSION	Connected System Controller for medium/large sized AHU and plant applications and small building server/controller applications. Embedded ENVYSION Studio & Viewer. Supports up to 20 ECY I/O extension modules.

Accessories

ECLYPSE DB15 Cable	6ft (1.8m) cable for ECY-S1000 multiple-row panel installations with DB15 connectors.
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I/O Modules

	Universal Inputs									Universal Outputs							Basic Power Consumption ² , W
	Quantity	Contact	Counter	0 to 10VDC	0 to 5VDC	0 to 20mA	Resistance	Thermistor	18VDC Power Supply	Quantity	0 or 12VDC	PWM	Floating	0 to 10VDC ¹	0 to 20mA ¹	HOA	
ECY-8UI/6UO	8	■	■	■	■	■	■	■	■	6	■	■	■	■	UO1 UO2 UO3		0.94
ECY-8UI/6UO.HOA	8	■	■	■	■	■	■	■	■	6	■	■	■	■	UO1 UO2 UO3	■	0.94

1. 0 to 10VDC is available on UO1 to UO6. 0 to 20 mA is available on UO1, UO2, and UO3; this option is individually selected through an on-board DIP switch setting.

2. External loads excluded. See the ECLYPSE Selection Tool to calculate the number of Input/Output Extension Modules that can operate with a power supply.

Product Specifications

Power Supply (ECY-PS24)

Power Supply Input

Voltage Range	24VAC/DC; $\pm 15\%$; Class 2
Power Consumption	60VA typical plus all external loads ¹ 100VA maximum
Frequency Range	50 to 60Hz
Over Voltage Input Protection	Field replaceable fuse
Fuse Type	4A, fast-acting, 5 × 20mm (GMA-4A)

Power Supply Output

DC Voltage	18VDC regulated
Rated Current Range	0 to 1.6A
Rated Power	30W ¹

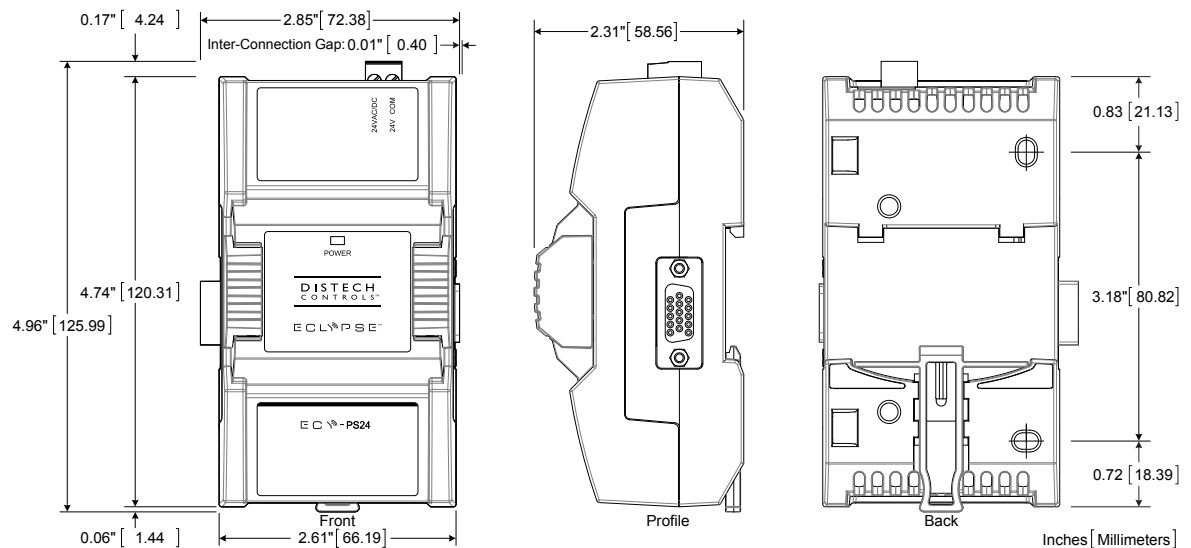
1. The total power consumption of all modules connected to the right of this power supply, and up to the next connected power supply, including any connected loads, must be less than this value. A separate transformer rated at 60VA minimum must be used for each ECY-PS24 power supply for it to operate at full capacity.

Hardware

Power Distribution Direction	Powered modules are connected to the right
Backplane Bus	Pass-through connection for data and control signals
Status Indicator	Green LED: power status

Mechanical

Dimensions	2.85 W × 4.74 H × 2.31" D (72.38 × 120.31 × 58.56mm)
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Power Supply (cont'd)

Mounting _____ DIN rail or screw mounting
Enclosure Material¹ _____ FR/ABS
Enclosure Rating _____ Plastic housing, UL94-V0 flammability rating
Plenum rating per UL1995

1. All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.

Environmental

Operating Temperature _____ 32°F to 122°F (0°C to 50°C)
Storage Temperature _____ -22°F to 158°F (-30°C to 70°C)
Relative Humidity _____ 0 to 90% Non-condensing
Ingress Protection Rating _____ IP20
Nema Rating _____ 1

Standards and Regulations (*Pending*)

CE:

- ☐ Emission _____ EN61000-6-3: 2007; A1:2011; Generic standards for residential, commercial and light-industrial environments
- ☐ Immunity _____ EN61000-6-1: 2007; Generic standards for residential, commercial and light-industrial environments

FCC _____ This device complies with FCC rules part 15, subpart B, class B
UL Listed (CDN & US) _____ UL916 Energy management equipment



Automation and Connectivity Server (ECY-S1000)

Power Supply Input

Voltage _____ 18VDC
Power Consumption _____ 8.9W; external loads excluded

Communications

Ethernet Connection Speed _____ 10/100 Mbps
BACnet Profile _____ BACnet Building Controller (B-BC)
BACnet Interconnectivity _____ BBMD forwarding capabilities
BACnet Transport Layer _____ IP
BACnet Listing _____ BTL (Pending)
Web Server Protocol _____ HTML5
Web Server Application Interface _____ REST API
Encryption _____ FIPS 140-2 Level 1
Optional Supported Wireless Connectivity:
☐ Wi-Fi Communication Protocol _____ IEEE 802.11a/b/g/n and 802.11s
☐ Wi-Fi Network Types _____ Client, Access Point, Hotspot

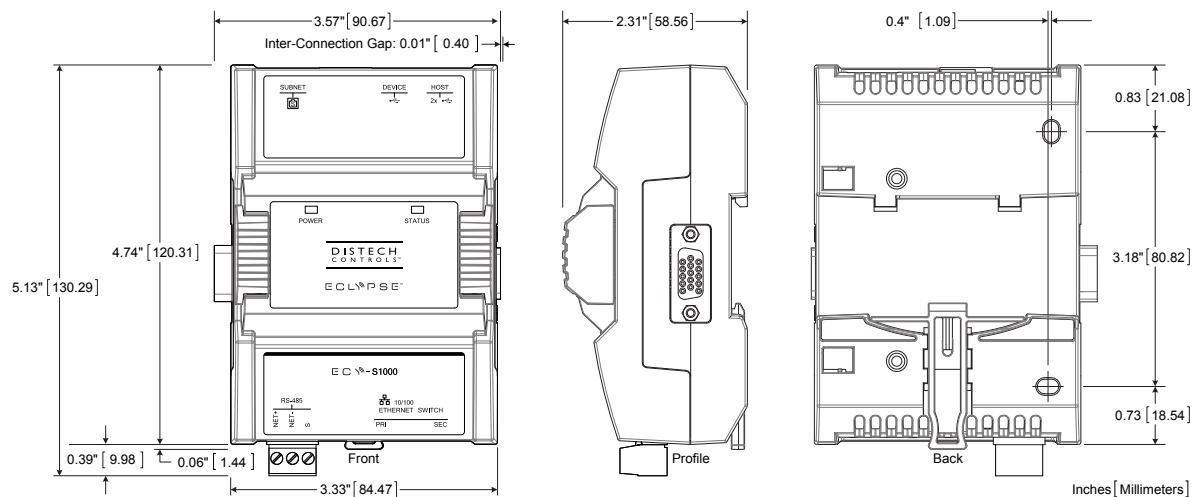
Automation and Connectivity Server (cont'd)

Hardware

Processor	Sitara ARM processor
CPU Speed	1GHz
Memory	4GB Non-volatile Flash (applications & storage) 512MB RAM
Real Time Clock (RTC)	Real Time Clock with rechargeable battery Supports SNTP network time synchronization
RTC Battery	20 hours charge time, 20 days discharge time Up to 500 charge / discharge cycles
Communications Ports:	
<input type="checkbox"/> Ethernet	2 switched RJ-45 Ethernet ports
<input type="checkbox"/> USB Connections	2 × USB 2.0 Ports 1 × Micro-USB 2.0 Ports
<input type="checkbox"/> RS-485 Serial Communications	Screw terminals
<input type="checkbox"/> Subnet	RJ-45
Status Indicators	Green LEDs: power status & LAN Tx Orange LEDs: controller status & LAN Rx

Mechanical

Dimensions 3.57 W × 4.74 H × 2.31" D (90.67 × 120.31 × 58.56mm)



Mounting	DIN rail or screw mounting
Enclosure Material	FR/ABS
Enclosure Rating ¹	Plastic housing, UL94-V0 flammability rating Plenum rating per UL1995

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Automation and Connectivity Server (cont'd)

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I/O Modules

Power Supply Input

Voltage _____ 18VDC

Power Consumption _____ Calculate power supply requirements with the ECLYPSE Selection Tool

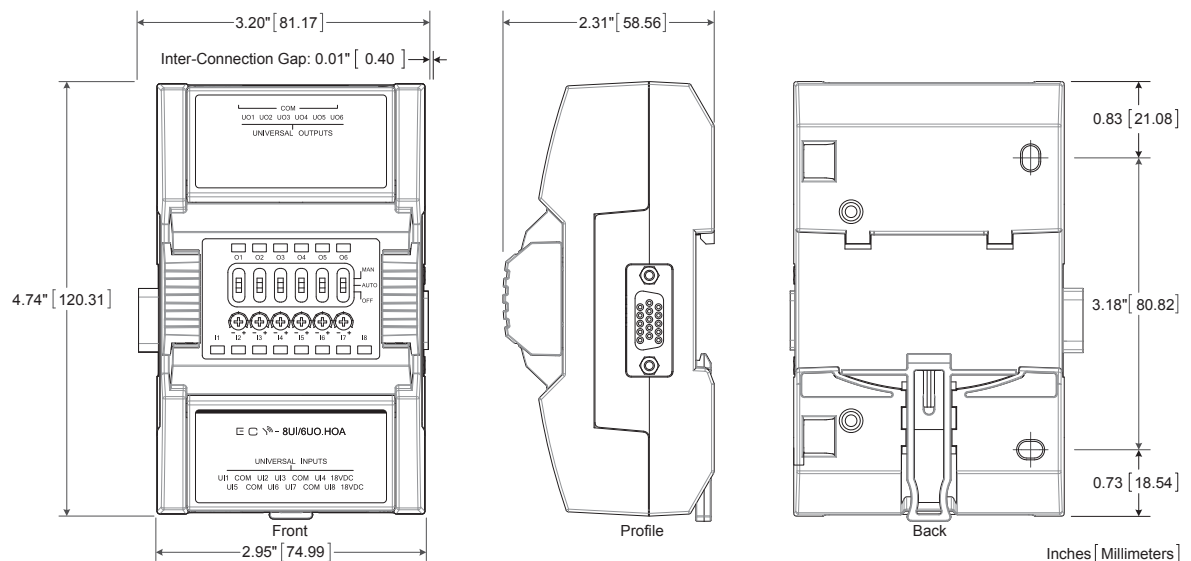
Hardware

Status Indicator _____ Green LEDs: inputs and outputs

Enclosure Material _____ FR/ABS

Mechanical

Dimensions _____ 3.20 W × 4.74 H × 2.31" D (81.17 × 120.31 × 58.56mm)



I/O Modules (cont'd)

Mounting _____ DIN rail or screw mounting
Enclosure Material _____ FR/ABS
Enclosure Rating¹ _____ Plastic housing, UL94-V0 flammability rating
_____ Plenum rating per UL1995

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I/O Modules - Universal Inputs (UI)

General

Input Type _____ Universal; software configurable
Current Input Option Selection _____ DIP switch
Input Resolution _____ 16-bit analog to digital converter
Power Supply Output _____ 18VDC; 20mA maximum per 0 to 20 mA input

Contact

Type _____ Dry contact

Counter

Type _____ Dry contact
Maximum Frequency _____ 1Hz maximum,
Minimum Duty Cycle _____ 500milliseconds On / 500milliseconds Off

0 to 10VDC

Range _____ 0 to 10VDC (40k Ω input impedance)

0 to 5VDC

Range _____ 0 to 5VDC (high input impedance)

0 to 20mA

Range _____ 0 to 20mA
_____ 249 Ω DIP-switch configurable internal resistor

Resistance/Thermistor

Range _____ 0 to 350 K Ω .

Supported Thermistor Types _____ Any that operate in this range

Pre-configured Temperature Sensor Types:

- ☐ Thermistor _____ 10K Ω Type 2, 3 (10K Ω @ 77°F; 25°C)
- ☐ Platinum _____ Pt1000 (1K Ω @ 32°F; 0°C)
- ☐ Nickel _____ RTD Ni1000 (1K Ω @ 32°F; 0°C)
_____ RTD Ni1000 (1K Ω @ 69.8°F; 21°C)

I/O Modules - Universal Outputs (UO)

General

Output Type	Universal; software configurable
Output Resolution	10-bit digital to analog Converter
Output Protection	Built-in snubbing diode to protect against back-EMF, when used with a 12VDC relay
Load Resistance	Minimum 200Ω for 0 to 10VDC and 0 to 12VDC outputs Maximum 500Ω for 0 to 20mA output
Auto-reset Fuse	20mA maximum per 0 to 60 mA output @ 140°F; 60°C 33mA maximum per 0 to 100 mA output @ 68°F; 20°C

0 or 12VDC (On/Off)

Range	0 or 12VDC
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PWM

Range	Adjustable period from 2 to 65seconds
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Floating

Minimum Pulse On/Off Time	500milliseconds,
Drive Time Period	Adjustable

0 to 10VDC

Range	0 to 10VDC linear
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0 to 20mA

Range	0 to 20mA
Current Source	20mA maximum per 0 to 20 mA output
Ports UO1, UO2, and UO3 only	DIP switch

HOA

Hand-Off-Auto switch	When equipped Supervision allows control logic to read the current HOA switch and potentiometer settings
Threshold	Configurable
Potentiometer voltage range	0 to 12VDC

