ECLYPSE™ Connected Equipment Controller

ECLYPSE™

Overview

The ECLYPSE Connected Equipment Controller (ECY-303) is designed to satisfy the needs of a wide range of HVAC applications such as small and medium terminal applications. It integrates a control, automation and connectivity server, power supply, and I/O in one convenient package. It supports BACnet/IP communications and is a listed BACnet Building Controller (B-BC). In addition, the ECY-303-M3 model supports Modbus to connect to meters, Variable Frequency Drives, etc.

This programmable controller comes with an embedded web server that enables web-based application configuration and a visualization interface. It also features embedded scheduling, alarming, and logging. Control logic and graphic user interface can be customized as required for the application.

Features & Benefits

- Utilizes BACnet/IP and IT standards, delivering empowered IP connectivity and open integration with building management systems
- Uses cryptographic modules making it FIPS 140-2 "Inside"
- Via its RESTful API, data can be accessed from different applications, such as energy dashboards, analytics tools, and mobile applications
- Comes with ENVYSION™ Viewer and the associated preloaded rooftop unit applications and graphics pre-installed
- xpressENVYSION offers a simplified and streamlined experience in a workflow oriented, drag & drop GUI environment
- Supports EC-*gfx*Program, which makes Building Automation System (BAS) programming effortless
- Supports both Modbus TCP & Modbus RTU devices
- Supports Smart Room Control for an end-to-end system for the control of HVAC equipment, lighting, and shades/sunblinds
- The status LEDs allow the user to confirm the status of the inputs/outputs and facilitate commissioning and troubleshooting
- Embedded alarms, trend log and schedule support allows for fully distributed data and logic providing a more robust system. Embedded trend logs simplify system troubleshooting when compared to a centralized system
- Automatic email notifications for system status and alarms to ensure faster system servicing and response time

Model Selection

Example: ECY-303-***M3 (SI)***

Series[1]	Modbus TCP & RTU Devices	Units
ECY-303	[blank] : No Modbus TCP & RTU device support	***(SI)*** : Preloaded Apps in SI (Metric) units
	-M3 : Supports up to 3 Modbus TCP & RTU devices	***(IMP)*** : Preloaded Apps in Imperial (US) units
16-points, 8 UI, 2 UO, 4 DO, 2 DUO, 18 Vdc power supply, ENVYSION Viewer		

1. SEP models (single Ethernet port) have secondary Ethernet port factory disabled

Accessories

ECLYPSE Wi-Fi Adapter	Wi-Fi Adapter for ECLYPSE Connected Controllers.
ECLYPSE Open-To-Wireless™ Adapter	EnOcean communication protocol adapter for ECLYPSE Connected Controllers.

Product Specifications

Power Supply Input

Voltage Range[1]	24VAC/DC; ±15%; Class 2
Nominal Power Consumption	18VA; all external loads excluded, no USB peripherals
Full Load Power Consumption	36VA; external 24VAC loads excluded
Frequency Range	50 to 60Hz
Overcurrent Protection	Field replaceable fuse
Fuse Type	2A, fast-acting, 5 × 20mm (GMA-2A)

1. 24VDC does not support DO (triac outputs).

Communications

Ethernet Connection Speed	10/100 Mbps
Cable Type	Cat 5e, 8 conductor twisted pair (unshielded)
Addressing	IPv4 or Hostname
BACnet Profile	BACnet Building Controller (B-BC)), AMEV AS-A and AS-B
BACnet Listing	BTL, WSP B-BC
BACnet Interconnectivity	BBMD forwarding capabilities
BACnet Transport Layer	IP
Web Server Protocol	HTML5
Web Server Application Interface	REST API
Modbus RTU	1 × RS-485 serial communications port
RS-485 Wiring	1-pair + Common/shield
Modbus TCP	Devices must be on the same subnet
Wireless Adapter	Optional, USB Port Connection
Wi-Fi Communication Protocol	IEEE 802.11b/g/n
Wi-Fi Network Types	Client, Access Point, Hotspot

Subnetwork

Communication	RS-485
Cable Type	Cat 5e, 8 conductor twisted pair
Connector	RJ-45
Connection Topology	Daisy-chain

1. For more details about supported quantities, see the ECLYPSE Selection Tool.xlsm spreadsheet file available for download on the Documentation and Resources Portal.
2. A controller can support a maximum of 2 Allure sensor models equipped with a CO_2 sensor. Any remaining connected sensors must be without a CO_2 sensor.
3. A mixed architecture with standard room devices and Bluetooth low energy enabled devices is not recommended.

Maximum number of standard room devices supported per controller combined[1]	4
Allure EC-Smart-Vue Series[2]	4
Allure EC-Smart-Comfort Series	4
Allure EC-Smart-Air Series[2]	4
EC-Multi Sensor	4
ECx-Light-4 / ECx-Light-4D / ECx-Light-DALI	4
ECx-Blind-4 / ECx-Blind-4LV	4
Maximum number of Bluetooth low energy room devices per controller combined [3]	4
Allure UNITOUCH™	2
EC-Multi-Sensor-BLE	4

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Hardware

Processor	Sitara ARM processor
CPU Speed	600MHz
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
Cryptographic Module	FIPS 140-2 Level 1 Compliant
Ethernet	2 switched RJ-45 Ethernet ports (Supported Protocols: BACnet/IP, Modbus TCP, NTP, and REST)
Integrated fail-safe for daisy-chaining	In case of power failure to one of the controllers, communication data is still relayed to the following controller on the daisy-chain
USB Connections	2 × USB 2.0 Ports 1 × Micro-USB 2.0 Ports

RS-485 Serial Communications	Screw terminals (Supported Protocols: Modbus RTU)
Subnet	RJ-45
Green LED	Power status, Subnet TX, and Ethernet Traffic
Orange LED	Controller status, Subnet RX, and Ethernet Speed

Open-to-Wireless Adapter

Communication Protocol	EnOcean wireless standard[1]
Connector Type	USB
Number of Wireless Inputs	Unlimited[2]

1. Available when an optional external ECLYPSE Open-to-Wireless Adapter is connected to the controller. Refer to the Open-to-Wireless Application Guide for a list of supported EnOcean wireless modules.
2. Wireless inputs will only be limited by physical distance between the EnOcean devices and the ECLYPSE Open-to-Wireless Adapter.

Mechanical

Dimensions (H × W × D)	4.74 × 6.78 × 2.31" (120.31 × 172.10 × 58.56 mm)
Shipping weight	1.20lbs (0.55 kg)
Mounting	DIN rail or screw mounting
Enclosure Material[1]	FR/ABS
Enclosure Rating	Plastic housing, UL94-V0 flammability rating

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	-40 to 122°F (-40 to 50°C)
Storage Temperature	-40 to 158°F (-40 to 70°C)
Relative Humidity	0 to 90% non-condensing
Ingress Protection Rating	IP20 (IEC 60549)
Nema Rating	1

Standards and Regulations

CE Emission	EN61000-6-3: 2007+A1:2011
CE Immunity	EN61000-6-1: 2007
FCC	Compliance with FCC rules part 15, subpart B, class B
UL Listed (CDN & US)	UL916 Energy management equipment

Universal Inputs (UI)

General

Input Type	Universal; software configurable
Input Resolution	16-bit analog to digital converter
Power Supply Output	18VDC; 80mA maximum
Protection	Auto-reset fuse for 24VAC protection

Contact

Type	Dry contact

Counter

Type	Dry contact
Maximum Frequency	1Hz maximum
Minimum Duty Cycle	500 ms On / 500 ms Off

0 to 10VDC

Range	0 to 10VDC (40kΩ input impedance)

0 to 5VDC

Range	0 to 5VDC (high input impedance)

0 to 20mA

Range	0 to 20mA, 249Ω external resistor wired in parallel

Resistance/Thermistor

Range	0 to 350 KΩ
Supported Thermistor Types	Any that operate in this range

Pre-configured Temperature Sensor Types:

Thermistor	10KΩ Type 2, 3 (10KΩ @ 77ºF; 25ºC)
Platinum	Pt1000 (1KΩ @ 32ºF; 0ºC)
Nickel	RTD Ni1000 (1KΩ @ 32ºF; 0ºC) RTD Ni1000 (1KΩ @ 69.8ºF; 21ºC)

Universal Outputs (UO)

General

Output Type	Universal; software configurable
Output Resolution Converter	10-bit digital to analog Converter
Output Protection,	Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay
	Output is internally protected against short circuits
Auto-reset Fuse	Provides protection from accidental 24VAC connection

0 or 12VDC (On/Off)

Range	0 or 12VDC
Source Current	Maximum 20 mA at 12VDC (minimum resistance 600Ω)

PWM

Range	Adjustable period from 2 to 65 seconds
Thermal Actuator Management	Adjustable warm up and cool down time

Floating

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

0 to 10VDC

Source:

Voltage Range	0 to 10VDC linear
Source Current	Maximum 20 mA at 10VDC (minimum resistance 600Ω)

Sink:

Voltage Range	0 to 10VDC linear
Sink Current	Maximum 2.5 mA at 1VDC (minimum resistance 4kΩ)

Digital Output (DOT)

General

Output Type	24VAC Triac; software configurable
Maximum Current	0.5A continuous 1A @ 15% duty cycle for a 10 minute period
Power Source,	External power supply

0 or 24VAC (On/Off)

Range	0 or 24VAC

PWM

Range	Adjustable period from 2 to 65 seconds

Floating

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

Digital-Universal Output (DUO)

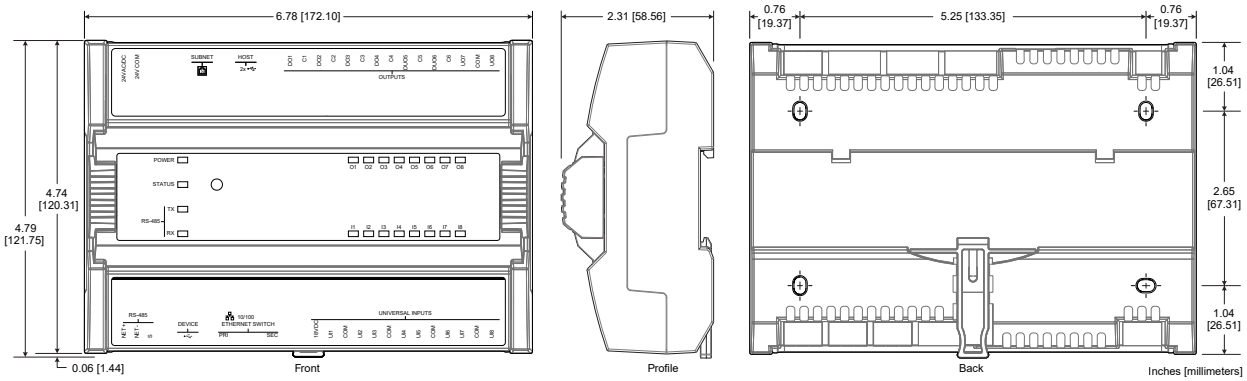
General

Output Type	Universal or digital triac; Software configurable

Specifications

Universal Output Mode	See Universal Output (UO)
Digital Output Mode	See Digital Output (DOT)

Dimensions



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