

ECY-303 Controller



Overview

The Eclipse Connected Equipment Controller (ECY-303) with Eclipse Facilities 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).

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.

The ECY-303 Controller is powered by Eclipse Facilities and includes two years of Atrius Facilities - Organize.

Features & Benefits

- Utilizes BACnet/IP and IT standards, delivering empowered IP connectivity and open integration with building management systems
- Via its RESTful API, data can be accessed from different applications, such as energy dashboards, analytics tools, and mobile applications
- 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
- Readily supports Atrius Facilities that simplifies installation and maintenance of systems and increases the efficiency of building operations.

Model & Connectivity Selection

Model Selection

Example: ECY-303-C5

Series	Description	Connectivity
ECY	-303: Connected Equipment Controller with Eclipse Facilities - 8 UI, 2 UO, 4 DO (Triac) and 2 DUO (triac or universal) onboard IO. No connection included.	-C0 default model if no connectivity is required -C1 C25: if connectivity is required (see table below)

Connectivity Packs

Connectivity packs enable remote devices to be added to a connector in Eclipse Facilities. A single pack adds x connections and x * 100 points of connectivity.

BACnet Network Values in EC-*gfx*Program are available without connectivity packs.

Connectivity		Device Ratios			
		1:1	2:1	8:1	100:1
Connectivity Pack	Connections (device loads)	BACnet Devices (IP or MS/TP)	Modbus devices (TCP/IP or RTU)	M-Bus devices ¹	Global point count
C1 ²	1	1	2	3	100
C3	3	3	6	3	300
C5	5	5	10	3	500
C10	10	10	20	3	1000
C25	25	25	50	3	2500

¹The maximum number of physical M-Bus meters is 3 when the ECY-MBUS module is connected to the controller's USB port.

²Minimum Connectivity Pack required to enable BACnet routing, MS/TP "Client", integration, use of RS485 port

Depending on the connector, a device can consume a whole connection or a fraction of a connection.

The device ratios are the following using a C5 connectivity pack (refer to table above):

- BACnet (1:1) = 5 BACnet with C5
- Modbus (2:1) = 10 Modbus with C5
- M-Bus¹ (8:1) = 40 M-Bus with C5

How to calculate connectivity

Connectivity packs are cumulative but only one pack can be ordered with a controller. More packs can be added afterwards in the field. The following shows how to calculate the connectivity needed:

$$6 \text{ BACnet} + (3 \text{ Modbus} \div 2) + (6 \text{ M-bus} \div 8) = 8.25$$

Select C10 (10 connections, 1000 points)

To assist in calculating the required connectivity, contact your RSM for more details or refer to the price list if available.

Accessories

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

¹Some physical M-Bus meters can include more than 1 virtual M-Bus device. Since each virtual M-Bus device has its own M-Bus address on the M-Bus network, the Connectivity Pack will count the number of virtual devices, rather than the number of physical M-Bus meters. It is therefore recommended to check whether the M-Bus meters that will be connected to the controller include virtual M-Bus devices, and, if so, how many, before choosing a Connectivity Pack license.

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)

¹24VDC 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)
BACnet Listing	BTL (B-BC)
BACnet Interconnectivity	BBMD forwarding capabilities BACnet/SC routing
BACnet Transport Layer	IP, BACnet/SC (Node)
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
Maximum number of standard room devices supported per controller combined ¹	4
Allure EC-Smart-View 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-4DALI / ECx-Light-DALI-A ¹	2
ECx-Blind-4 / ECx-Blind-4LV / ECx-Blind4SMI / ECx-Blind-4SMI-LoVo ¹	2

Maximum number of Bluetooth low energy room devices per controller combined ³	4
Allure Unitouch™	2
EC-Multi-Sensor-BLE	4

¹For more details about supported quantities, see the Product Selection Tool available in Builder: <https://builder.distech-controls.com>.

²A controller can support a maximum of 2 Allure sensor models equipped with a CO₂ sensor. Any remaining connected sensors must be without a CO₂ sensor.

³A mixed architecture with standard room devices and Bluetooth low energy enabled devices is not recommended.

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



¹Available when an optional external Eclipse 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.

²Wireless inputs will only be limited by physical distance between the EnOcean devices and the Eclipse 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

¹All 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
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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)
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0 to 5VDC

Range	0 to 5VDC (high input impedance)
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0 to 20mA

Range	0 to 20mA, 249Ω external resistor wired in parallel
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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 @ 77°F; 25°C)
Platinum	Pt1000 (1KΩ @ 32°F; 0°C)
Nickel	RTD Ni1000 (1KΩ @ 32°F; 0°C) RTD Ni1000 (1KΩ @ 69.8°F; 21°C)

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, 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
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Thermal Actuator Management	Adjustable warm up and cool down time
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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

Specifications

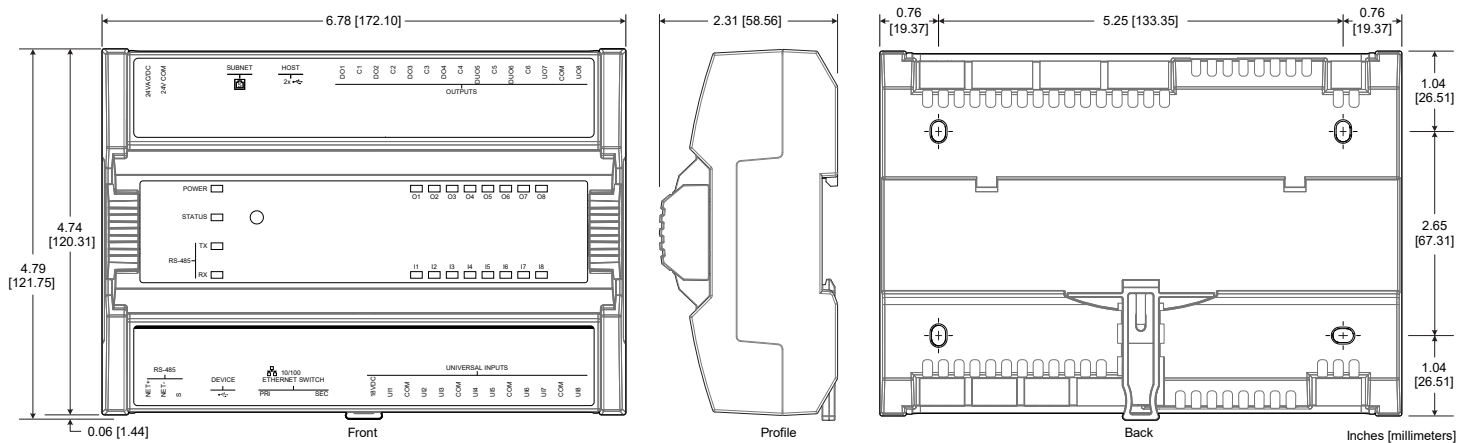
Voltage Range	0 to 10VDC linear
Sink Current	Maximum 2.5 mA at 1VDC (minimum resistance 4kΩ)

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

Digital-Universal Output (DUO) General

Output Type	Universal or digital triac; Software configurable
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Dimensions



Specifications subject to change without notice.

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