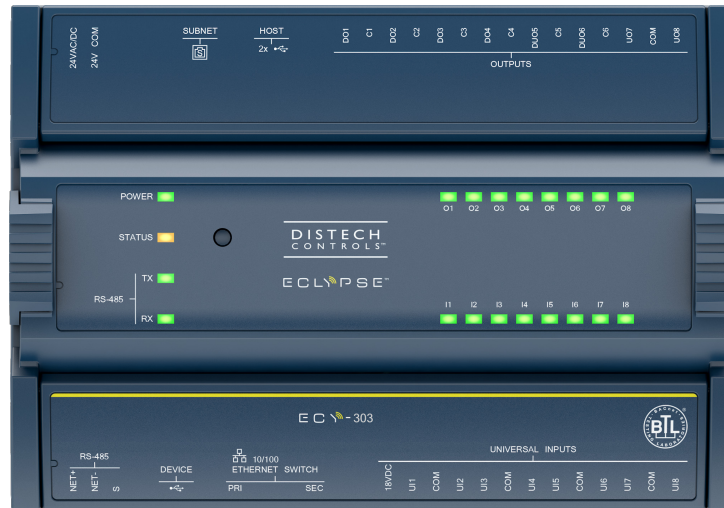




# ECLYPSE™ Connected Equipment Controller



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.

## Applications

The ECY-303 meets zone application requirements, including:

- ☐ Rooftop unit, fan coil unit, small air handling unit, heat pump, and chilled beam
- ☐ Lighting, power monitoring, and other applications.

## Features & Benefits

### Connectivity

The different types of connections supported by the ECY-303 are as follows:

#### IP wired connection

Internal switch with two Ethernet ports allows the controllers to be wired in a star or daisy-chain topology. With a daisy-chain topology:

- ☐ Fewer wire runs to a centralized switch are required, thereby achieving installation and cost reduction.
- ☐ A laptop can be connected to the second Ethernet port for direct programming, configuration, and commissioning using EC-gfxProgram or ENVYSION.

#### IP wireless (Wi-Fi) connection

- ☐ Wi-Fi Client - Connection to the building's existing Wi-Fi network or to another controller's Wi-Fi Hotspot or Access Point.
- ☐ Wi-Fi Access Point - extending the building's wired IP network to your Wi-Fi Client devices.

- Wi-Fi Hotspot - your own wireless area network, for wireless communication between the controllers, or with a mobile device or laptop for configuration, commissioning and servicing.

#### Both IP wired and wireless (Wi-Fi) connection

The availability of both Ethernet ports and USB ports for the Wi-Fi Adapter, allows for simultaneous wired IP and Wi-Fi communication on the same controller, which means you can choose and combine these connection methods. For example, Wi-Fi can be used between two controllers to jump a large atrium.

#### Connect from anywhere

Control technicians, facility managers, occupants, and others can easily connect to the system, on-site or off-site, using the different available tools:

- ENVYSION to create and view the graphical interface
- EC-*gfx*Program to create custom control sequences
- *myDC* Control to view, edit, and configure system operating parameters

#### IP Communication

- Increased speed and improved handling of numerous trend logs that enable applications, such as advanced analytics that require a large amount of data.
- 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 ECY-303 thereby creating 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.
- Hostname management allows the controller to be addressed by a nickname to facilitate network management.

#### Open to Web Services

With the RESTful API, the ECY-303's data can be accessed from different applications, such as energy dashboards, analytics tools, and mobile applications. The RESTful API documentation explains the implementation protocol for this interface.

#### Preloaded Application and Graphics

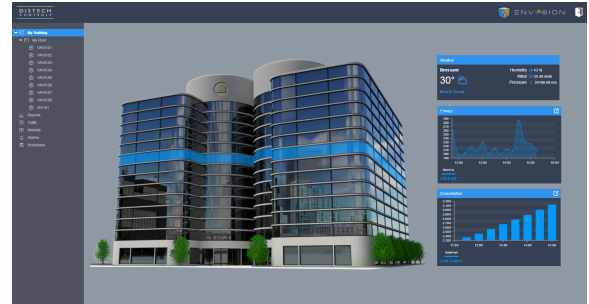
The ECY-303 is a plug and play device that saves time and money since no programming or graphic design is needed as it comes with ENVYSION™ Viewer and the associated preloaded rooftop unit applications and graphics pre-installed.

Also, no additional tools are required; only a web-browser is needed when you are using the pre-loaded application through ENVYSION. If the pre-loaded application does not meet the application requirements, you can program it using EC-*gfx*Program.



#### HTML5 Visual Interface

The ECY-303 comes embedded with ENVYSION Viewer and xpressENVYSION.

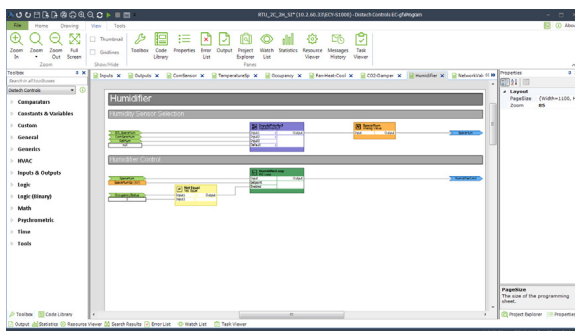


#### ENVYSION Viewer – Web-based graphical user interface

The embedded ENVYSION viewer provides fast loading of visual applications through native web pages with absolutely no browser plug-ins. Host and view preloaded graphics, and access schedules, alarms, and trend logs directly from your ECY-303.

#### Programmability

Supports Distech Controls' EC-*gfx*Program, which makes Building Automation System (BAS) programming effortless, by allowing you to visually assemble building blocks to create a custom control sequence for any HVAC, lighting, or building automation application.



## Batch EC-gfxProgram Projects and Firmware Download

EC-gfxProgram projects can be downloaded in batch to multiple controllers, for greater time savings. Batch firmware update can also be performed on multiple controllers.

## Simplified Network Commissioning

The XpressNetwork Utility saves you time and expense by giving you increased control over multiple ECLYPSE controllers through device discovery and batch operations such as configuring, programming, and updating multiple ECLYPSE controllers on the network.

In addition, with the embedded step by step Commissioning Wizard, all configuration operations can be setup and applied in one go.

Increase productivity using the xpressNetwork Companion mobile app, making it easier to identify and locate a controller on the network. Use the QR Code marked on ECLYPSE controllers to easily collect key controller data and to facilitate its network integration with xpressNetwork Utility.

## Scalable and Modular

An ECY-MBUS communication module can be connected via USB to add one M-Bus port for meter integration, thus eliminating the need for a third-party gateway (from M-Bus to BACnet/IP).

## BACnet/IP Device

The ECY-303 is BTL-listed as a BACnet Building Controller (B-BC) and is certified WSP B-BC (Europe) and AMEV AS-A & AS-B (German-speaking countries). It supports BACnet/IP for faster communication in comparison to the traditional twisted pair communication bus.

## Multi-Protocol Support

The ECY-303 optionally supports both Modbus TCP devices by connecting them to the controller's IP network and Modbus RTU devices by connecting them directly to the controller's RS-485 port.

Controllers with the Modbus communications option can integrate a wide variety of Modbus devices such as power and water meters, Variable Frequency Drives, air flow sensors, and more, without the need for additional hardware such as a gateway.

## FIPS 140-2 Level 1 Compliant

FIPS 140-2 Level 1 compliance provides an enhanced level of security to protect data the controller is collecting and sharing making it suitable for use in the most sensitive environments.

## Weather Forecast

The weather forecast is directly available from the internet to be shown on a connected ECx-Display or to be used by the controller's code.

## Smart Room Control Support

The Smart Room Control solution is an end-to-end system for the control of HVAC equipment, lighting, and shades/sunblinds, achieving the highest levels of comfort for occupants while cutting costs from installation time and wiring/material requirements to energy consumption. This solution combines:

- ☐ Lighting and shade/sunblind expansion modules to control lights (on/off or dimming) and shades/sunblinds (up/down and angle rotation).
- ☐ Multi-sensor combining motion and luminosity (Lux) sensors and an Infrared receiver that works with a convenient remote control.
- ☐ The ECLYPSE platform is compatible with Distech Controls line of *Bluetooth®* low energy technology enabled devices (Allure UNITOUCH™ and EC-Multi-Sensor-BLE) and mobile application providing state-of-the-art occupant management.
- ☐ Allure™ Series Communicating room sensors for increased occupant comfort settings using integrated sensors for temperature, humidity, CO<sub>2</sub>, and motion.

## Allure™ Series Communicating Sensor Support

These controllers work with a wide range of sensors, such as the Allure Series Communicating Sensors that are designed to provide intelligent sensing and control devices for increased user experience and energy efficiency.

- ☐ Allure EC-Smart-View
- ☐ Allure EC-Smart-Comfort
- ☐ Allure EC-Smart-Air
- ☐ Allure UNITOUCH



## Mobility

The controller can be remotely accessed to program, configure, or maintain the installation thus reducing costs associated with on-site visits. Through a mobile device or PC, a range of tasks can be performed using the following free-to-use tools and interfaces:

- ☐ ENVYSION web-based graphic design and visualization interface
- ☐ EC-*gfx*Program graphical programming interface
- ☐ *myDC* Control mobile application

## Software Configurable Outputs

For greater flexibility, two of the controller's outputs can be software configured to function either as a universal output (0 or 12VDC, PWM, Floating, 0 to 10VDC, 0 to 20mA) or as a digital 24VAC triac output.

## I/O Status LEDs

The status LEDs allows the user to confirm the status of the inputs/outputs and facilitate commissioning and troubleshooting.

## Color-Coded, Rising Cage Terminals

Terminal blocks are uniquely identified and color-coded for clarity and to prevent wiring mistakes. The rising cage clamp terminal block connectors offer a more robust and secure wire connection, designed to withstand activity and vibrations.

## Robust Protection

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

## Alarms, Trend Log, Schedule Support


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.

## Email Notifications Service

Technicians & facility managers can receive automatic email notifications for system status and alarms to ensure faster system servicing and response time. Email notification text can be customized to provide pertinent information about the issue at hand.

## Model Selection

### Connected Equipment Controller

				
Model	ECY-303 (SI)	ECY-303 (IMP)	ECY-303-M3 (SI)	ECY-303-M3 (IMP)
Points	16-Point	16-Point	16-Point	16-Point
Universal hardware inputs	8	8	8	8
18 Vdc power supply	■	■	■	■
Universal output	2	2	2	2
Digital (triac) outputs	4	4	4	4
Digital / Universal outputs	2	2	2	2
Modbus TCP & RTU Devices Supported	0	0	3	3
ENVYSION Viewer	■	■	■	■
Preloaded Apps in SI (Metric) units	■		■	
Preloaded Apps in Imperial (US) units		■		■

### Accessories

ECLYPSE Wi-Fi Adapter	Wi-Fi Adapter for ECLYPSE Connected Controllers.
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# Product Specifications

## Power Supply Input

Voltage Range \_\_\_\_\_ 24VAC;  $\pm 15\%$ ; Class 2

Power Consumption:

☐ Nominal \_\_\_\_\_ 18VA; all external loads excluded, no USB peripherals

☐ Full Load \_\_\_\_\_ 36VA; external 24VAC loads excluded

Frequency Range \_\_\_\_\_ 50 to 60Hz

Overcurrent Protection \_\_\_\_\_ Field replaceable fuse

Fuse Type \_\_\_\_\_ 2A, fast-acting, 5 × 20mm (GMA-2A)

## Communications

Ethernet Connection Speed \_\_\_\_\_ 10/100 Mbps

☐ Addressing \_\_\_\_\_ IPv4 or Hostname

BACnet Profile \_\_\_\_\_ BACnet Building Controller (B-BC)), AMEV AS-A and AS-B (pending)

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

Supported Wireless Connectivity:

☐ Wireless Adapter \_\_\_\_\_ Optional, USB Port Connection

☐ Wi-Fi Communication Protocol \_\_\_\_\_ IEEE 802.11b/g/n and 802.11s

☐ Wi-Fi Network Types \_\_\_\_\_ Client, Access Point, Hotspot

## Subnetwork

Communication \_\_\_\_\_ RS-485

Cable \_\_\_\_\_ Cat 5e, 8 conductor twisted pair

Connector \_\_\_\_\_ RJ-45

Connection Topology \_\_\_\_\_ Daisy-chain

Maximum number of standard devices supported per controller combined \_\_\_\_\_ 4<sup>1</sup>

☐ Allure EC-Smart-Vue Series<sup>2</sup>

☐ Allure EC-Smart-Air Series<sup>2</sup>

☐ Allure EC-Smart-Comfort Series

☐ EC-Multi-Sensor Series

Maximum number of expansion modules supported per controller combined \_\_\_\_\_ 4<sup>1</sup>

☐ ECx-Light-4 / ECx-Light-4D / ECx-Light-4DALI

☐ ECx-Blind-4 / ECx-Blind-4LV

Maximum number of Bluetooth low energy devices per controller combined \_\_\_\_\_ 4

☐ Allure UNITOUCH \_\_\_\_\_ 2

☐ EC-Multi-Sensor-BLE \_\_\_\_\_ 4



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

1. For more information regarding supported quantities, see the [ECLYPSE User Guide](#) available on SmartSource.

2. A controller can support a maximum of two Allure Series Communicating Sensor models equipped with a CO<sub>2</sub> sensor. The remaining connected Allure Series Communicating Sensor models must be without a CO<sub>2</sub> sensor.

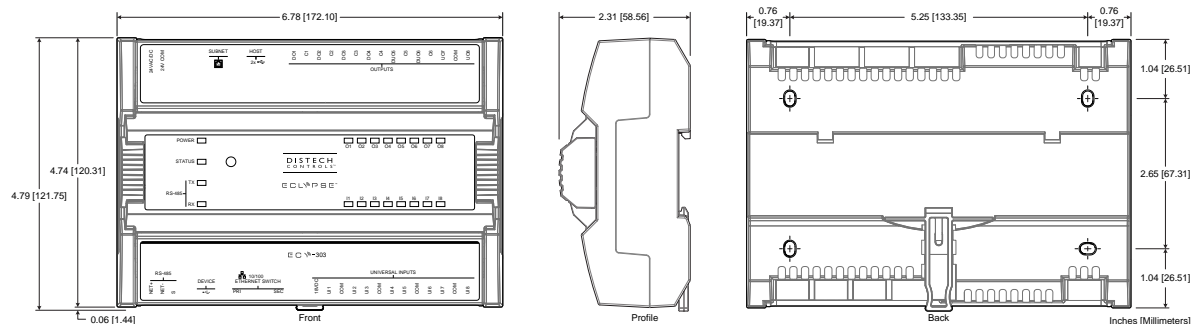


## Hardware

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
Communications Ports:	
<input type="checkbox"/> Ethernet	2 switched RJ-45 Ethernet ports 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
<input type="checkbox"/> Supported Protocols	BACnet/IP, Modbus TCP, NTP, and REST
<input type="checkbox"/> USB Connections	2 × USB 2.0 Ports 1 × Micro-USB 2.0 Port
<input type="checkbox"/> RS-485 Serial Communications	Screw terminals
<input type="checkbox"/> Subnet	RJ-45
Status Indicators	Green LED: Power status, Subnet TX, and Ethernet Traffic Orange LED: Controller status, Subnet RX, and Ethernet Speed

## 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)

Enclosure Material<sup>1</sup> — FR/ABS

Enclosure Rating — Plastic housing, UL94-5VB 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 — -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 in accordance with IEC 60549

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



## Specifications - Universal Inputs (UI)

### General

Input Type ————— Universal; software configurable

Input Resolution ————— 16-bit analog to digital converter

Power Supply Output ————— 18-20VDC; 80mA maximum

Protection ————— Auto-reset fuse for 24VAC protection

### 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 $\Omega$  input impedance)

### 0 to 5VDC

Range ————— 0 to 5VDC (high input impedance)

### 0 to 20mA

Range ————— 0 to 20mA

249 $\Omega$  external resistor wired in parallel

### Resistance/Thermistor

Range ————— 0 to 350 K $\Omega$

Supported Thermistor Types ————— Any that operate in this range

Pre-configured Temperature Sensor Types:

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



# Specifications - 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 65seconds  
Thermal Actuator Management — Adjustable warm up and cool down time

## Floating

Minimum Pulse On/Off Time — 500milliseconds  
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)

## Specifications - 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 65seconds

### Floating

Minimum Pulse On/Off Time \_\_\_\_\_ 500milliseconds

Drive Time Period \_\_\_\_\_ Adjustable

## Specifications – Digital-Universal Outputs (DUO)

### General

Output Type \_\_\_\_\_ Universal or digital triac;

Mode \_\_\_\_\_ Software configurable

### Specifications:

☐ Universal Output Mode \_\_\_\_\_ See Universal Output (UO)

☐ Digital Output Mode \_\_\_\_\_ See Digital Output (DOT)

Specifications subject to change without notice.

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