



## ECB-203 Series Controllers



Model	ECB-203	ECB-253
Points	14-Point Controller	14-Point Controller with Color Display
Universal hardware inputs	6	6
Allure EC-Smart-Vue sensor <sup>1</sup>	4	4
Wireless inputs <sup>2</sup>	24	24
15 Vdc Power Supply	■	■
Digital (triac) outputs	5	5
Universal output	3	3
Operator interface: interactive color display to monitor and override controller parameters		■

1. A controller can support a maximum of two Allure EC-Smart-Vue models equipped with a CO<sub>2</sub> sensor. The remaining connected Allure EC-Smart-Vue models must be without a CO<sub>2</sub> sensor.
2. All controllers are Open-to-Wireless ready. Available when an optional Wireless Receiver is connected to the controller. Some wireless sensors may use more than one wireless input from the controller.

## Recommended Applications

Model	ECB-203	ECB-253
Rooftop Unit	■	■
2 Pipe Fan Coil	■	■
2 Pipe Fan Coil with Changeover Sensor	■	■
4 Pipe Fan Coil	■	■
Heat Pump Unit	■	■
Unit Ventilator	■	■
Small Air Handling Unit	■	■
Chilled Ceiling	■	■

## BACnet Objects List

BACnet Calendar Objects	1
BACnet Schedule Objects	2
BACnet PID Loop Objects	8
BACnet BV Objects	
- Commandable	10
- Non-Commandable	40
BACnet MSV Objects	
- Commandable	10
- Non-Commandable	40
BACnet AV Objects	
- Commandable	25
- Non-Commandable	75

## Additional Features & Benefits for the ECB-253 Model



The ECB-253 has a large color backlit-display that allows an operator to have immediate access to internal controller data.

- View, edit, and override values. The status is color coded to show if the value is overridden.
- Visually tune PID loops with system response graphing.
- View schedule status.
- Create a list of favorites to provide quick access to commonly-used values.
- Multi-User access management.
- Multilingual interface: English, French, German, etc.

## Open-to-Wireless Series – Controller Wireless Receiver Add-on



To reduce the cost of installation, and minimize the impact on existing partition walls, the Wireless Receiver enables these controllers to communicate with a line of wireless battery-less room sensors and switches. These Wireless Receivers are available in EnOcean 315MHz and 868.3MHz versions.

Note that controllers have one wireless port to support a single Wireless Receiver.

For more information about the EnOcean and Open-to-Wireless technologies, refer to the Open-to-Wireless Solution Guide. For more information about the Wireless Receiver module, refer to the [Wireless Receiver Datasheet](#). These documents can be found on our web site.

## Supported Platforms

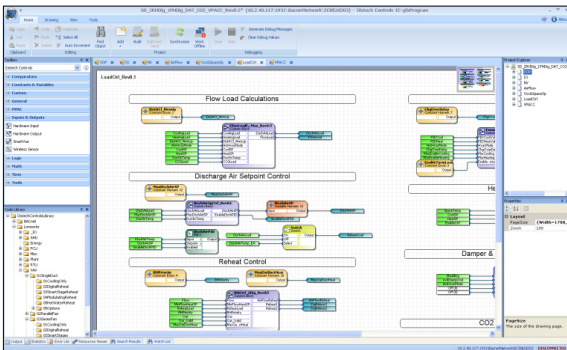


### EC-Net<sup>AX</sup> Solution

The EC-Net<sup>AX</sup> multi-protocol integration solution is web-enabled and powered by the Niagara<sup>AX</sup> Framework, establishing a fully Internet-enabled, distributed architecture for real-time access, automation and control of devices. The EC-Net<sup>AX</sup> open framework solution creates a common development and management environment for integration of LONWORKS<sup>®</sup>, BACnet<sup>®</sup> and other protocols. Regardless of manufacturer and protocol, the EC-Net<sup>AX</sup> system provides a unified modeling of diverse systems and data, providing one common platform for development, management and enterprise applications.

## EC-NetAX Wizards

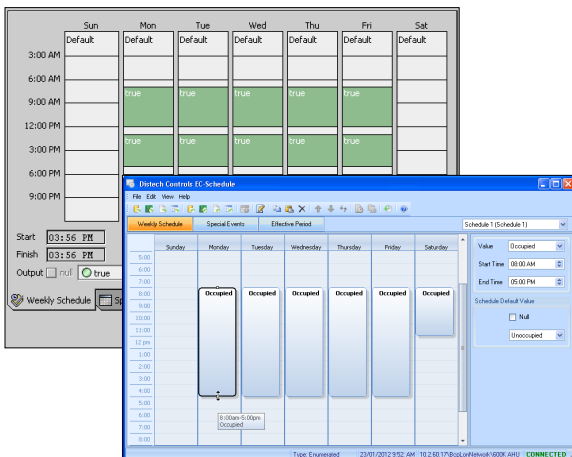
### EC-gfxProgram Graphical Programming Interface (GPI)



Distech Controls' EC-gfxProgram is a programming tool that allows you to quickly create control sequences by "dragging and dropping" block objects and then linking the objects with a simple "click, select and release". Select objects from an extensive library of over 100 commonly used functions as well as create your own custom blocks. With a user-friendly interface and intuitive programming environment, HVAC programming could not be easier. Refer to the EC-gfxProgram datasheet for more information.

- Program both ECP and ECL Series LonWorks and ECB Series BACnet controllers with the same tool.
- Supplied as freeware – there are no associated licensing costs.
- Live debugging allows user to view code execution, input/output values and to detect errors in real-time.
- A code library for managing your favorite or most commonly used code or code sections.

### EC-Net<sup>AX</sup> Scheduling / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from the EC-Net<sup>AX</sup> solution (ECB and ECL series controllers), or directly from within EC-gfxProgram (ECB and ECL series controllers) with an easy-to-use point, drag, and click interface. It features a weekly schedule for regular, repeating, events by "time-of-day" and "day-of-week", while a holiday schedule is available to define events for specific days.


- Easily configure schedules using a graphical slider.
- Allows you to easily copy and paste entries. Duplicate a schedule entry for Monday to Friday.
- Special events allow you to set exceptions such as holidays to a schedule.
- Holidays can be set for recurring events such as the 9th day, or the 3rd Thursday of a given month.
- A schedule has an effective period during which it is active.
- Schedule provides Next State and Time to Next State that are ideal for use with programming functions such as Optimum Start or Morning Warm Up.

## Complementary Products

### Temperature Sensors

#### Allure EC-Smart-Vue Series



Line of communicating room temperature sensors with communication jack, a backlit-display and configurable graphic menus that allow occupants to set occupancy, setpoint adjustment, fan speed, or any other system parameters. Models are available with any combination of the following options: humidity sensor, motion sensor, and CO<sub>2</sub> sensor. The ECO-Vue™ icon (  ) shows how environmentally-friendly the zone's energy consumption is in real time.

#### Allure EC-Sensor Series



Line of discrete temperature sensors. Models are available with the following options: communication jack, occupancy override button, setpoint adjustment, and fan speed selection.

### Open-to-Wireless Sensors and Switches

#### Allure Wireless Battery-less ECW-Sensor Series



Line of wireless, battery-less room temperature sensors. Models are available with the following options: occupancy override button, setpoint adjustment, and fan speed selection.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a [Wireless Receiver](#).

#### Wireless Sensors and Switches

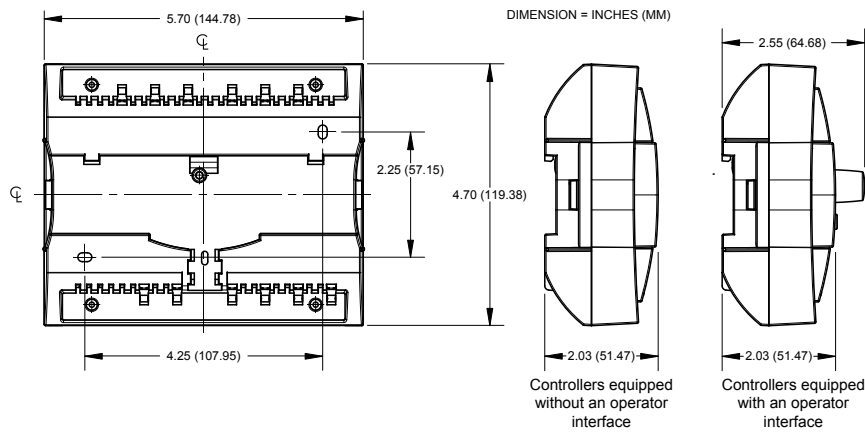


A wide range of self-powered wireless sensors and switches, including the following: motion detector and light sensor, 2-/4-channel wireless light switches (North American and European models), outdoor temperature sensor, surface temperature contact sensor, duct temperature sensor, and more.

These sensors are available in EnOcean 315MHz and 868.3MHz versions. The controller must be equipped with a [Wireless Receiver](#).

For more information about the available wireless sensors and switches, refer to the [Open-to-Wireless Solution Guide](#) which can be found on our web site.

## Controller Dimensions



## Product Specifications

### Power

Voltage	24VAC/DC; $\pm 15\%$ ; 50/60Hz; Class 2
Protection	2.0A user-replaceable fuse
Power Consumption	
- ECB-203	14 VA typical plus all external loads <sup>1</sup> , 23 VA max.
- ECB-253	17 VA typical plus all external loads <sup>1</sup> , 26 VA max.

### Interoperability

Communication Bus	BACnet MS/TP
BACnet Profile	B-ASC <sup>2</sup>
EOL Resistor	Built-in, jumper selectable
Baud Rates	9600, 19 200, 38 400, or 76 800 bps
Addressing	Dip Switch

### Hardware

Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit
CPU Speed	68 MHz
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM
Real Time Clock (RTC)	Built-in Real Time Clock without battery Network time synchronization is required at each power-up cycle before the RTC becomes available
Status Indicator	Green LEDs: power status & LAN Tx Orange LEDs: controller status & LAN Rx
Communication Jack	BACnet 1/8" (3.5mm) stereo audio jack

### Environmental

Operating Temperature	
- ECB-203	-40°F to 158°F; -40°C to 70°C
- ECB-253	32°F to 122°F; 0°C to 50°C
Storage Temperature	-40°F to 158°F; -40°C to 70°C
Relative Humidity	0 to 90% Non-condensing

### Enclosure

Material	ABS type PA-765A
Color	Blue casing & grey connectors
Dimensions	
- ECB-203	5.7 W × 4.7 H × 2.03" D (144.78 × 119.38 × 51.47mm)
- ECB-253	5.7 W × 4.7 H × 2.55" D (144.78 × 119.38 × 64.68mm)

### Shipping Weight

- ECB-203	0.97lbs (0.44kg)
- ECB-253	1.08lbs (0.49kg)

Installation	Direct din-rail mounting or wall mounting through mounting holes (see figure above for hole positions)
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### Inputs

Input Types	Universal; software configurable
-Voltage	- 0 to 10VDC (40kΩ input impedance) - 0 to 5VDC (high input impedance)
-Current	0 to 20mA with 249Ω external resistor (wired in parallel)
-Digital	Dry contact
-Pulse	Dry contact; 500ms minimum ON/OFF
-Resistor	0 to 350 KΩ. All thermistor types that operate in this range are supported. The following temperature sensors are pre-configured:
<i>Thermistor</i>	10KΩ Type 2, 3 (10KΩ @ 77°F; 25°C)
<i>Platinum</i>	Pt1000 (1KΩ @ 32°F; 0°C)
<i>Nickel</i>	RTD Ni1000 (1KΩ @ 32°F; 0°C) RTD Ni1000 (1KΩ @ 69.8°F; 21°C)
Input Resolution	16-bit analog / digital converter
Power Supply Output	15VDC; maximum 120mA (6 inputs × 20mA each)

### Outputs

Digital	24VAC Triac, digital (on/off), floating, or PWM; software configurable
	- 0.5A continuous - 1.0A @ 15% duty cycle for a 10-minute period
	- PWM control: adjustable period from 2 to 65sec.
	- Floating control:
	- Min pulse on/off: 500msec. - Adjustable drive time period
	External power supply
Universal	0-10VDC linear, digital 0-12VDC (on/off), floating or PWM; software configurable. Built-in snubbing diode to protect against back-EMF, for example when used with a 12VDC relay.
	- PWM control: adjustable period from 2 to 65sec.
	- Floating control:
	- Min pulse on/off: 500msec. - Adjustable drive time period
	- 60mA max. @ 12VDC (140°F; 60°C)
	- Minimum load resistance 200Ω
	- Auto-reset fuse
	- 60mA @ 140°F; 60°C - 100mA @ 68°F; 20°C
Output Resolution	10-bit digital / analog converter

## Product Specifications (continued)

### Wireless Receiver<sup>3</sup>

Communication	EnOcean wireless standard
Number of wireless inputs <sup>4</sup>	24
Supported Wireless Receivers	Wireless Receiver (315) Wireless Receiver (868)
Cable	Telephone cord
- Connector	4P4C modular jack
- Length (maximum)	6.5ft; 2m

### Standards and Regulation



CE -Emission	EN61000-6-3: 2007; 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
Material <sup>5</sup>	Plastic housing, UL94-5VB flammability rating Plenum rating per UL1995



CEC Appliance Database Appliance Efficiency Program<sup>6</sup>

1. External loads must include the power consumption of any connected modules such as an Allure EC-Smart-Vue sensor. Refer to the respective module's datasheet for related power consumption information.
2. Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet.
3. Available when an optional external Wireless Receiver module is connected to the controller. Refer to the Open-to-Wireless Solution Guide for a list of supported EnOcean wireless modules.
4. Some wireless modules may use more than one wireless input from the controller.
5. All materials and manufacturing processes comply with the RoHS directive  and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive .
6. California Energy Commission's Appliance Efficiency Program: The manufacturer has certified this product to the California Energy Commission in accordance with California law.

### ECB-253 Display

Display Type	Backlit-color LCD
Display Resolution	400 W × 240 H pixels (WQVGA)
Effective Viewing Area	2.4 W × 1.4" H (61.2 × 36.7mm) 2.8" (71mm) diagonal
Menu Navigation	Jog dial turn and select navigation with Exit button

### Allure EC-Smart-Vue Sensor

Communication	RS-485
Number of sensors per controller	Up to 4, in daisy-chain configuration
Cable	Cat 5e, 8 conductor twisted pair
Connector	RJ-45

### Communication Protocols



## Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards. Distech Controls is an ISO 9001 registered company.

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