



Overview

The **ECB-PTU Series** are microprocessor-based programmable controllers designed to control powered terminal units such as powered fan coil units, heat pumps units, and chilled beams. Additionally, these HVAC applications can support various pipe configurations such as 4-pipe, 2-pipe, and 4-pipe and 1-coil using a 6-way valve. These controllers use the BACnet® MS/TP LAN communication protocol and are BTL®-Listed as BACnet Application Specific Controllers (B-ASC) and WSP Certified.

This series contains five models: ECB-PTU-107, ECB-PTU-207, ECB-PTU-208, ECB-PTU-307 and ECB-PTU-308. These controllers support various input types including resistance, voltage, pulse, and digital-based ones. Moreover, depending on models, they provide analog, floating, and proportional control outputs for valves, heating elements, and fans. This series can control up to 8 lights and 8 shades / sunblinds through ECx-Light/Blind modules. These are expansion modules that operate off of a separate sub-bus, giving this controller the ability to manage lighting and shades / sunblinds for a full cross-management solution operating from a single network point.

These controllers work with a wide range of sensors, including Allure™ EC-Smart-Vue, Allure EC-Smart-Comfort, and Allure EC-Smart-Air Series of communicating sensors. These sensors are used for indoor temperature measurement, setpoint adjustment, fan speed selection, and occupancy override. Some models include CO₂ sensing and motion detection to allow the system to adjust to actual operating conditions for increased energy savings. In addition, these controllers are Open-to-Wireless™ ready, and when paired with the Wireless Receiver, they work with a variety of wireless battery-less sensors and switches.

Factory preloaded applications allow these controllers, straight out of the box, to operate standard equipment with a proven energy-efficient sequence of operation thereby eliminating the need for programming. The preloaded application can be selected using an Allure EC-Smart-Vue sensor even before the network has been installed for rapid deployment or through the EC-Net^{AX} solution using Distech Controls' *dcgfx* Applications. Or use EC-*gfx* Program through EC-Net^{AX} Pro, which is powered by the Niagara^{AX} Framework®. These same controllers are fully programmable to allow you to easily create your own control sequences capable of meeting the most demanding requirements of any engineering specification.

Applications

Meets the requirements of the following applications:

- Fan Coil Units
- Heat Pumps
- Chilled Beams
- Reversible Ceiling with 6-way valves
- Lighting fixtures and shade / sunblind motors when associated to ECx-Light/Blind expansion modules

Improves energy efficiency when combined with:

- CO₂ sensors as part of a demand-controlled ventilation strategy that adjusts the amount of fresh air intake according to the number of building occupants.
- Motion detectors to automatically adjust a zone's occupancy mode from standby to occupied when presence is detected.
- Window-contact sensors to shut-down HVAC systems when a window is opened.

Part of an integrated solution for light and shade / sunblind control.

Features & Benefits

- Preloaded applications save setup time: One technician can locally configure and troubleshoot the controller with an Allure EC-Smart-Vue sensor without any need for a programming interface.
- Expandable with lighting and shades / sunblinds expansion modules that enable smart cross-management of HVAC, lighting, and shades / sunblinds to build the Integrated Room Control Solution
- BTL B-ASC-listed, and WSP Certified, guaranteeing interoperability with other manufacturers' BACnet controllers
- Available with an optional Wireless Receiver that supports up to 24 wireless inputs, letting you create wire-free installations and use various wireless battery-less sensors and switches
- eu.bac-certified, ensuring highest control accuracy for increased energy efficiency
- Universal power supply allows for direct connection to the mains (no external transformer) for improved reliability
- Can be operated as a stand-alone unit or as part of a networked system to suit any installation requirement
- Optional strain relief and terminal block covers provide enhanced electrical protection that can reduce installation costs by eliminating the need for a protective enclosure (when allowed by local regulations)
- Powered digital outputs allow for direct connection of controlled loads to save installation time and wiring costs
- Optimized hardware design has ultra-low power consumption
- Some models have a 24 VAC power supply that can be used to power analog input damper and valve actuators thereby eliminating the need for a transformer

ECB-PTU Series



Model	ECB-PTU-107	ECB-PTU-207	ECB-PTU-208	ECB-PTU-307	ECB-PTU-308
Points	12	16	14	17	16
Universal Inputs	2	2	2	2	2
Digital Inputs	3	3	3	2	3
Sensor Inputs (NTC 10 kΩ Type II, III)	1	1	1	2	1
Wireless Inputs ¹	24	24	24	24	24
Relay Contact Outputs (<i>typ. Electric Heater</i>)	1 x 2 kW	1 x 2 kW	1 x 2 kW	2 x 1 kW	1 x 2 kW
Powered Relay Outputs (<i>typ. Fan Speeds</i>)	3	3	3	3	3
Line-Powered Triac Outputs (<i>typ. Valves</i>)	2	2		4	
24 VAC Triac Outputs (<i>typ. Valves</i>) ²			2		4
Analog Outputs		4	2	2	2
24 VAC Power Supply Outputs			■		■
Supply Voltage Input	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
Compatibility for optional subnet devices:					
- Allure communicating sensors	Up to 4 ^{3,4}	Up to 4 ^{3,4}	Up to 4 ^{3,4}	Up to 4 ^{3,4}	Up to 4 ^{3,4}
- EC-Multi-Sensor series	Up to 4 ⁴	Up to 4 ⁴	Up to 4 ⁴	Up to 4 ⁴	Up to 4 ⁴
- ECx-Light-4 / ECx-Light-4D	2	2	2	2	2
- ECx-Blind-4 / ECx-Blind-4LV	2	2	2	2	2

1. 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.
2. Can be used to power certain types of valves and air dampers, thereby eliminating the need for a transformer.
3. A controller can support a maximum of two Allure communicating sensors equipped with a CO₂ sensor. The remaining connected Allure communicating sensors must be without a CO₂ sensor.
4. A controller can support four sensors among Allure EC-Smart-Vue, Allure EC-Smart-Comfort, Allure EC-Smart-Air, and EC-Multi-Sensor.

Recommended Applications

Model	ECB-PTU-107	ECB-PTU-207	ECB-PTU-208	ECB-PTU-307	ECB-PTU-308
FCU ¹ : 2/4 pipes - 3 speed fan - ON/OFF / thermal valves	■				
FCU: 2/4 pipes - Variable / 3-speed fan - ON/OFF / thermal valves		■	■		
FCU: 2/4 pipes - Variable / 3-speed fan - Analog actuator		■	■		
FCU: 2 pipes - Variable / 3-speed fan - Floating actuator		■	■		
FCU: 4 pipes - Variable / 3-speed fan - Floating actuator				■	■
HPU ² : 3-speed fan	■				
HPU: Variable speed fan		■	■		
Chilled Beam: ON/OFF / thermal valves	■		■		
Chilled Beam: 2 pipes - Floating actuator	■		■		
Chilled Beam: 4 pipes - Floating actuator				■	■
Reversible Ceiling with 6-way valves		■	■		
Unit Ventilator		■	■		
Two-room FCU Application: 2/4 pipes - Variable speed fan - ON/OFF / thermal valves				■	■
Two-room Chilled Beam Application: 2/4 pipes - ON/OFF / thermal / analog valves				■	■

1. Fan Coil Unit
2. Heat Pump Unit

BACnet Objects

Model	ECB-PTU-107	ECB-PTU-207	ECB-PTU-208	ECB-PTU-307	ECB-PTU-308
BACnet Calendar Objects	1	1	1	1	1
BACnet Schedule Objects	2	2	2	2	2
BACnet PID Loop Objects	8	8	8	8	8
BACnet BV Objects					
- Commandable	10	10	10	10	10
- Non-Commandable	40	40	40	40	40
BACnet MSV Objects					
- Commandable	10	10	10	10	10
- Non-Commandable	40	40	40	40	40
BACnet AV Objects					
- Commandable	25	25	25	25	25
- Non-Commandable	75	75	75	75	75

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. For supported frequencies in your area, refer to the [Open to Wireless Solution Guide](#). Note that controllers have one wireless port to support a single Wireless Receiver.

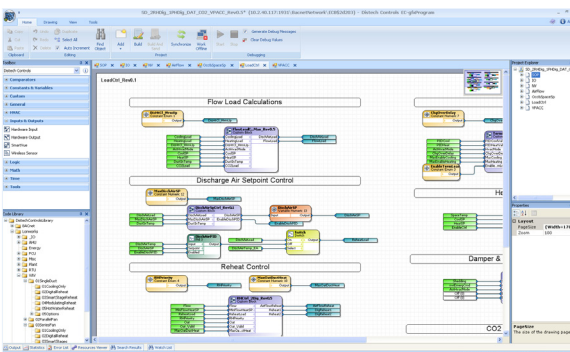
Supported Platforms



EC-Net^{AX} Solution

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

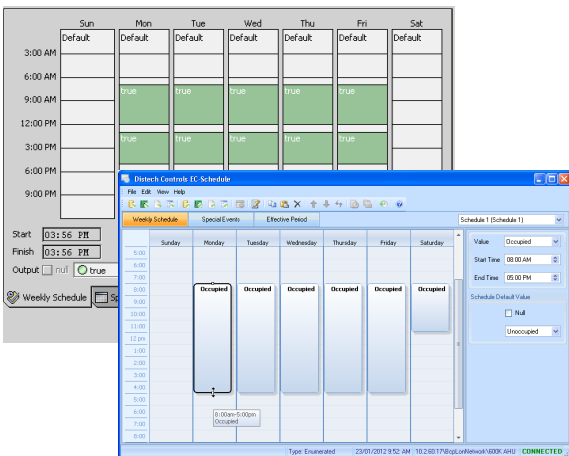
EC-gfxProgram Graphical Programming Interface (GPI)



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^{AX} Scheduling / EC-gfxProgram EC-Schedule



Configure the controller's built-in schedules and holidays from EC-Net^{AX} solution (ECB and ECL series controllers), LNS (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

ECx-Light/Blind Series



Line of lighting and shades / sunblinds expansion modules for Smart Room Control controllers: ON/OFF lights, dimming lights, DALI lighting, mains-powered shades / sunblinds, 24 VDC shades / sunblinds, and more.

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 CO₂ sensor. The ECO-Vue™ icon shows how environmentally-friendly the zone's energy consumption is in real time.

Allure™ EC-Smart-Comfort Series



Line of communicating room temperature sensors with coloured LED indicators to provide user feedback, rotary knobs to adjust the setpoint offset and fan speed, and a push-button to apply occupancy override.

Expandable with Smart-Light/Blind add-on push-button modules, for lighting and shade/sunblind control.

Allure™ EC-Smart-Air Series



Line of communicating room temperature sensors with precise environmental sensing temperature, humidity and CO₂.

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.

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.

The controller must be equipped with a Wireless Receiver.

EC-Multi-Sensor Series



Line of in-ceiling multi-sensors. Models are available with presence detection, light sensor, temperature sensor, and infrared receiver.

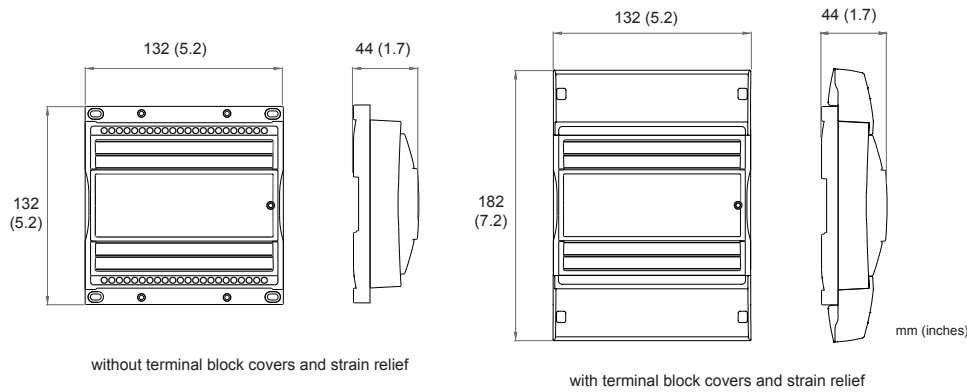
Wireless Sensors and Switches





A wide range of self-powered wireless sensors and switches, including the following: Motion sensor 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.

For supported frequencies in your area, refer to the [Open to Wireless Solution Guide](#). Note that controllers must be equipped with a wireless receiver.

ECB-PTU-107 Dimensions



ECB-PTU-107 Specifications

Power		Inputs³	
Voltage	100-240 VAC; -15%/+10%; 50/60 Hz	 Universal Inputs (UI1, UI2) - Voltage - Digital - Pulse	Measurement Category: CAT I
Protection	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)		Software configurable 0-10 VDC Dry Contact 0-3.3 VDC 1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Typical Consumption	0.9 W plus all external loads ¹	- Resistor	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Maximum Consumption	4.0 A	Sensor Inputs (SI3)	Software configurable Accuracy: ± 0.1°C @ 25°C (controller only)
	Double Insulation Device	- Digital	Dry Contact 0-3.3 VDC
Overvoltage Category	II - 2.5 kV	- Pulse	1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Interoperability		- Resistor	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Communication Bus	BACnet MS/TP	Digital Inputs (DI4, DI5, DI6)	Software configurable
BACnet Profile	B-ASC ²	- Digital	Dry Contact 0-3.3 VDC
EOL Resistor	Built-in, dip switch selectable	- Pulse	20 Hz maximum; Min 20 ms On / 20 ms Off - Dry Contact 0-3.3 VDC
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	Power Supply Output (Vref)	5 VDC for polarization I < 1mA
Addressing	Dip Switch	Outputs	
Connection	3 wires: Net+ / Net- & COM; Refer to the Hardware Installation guide for more information.	Triac Outputs (DO5, DO6)	PWM (Typically Thermal Valve Control) / Floating / Digital (ON/OFF) 100-240 VAC (same as device power supply) - 0.5 A continuous - 1 A @ 15% duty cycle for a 10-minute period - Inrush current 3.0 A max (< 20 ms) 1 common per pair of outputs - PWM control: - Adjustable period from 2 s to 65 s - Floating control: - Requires 2 consecutive outputs - Min pulse on/off: 500msec - Adjustable drive time period from 10 s to 600 s
Hardware		Powered Relay Outputs (DO1, DO2, DO3)	Digital (Typically Fan Speeds) - 100-240 VAC (same as device power supply) - 3.0 A max. (inductive or resistive load) for the total sum of the 3 outputs Normally Open Contacts All share the same common
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Digital Relay Contact (DO4, C4)	Digital (Typically Electric Heater) Dry contact from 100 VAC to 255 VAC The output must be protected with a 10.0 A external circuit breaker or a 10.0 A external fast acting, high breaking fuse (250 VAC min.) - 9.0 A max. on a resistive load (2 kW @ 230 VAC) Normally Open Contacts Digital dedicated common
CPU Speed	68 MHz		
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM		
Status Indicator	Green LEDs: Controller & Power Status, LAN Tx & Rx		
Environmental			
Operating Temperature	+5°C to +40°C (41°F to 104°F)		
Storage Temperature	-20°C to 70°C (-4°F to 158°F)		
Relative Humidity	+20 to 90% Non-condensing		
Altitude	< 2000 m		
Pollution Degree	2		
Enclosure			
Material	ABS type PA-765A		
Color	Blue casing & grey connectors		
Dimensions	132 × 132 × 44 mm (5.2 × 5.2 × 1.7") - with terminal block covers 182 × 132 × 44 mm (7.2 × 5.2 × 1.7")		
Shipping Weight	0.36 kg (0.79 lbs)		
IP	30 when equipped with strain relief and terminal block cover		
Installation	Direct din-rail mounting or wall-mounting - Refer to the Hardware Installation Guide for more information		

ECB-PTU-107 Specifications (continued)

Wireless Receiver⁴

Communication	EnOcean wireless standard
Number of wireless inputs ⁵	24
Supported wireless receivers	Refer to the Open to Wireless Solution Guide
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	2 m (6.5 ft)

Standards and Regulation⁶

CE - Emission	IEC61000-6-3: 2006 + A1: ed.2010 Generic standards for residential, commercial and light-industrial environments
CE - Immunity	IEC61000-6-1: 2005; 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)	UL 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/28 CSA C22.2 NO. 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/01 File number: E352591 UL94-5VB
Material ⁷	UL94-5VB
CE - Electrical Safety (Approved by an external Lab)	EN 60730-1 : 2011 - Automatic electrical controls for household and similar use - Part 1: General requirements

Subnetwork

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

Certified Performances

eu.bac license number	213324
Chilled Ceiling Systems	
Cooling Control Accuracy	0.2°C (0.36°F)
Fan Coil Systems (2 pipes + electric heater)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)
Fan Coil Systems (4 pipes)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)

System



eu.bac european building automation controls association



AA
A
B
C
D
E

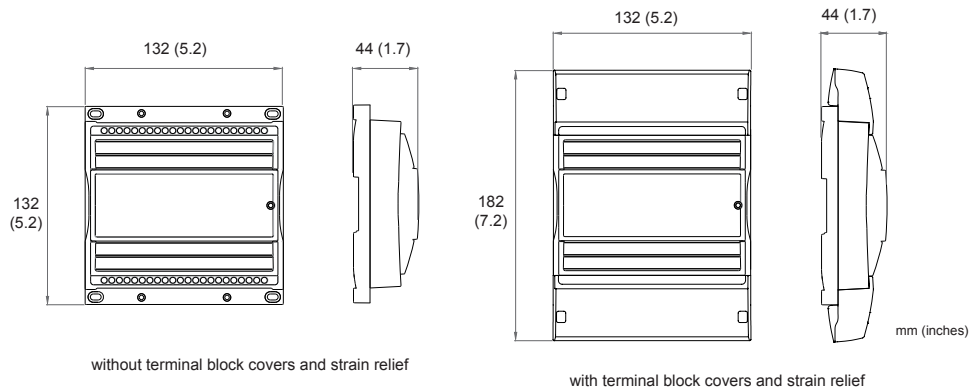


Communication Protocols





- External loads must include the power consumption of any connected module. Refer to the respective module's datasheet for related power consumption information.
- Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet
- SELV (Safety Extra Low Voltage) inputs/outputs.
- 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.
- Some wireless modules may use more than one wireless input from the controller.
- Must be mounted with strain reliefs and terminal block covers or in a junction box to comply with CE and UL regulations.
- All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.

ECB-PTU-207 Dimensions



ECB-PTU-207 Specifications

Power		Inputs³	
Voltage	100-240 VAC; -15%/+10%; 50/60 Hz	 Universal Inputs (UI1, UI2) <ul style="list-style-type: none"> - Voltage - Digital - Pulse Resistor Sensor Inputs (SI3) <ul style="list-style-type: none"> - Digital - Pulse Resistor Digital Inputs (DI4, DI5, DI6) <ul style="list-style-type: none"> - Digital - Pulse Power Supply Output (Vref)	Measurement Category: CAT I
Protection	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)		Software configurable
Typical Consumption	0.9 W plus all external loads ¹		0-10 VDC
Maximum Consumption	4.0 A		Dry Contact 0-3.3 VDC
	Double Insulation Device		1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Overvoltage Category	II - 2.5 kV		10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Interoperability			Software configurable
Communication Bus	BACnet MS/TP		Accuracy: ± 0.1°C @ 25°C (controller only)
BACnet Profile	B-ASC ²		Dry Contact 0-3.3 VDC
EOL Resistor	Built-in, dip switch selectable		1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)	
Addressing	Dip Switch	Software configurable	
Connection	3 wires: Net+ / Net- & COM; Refer to the Hardware Installation guide for more information.	Dry Contact 0-3.3 VDC	
Hardware		Outputs	
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Triac Outputs (DO5, DO6)	PWM (Typically Thermal Valve Control) / Floating / Digital (ON/OFF)
CPU Speed	68 MHz	100-240 VAC (same as device power supply) <ul style="list-style-type: none"> - 0.5 A continuous - 1 A @ 15% duty cycle for a 10-minute period - Inrush current 3.0 A max (< 20 ms) 1 common per pair of outputs <ul style="list-style-type: none"> - PWM control: <ul style="list-style-type: none"> - Adjustable period from 2 s to 65 s - Floating control: <ul style="list-style-type: none"> - Requires 2 consecutive outputs - Min pulse on/off: 500msec - Adjustable drive time period from 10 s to 600 s 	
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM		
Status Indicator	Green LEDs: Controller & Power Status, LAN Tx & Rx		
Environmental			Digital (Typically Fan Speeds)
Operating Temperature	+5°C to +40°C (41°F to 104°F)	- 100-240 VAC (same as device power supply)	
Storage Temperature	-20°C to 70°C (-4°F to 158°F)	- 3.0 A max. (inductive or resistive load) for the total sum of the 3 outputs	
Relative Humidity	+20 to 90% Non-condensing	Normally Open Contacts	
Altitude	< 2000 m	All share the same common	
Pollution Degree	2	Digital (Typically Electric Heater)	
Enclosure		Dry contact from 100 VAC to 255 VAC	
Material	ABS type PA-765A	The output must be protected with a 10.0 A external circuit breaker or a 10.0 A external fast acting, high breaking fuse (250 VAC min.)	
Color	Blue casing & grey connectors	- 9.0 A max. on a resistive load (2 kW @ 230 VAC)	
Dimensions	132 × 132 × 44 mm (5.2 × 5.2 × 1.7")	Normally Open Contacts	
- with terminal block covers	182 × 132 × 44 mm (7.2 × 5.2 × 1.7")	Digital dedicated common	
Shipping Weight	0.37 kg (0.82 lbs)	Analog³	
IP	30 when equipped with strain relief and terminal block cover	(AO7, AO8, AO9, AO10)	Linear (0-10VDC)
Installation	Direct din-rail mounting or wall-mounting - Refer to the Hardware Installation Guide for more information		- 5 mA max.

ECB-PTU-207 Specifications (continued)

Wireless Receiver⁴

Communication	EnOcean wireless standard
Number of wireless inputs ⁵	24
Supported wireless receivers	Refer to the Open to Wireless Solution Guide
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	2 m (6.5 ft)

Standards and Regulation⁶

CE - Emission	IEC61000-6-3: 2006 + A1: ed.2010 Generic standards for residential, commercial and light-industrial environments
CE - Immunity	IEC61000-6-1: 2005; 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)	UL 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/28 CSA C22.2 NO. 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/01 File number: E352591 UL94-5VB
Material ⁷	EN 60730-1 : 2011 - Automatic electrical controls for household and similar use - Part 1: General requirements
CE - Electrical Safety (Approved by an external Lab)	

Subnetwork

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

Certified Performances

eu.bac license number	213324
Chilled Ceiling Systems	
Cooling Control Accuracy	0.2°C (0.36°F)
Fan Coil Systems (2 pipes + electric heater)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)
Fan Coil Systems (4 pipes)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)

System

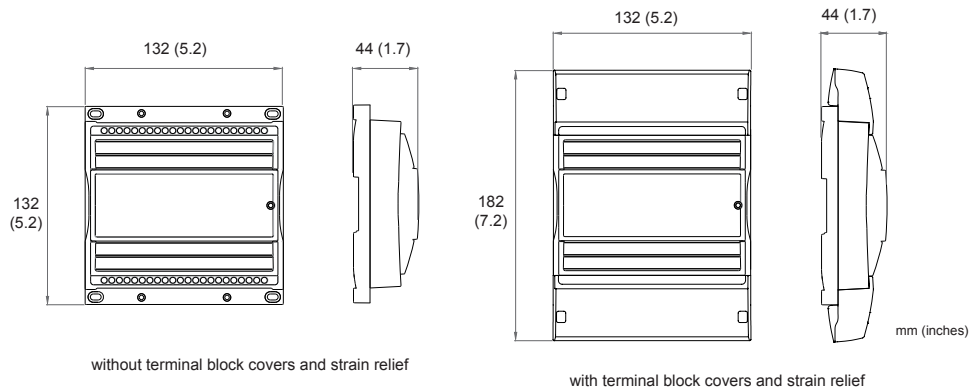


Communication Protocols





- External loads must include the power consumption of any connected module. Refer to the respective module's datasheet for related power consumption information.
- Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet
- SELV (Safety Extra Low Voltage) inputs/outputs.
- 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.
- Some wireless modules may use more than one wireless input from the controller.
- Must be mounted with strain reliefs and terminal block covers or in a junction box to comply with CE and UL regulations.
- All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.

ECB-PTU-208 Dimensions



ECB-PTU-208 Specifications

Power		Inputs³	
Voltage	100-240 VAC; -15%/+10%; 50/60 Hz	 Universal Inputs (UI1, UI2) - Voltage - Digital - Pulse	Measurement Category: CAT I
Protection	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)		Software configurable 0-10 VDC Dry Contact 0-3.3 VDC 1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Typical Consumption	< 2.6 W plus all external loads ¹	- Resistor	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Maximum Consumption	3.5 A	Sensor Inputs (SI3)	Software configurable Accuracy: ± 0.1°C @ 25°C (controller only)
	Double Insulation Device	- Digital	Dry Contact 0-3.3 VDC
Overvoltage Category	II - 2.5 kV	- Pulse	1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Interoperability		- Resistor	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Communication Bus	BACnet MS/TP	Digital Inputs (DI4, DI5, DI6)	Software configurable
BACnet Profile	B-ASC ²	- Digital	Dry Contact 0-3.3 VDC
EOL Resistor	Built-in, dip switch selectable	- Pulse	20 Hz maximum; Min 20 ms On / 20 ms Off - Dry Contact 0-3.3 VDC
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	Power Supply Output (Vref)	5 VDC for polarization I < 1 mA
Addressing	Dip Switch	Outputs	
Connection	3 wires: Net+ / Net- & COM; Refer to the Hardware Installation guide for more information.	Triac Outputs ³ (DO5, DO6)	PWM (Typically Thermal Valve Control) / Floating / Digital (ON/OFF) See <i>On-board 24 VAC Power Supply</i> section for voltage and current specifications 1 common per pair of outputs - PWM control: - Adjustable period from 2 s to 65 s - Floating control: - Requires 2 consecutive outputs - Min pulse on/off: 500msec - Adjustable drive time period from 10 s to 600 s
Hardware		Powered Relay Outputs (DO1, DO2, DO3)	Digital (Typically Fan Speeds) - 100-240 VAC (same as device power supply) - 3.0 A max. (inductive or resistive load) for the total sum of the 3 outputs Normally Open Contacts All share the same common
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Digital Relay Contact (DO4, C4)	Digital (Typically Electric Heater) Dry contact from 100 VAC to 255 VAC The output must be protected with a 10.0 A external circuit breaker or a 10.0 A external fast acting, high breaking fuse (250 VAC min.) - 9.0 A max. on a resistive load (2 kW @ 230 VAC) Normally Open Contacts Digital dedicated common
CPU Speed	68 MHz	Analog ³ (AO7, AO8)	Linear (0-10VDC) - 5 mA max.
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM	24 VAC Outputs ³	See <i>On-board 24 VAC Power Supply</i> section
Status Indicator	Green LEDs: Controller & Power Status, LAN Tx & Rx	On-board 24 VAC Power Supply	
Environmental		Use	Used to power both 24 VAC Triac outputs and 24 VAC outputs.
Operating Temperature	+5°C to +40°C (41°F to 104°F)	Voltage	24 VAC; ± 10%; 50 Hz
Storage Temperature	-20°C to 70°C (-4°F to 158°F)	Current	- 500 mA max. on a resistive load (12 VA @ 24 VAC) - Peak current 0.8 A max. - Short-circuit protected - Overload protected
Relative Humidity	+20 to 90% Non-condensing		
Altitude	< 2000 m		
Pollution Degree	2		
Enclosure			
Material	ABS type PA-765A		
Color	Blue casing & grey connectors		
Dimensions (with screws)	132 × 132 × 44 mm (5.2 × 5.2 × 1.7")		
Dimensions	132 × 132 × 44 mm (5.2 × 5.2 × 1.7")		
- with terminal block covers	182 × 132 × 44 mm (7.2 × 5.2 × 1.7")		
IP	30 when equipped with strain relief and terminal block cover		
Installation	Direct din-rail mounting or wall-mounting - Refer to the Hardware Installation Guide for more information		

ECB-PTU-208 Specifications (continued)

Wireless Receiver⁴

Communication	EnOcean wireless standard
Number of wireless inputs ⁵	24
Supported wireless receivers	Refer to the Open to Wireless Solution Guide
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	2 m (6.5 ft)

Standards and Regulation⁶

CE - Emission	IEC61000-6-3: 2006 + A1: ed.2010 Generic standards for residential, commercial and light-industrial environments
CE - Immunity	IEC61000-6-1: 2005; 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)	UL 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/28 CSA C22.2 NO. 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/01 File number: E352591 UL94-5VB
Material ⁷	EN 60730-1 : 2011 - Automatic electrical controls for household and similar use - Part 1: General requirements
CE - Electrical Safety (Approved by an external Lab)	

Subnetwork

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

Certified Performances

eu.bac license number	213324
Chilled Ceiling Systems	
Cooling Control Accuracy	0.2°C (0.36°F)
Fan Coil Systems (2 pipes + electric heater)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)
Fan Coil Systems (4 pipes)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)

System



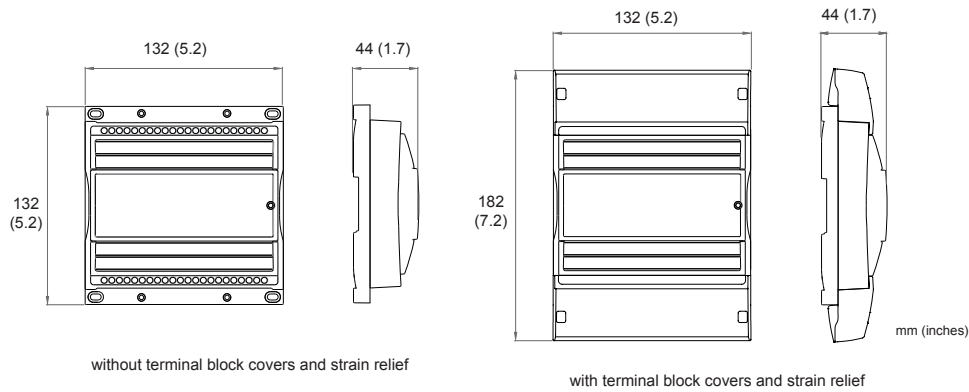


Communication Protocols





- External loads must include the power consumption of any connected module. Refer to the respective module's datasheet for related power consumption information.
- Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet
- SELV (Safety Extra Low Voltage) inputs/outputs.
- 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.
- Some wireless modules may use more than one wireless input from the controller.
- Must be mounted with strain reliefs and terminal block covers or in a junction box to comply with CE and UL regulations.
- All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.

ECB-PTU-307 Dimensions



ECB-PTU-307 Specifications

Power		Inputs³	
Voltage	100-240 VAC; -15%/+10%; 50/60 Hz	 <p>Universal Inputs (UI1, UI2)</p> <ul style="list-style-type: none"> - Voltage - Digital - Pulse <p>- Resistor</p> <p>Sensor Inputs (SI3, SI4)</p> <ul style="list-style-type: none"> - Digital - Pulse <p>- Resistor</p> <p>Digital Inputs (DI5, DI6)</p> <ul style="list-style-type: none"> - Digital - Pulse <p>Power Supply Output (Vref)</p>	Measurement Category: CAT I
Protection	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)		Dry Contact 0-3.3 VDC
Typical Consumption	0.9 W plus all external loads ¹		1 Hz maximum; Min 500 ms On / 500 ms Off -
Maximum Consumption	4.0 A		Dry Contact 0-3.3 VDC
	Double Insulation Device		10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Overvoltage Category	II - 2.5 kV		Software configurable
Interoperability			Accuracy: ± 0.1°C @ 25°C (controller only)
Communication Bus	BACnet MS/TP		Dry Contact 0-3.3 VDC
BACnet Profile	B-ASC ²		1 Hz maximum; Min 500 ms On / 500 ms Off -
EOL Resistor	Built-in, dip switch selectable		Dry Contact 0-3.3 VDC
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)	
Addressing	Dip Switch	Software configurable	
Connection	3 wires: Net+ / Net- & COM; Refer to the Hardware Installation guide for more information.	Dry Contact 0-3.3 VDC	
Hardware		Dry Contact 0-3.3 VDC	
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	20 Hz maximum; Min 20 ms On / 20 ms Off -	
CPU Speed	68 MHz	Dry Contact 0-3.3 VDC	
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM	5 VDC for polarization I < 1mA	
Status Indicator	Green LEDs: Controller & Power Status, LAN Tx & Rx	Outputs	
Environmental		Triac Outputs (DO5, DO6, DO9, DO10)	PWM (Typically Thermal Valve Control) / Floating / Digital (ON/OFF)
Operating Temperature	+5°C to +40°C (41°F to 104°F)	Digital Relay Contact (DO4, C4 and DO11, C11)	100-240 VAC (same as device power supply)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)	Analog ³ (AO7, AO8)	- 0.5 A continuous
Relative Humidity	+20 to 90% Non-condensing		- 1 A @ 15% duty cycle for a 10-minute period
Altitude	< 2000 m		- Inrush current 3.0 A max (< 20 ms)
Pollution Degree	2		1 common per pair of outputs
Enclosure			- PWM control:
Material	ABS type PA-765A		- Adjustable period from 2 s to 65 s
Color	Blue casing & grey connectors		- Floating control:
Dimensions	132 × 132 × 44 mm (5.2 × 5.2 × 1.7") - with terminal block covers 182 × 132 × 44 mm (7.2 × 5.2 × 1.7")		- Requires 2 consecutive outputs
Shipping Weight	0.39 kg (0.86 lbs)		- Min pulse on/off: 500msec
IP	30 when equipped with strain relief and terminal block cover		- Adjustable drive time period from 10 s to 600 s
Installation	Direct din-rail mounting or wall-mounting - Refer to the Hardware Installation Guide for more information		

ECB-PTU-307 Product Specifications (continued)

Wireless Receiver⁴

Communication	EnOcean wireless standard
Number of wireless inputs ⁵	24
Supported wireless receivers	Refer to the Open to Wireless Solution Guide
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	2 m (6.5 ft)

Standards and Regulation⁶

CE - Emission	IEC61000-6-3: 2006 + A1: ed.2010 Generic standards for residential, commercial and light-industrial environments
CE - Immunity	IEC61000-6-1: 2005; 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)	UL 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/28 CSA C22.2 NO. 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/01 File number: E352591 UL94-5VB
Material ⁷	EN 60730-1 : 2011 - Automatic electrical controls for household and similar use - Part 1: General requirements
CE - Electrical Safety (Approved by an external Lab)	



Subnetwork

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

Certified Performances

eu.bac license number	213324
Chilled Ceiling Systems	
Cooling Control Accuracy	0.2°C (0.36°F)
Fan Coil Systems (2 pipes + electric heater)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)
Fan Coil Systems (4 pipes)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)

System

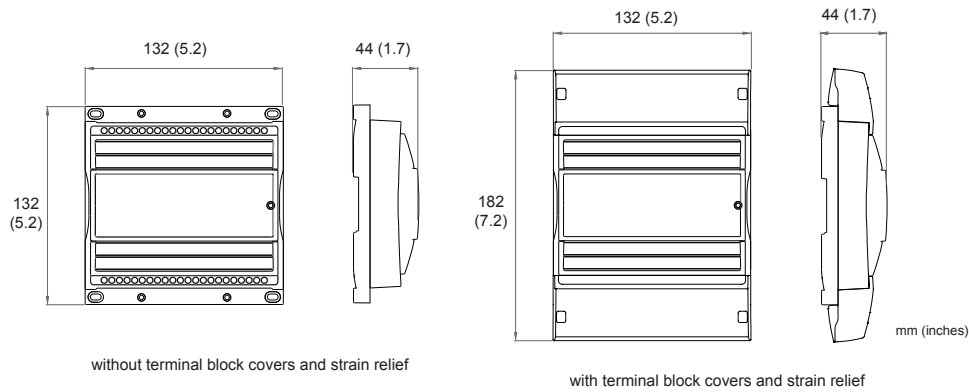
DISTECH CONTROLS

Communication Protocols



- External loads must include the power consumption of any connected module. Refer to the respective module's datasheet for related power consumption information.
- Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet
- SELV (Safety Extra Low Voltage) inputs/outputs.
- 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.
- Some wireless modules may use more than one wireless input from the controller.
- Must be mounted with strain reliefs and terminal block covers or in a junction box to comply with CE and UL regulations.
- All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.

ECB-PTU-308 Dimensions



ECB-PTU-308 Specifications

Power		Inputs³	
Voltage	100-240 VAC; -15%/+10%; 50/60 Hz		Measurement Category: CAT I
Protection	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)		Universal Inputs (UI1, UI2)
Typical Consumption	< 2.6 W plus all external loads ¹	- Voltage	0-10 VDC
Maximum Consumption	3.5 A	- Digital	Dry Contact 0-3.3 VDC
	Double Insulation Device	- Pulse	1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Overvoltage Category	II - 2.5 kV	- Resistor	10 kΩ Type II, III (10 kΩ @ 25°C; 77°F)
Interoperability		Sensor Inputs (SI3)	Software configurable
Communication Bus	BACnet MS/TP	- Digital	Accuracy: ± 0.1°C @ 25°C (controller only)
BACnet Profile	B-ASC ²	- Pulse	Dry Contact 0-3.3 VDC
EOL Resistor	Built-in, dip switch selectable	- Resistor	1 Hz maximum; Min 500 ms On / 500 ms Off - Dry Contact 0-3.3 VDC
Baud Rates	9600, 19 200, 38 400, or 76 800 bps	Digital Inputs (DI4, DI5, DI6)	Software configurable
Addressing	Dip Switch	- Digital	Dry Contact 0-3.3 VDC
Connection	3 wires: Net+ / Net- & COM; Refer to the Hardware Installation guide for more information.	- Pulse	20 Hz maximum; Min 20 ms On / 20 ms Off - Dry Contact 0-3.3 VDC
Hardware		Power Supply Output (Vref)	5 VDC for polarization I < 1 mA
Processor	STM32 (ARM Cortex™ M3) MCU, 32 bit	Outputs	
CPU Speed	68 MHz	Triac Outputs ³	PWM (Typically Thermal Valve Control) / Floating / Digital (ON/OFF)
Memory	384 kB Non-volatile Flash (applications) 1 MB Non-volatile Flash (storage) 64 kB RAM	(DO5, DO6, DO9, DO10)	See <i>On-board 24 VAC Power Supply</i> section for voltage and current specifications
Status Indicator	Green LEDs: Controller & Power Status, LAN Tx & Rx		1 common per pair of outputs
Environmental			- PWM control:
Operating Temperature	+5°C to +40°C (41°F to 104°F)		- Adjustable period from 2 s to 65 s
Storage Temperature	-20°C to 70°C (-4°F to 158°F)		- Floating control:
Relative Humidity	+20 to 90% Non-condensing		- Requires 2 consecutive outputs
Altitude	< 2000 m		- Min pulse on/off: 500msec
Pollution Degree	2		- Adjustable drive time period from 10 s to 600 s
Enclosure		Powered Relay Outputs	Digital (Typically Fan Speeds)
Material	ABS type PA-765A	(DO1, DO2, DO3)	- 100-240 VAC (same as device power supply)
Color	Blue casing & grey connectors		- 3.0 A max. (inductive or resistive load) for the total sum of the 3 outputs
Dimensions	132 × 132 × 44 mm (5.2 × 5.2 × 1.7")		Normally Open Contacts
- with terminal block covers	182 × 132 × 44 mm (7.2 × 5.2 × 1.7")		All share the same common
Shipping Weight	0.42 kg (0.93 lbs)	Digital Relay Contact	Digital (Typically Electric Heater)
IP	30 when equipped with strain relief and terminal block cover	(DO4, C4)	Dry contact from 100 VAC to 255 VAC
Installation	Direct din-rail mounting or wall-mounting - Refer to the Hardware Installation Guide for more information		The output must be protected with a 10.0 A external circuit breaker or a 10.0 A external fast acting, high breaking fuse (250 VAC min.)
On-board 24 VAC Power Supply			- 9.0 A max. on a resistive load (2 kW @ 230 VAC)
Use	Used to power both 24 VAC Triac outputs and 24 VAC outputs.	Analog ³ (AO7, AO8)	Normally Open Contacts
Voltage	24 VAC; ± 10%; 50 Hz		Digital dedicated common
Current	- 500 mA max. on a resistive load (12 VA @ 24 VAC)	24 VAC Outputs ³	Linear (0-10VDC).
	- Peak current 0.8 A max.		- 5 mA max.
	- Short-circuit protected		See <i>On-board 24 VAC Power Supply</i> section
	- Overload protected		

ECB-PTU-308 Specifications (continued)

Wireless Receiver⁴

Communication	EnOcean wireless standard
Number of wireless inputs ⁵	24
Supported wireless receivers	Refer to the Open to Wireless Solution Guide
Cable	Telephone cord
- Connector	4P4C modular jack
- Length	2 m (6.5 ft)

Standards and Regulation⁶

CE - Emission	IEC61000-6-3: 2006 + A1: ed.2010 Generic standards for residential, commercial and light-industrial environments
CE - Immunity	IEC61000-6-1: 2005; 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)	UL 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/28 CSA C22.2 NO. 61010-1 Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements - Edition 2 - Revision Date 2008/10/01 File number: E352591 UL94-5VB
Material ⁷	EN 60730-1 : 2011 - Automatic electrical controls for household and similar use - Part 1: General requirements
CE - Electrical Safety (Approved by an external Lab)	

Subnetwork

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

Certified Performances

eu.bac license number	213324
Chilled Ceiling Systems	
Cooling Control Accuracy	0.2°C (0.36°F)
Fan Coil Systems (2 pipes + electric heater)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)
Fan Coil Systems (4 pipes)	
Heating Control Accuracy	0.1°C (0.18°F)
Cooling Control Accuracy	0.1°C (0.18°F)



Communication Protocols



- External loads must include the power consumption of any connected module. Refer to the respective module's datasheet for related power consumption information.
- Refer to Distech Controls' Protocol Implementation Conformity Statement for BACnet
- SELV (Safety Extra Low Voltage) inputs/outputs.
- 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.
- Some wireless modules may use more than one wireless input from the controller.
- Must be mounted with strain reliefs and terminal block covers or in a junction box to comply with CE and UL regulations.
- All materials and manufacturing processes comply with the RoHS directive and are marked according to the Waste Electrical and Electronic Equipment (WEEE) directive.

Total Quality Commitment

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

©, Copyright Distech Controls Inc., 2013. All rights reserved. Specifications subject to change without notice.

Images are simulated. Distech Controls, the Distech Controls logo, Open-to-Wireless, Innovative Solutions for Greener Buildings, ECO-Vue, Allure, and EC-Net^{AX} are trademarks of Distech Controls Inc.; LonWorks is a registered trademark of Echelon Corporation; Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; ARM Cortex is a registered trademark of ARM Limited; BACnet is a registered trademark of ASHRAE; BTL is a registered trademark of the BACnet Manufacturers Association; Windows, Visual Basic.Net are registered trademarks of Microsoft Corporation. EnOcean is a registered trademark of EnOcean GmbH. All other trademarks are property of their respective owners.

