ECL-PTU Series

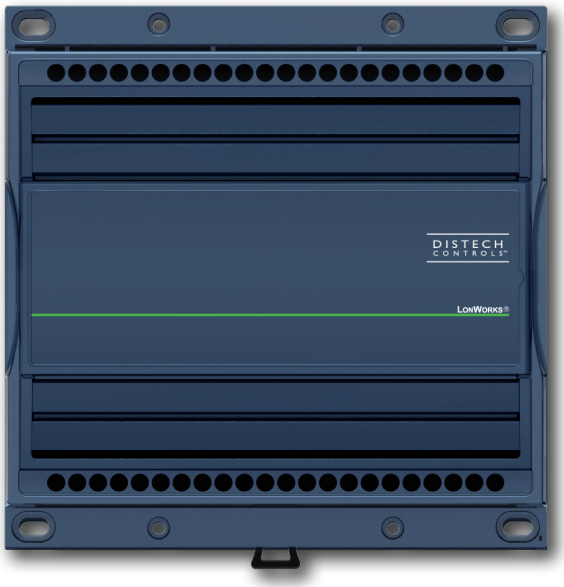


Figure 1: ECL-PTU Controller Enclosure

Product Description

This document describes the hardware installation procedures for the ECL-PTU Series LonWorks controllerss.

The Distech Controls ECL-PTU Series controllers are designed to control and monitor powered terminal units such as powered fan coil units, heat pumps, chilled ceilings and small air handling units.

This product line includes the following controllers: ECL-PTU-107, ECL-PTU-207, ECL-PTU-208, ECL-PTU-307, and ECL-PTU-308.

The ECL-PTU Series are compatible with the ECx-Light/Blind lighting and sunblind expansion modules (refer to the ECx-Light/Blind Series Expansion Modules Hardware Installation Guide).

Each controller uses the LonWorks TP/FT-10 communication protocol and are LonMark certified as SCC Fan Coil Controller.

This document describes the hardware installation procedures for the following controllers: ECL-PTU-107, ECL-PTU-207, ECL-PTU-208, ECL-PTU-307, and ECL-PTU-308.

These controllers are all built on a similar platform but have different numbers of inputs and outputs. Moreover, each individual model has different amounts of digital and/or analog outputs. For more information on the specific layout and functionality of each controller, please refer to their individual datasheets and user guides.

General Installation Requirements

For proper installation and subsequent operation of the device, pay special attention to the following recommendations:

- ☐ It is recommended that the controller(s) be kept at room temperature for at least 24 hours before installation to allow any condensation that may have accumulated due to low temperature during shipping/storage to evaporate.
- ☐ Upon unpacking, inspect the contents of the carton for shipping damages. **Do not install a damaged device.**
- ☐ The controller should be installed in an appropriate ventilated enclosure with minimum dimensions 240 x 240 x 100 mm.
- ☐ Avoid areas where corroding, deteriorating, or explosive vapors, fumes or gases may be present.
- ☐ Allow for proper clearance around the controller's enclosure, wiring terminals, and service pin, in order to provide easy access for hardware configuration, and in order to ventilate the heat generated by the controller.
- ☐ Remember to record the 12-character Neuron® ID located on either end of the device (shown on a sticker below the barcode) for later commissioning.
- ☐ Orient the controller with the ventilation slots and power supply/output terminal block connectors towards the top to permit proper heat dissipation. When installed in an enclosure, select one that provides sufficient surface area to dissipate the heat generated by the controller and by any other devices installed in the enclosure. A metal enclosure is preferred. If necessary, provide active cooling for the enclosure.

- ☐ The device's datasheet specifies the power consumption (amount of heat generated), the operating temperature range, and other environmental conditions the device is designed to operate under.
- ☐ Ensure that all equipment is installed according to local, regional, and national regulations.
- ☐ Do not drop the device or subject it to physical shock.
- ☐ If the device is used and/or installed in a manner not specified by Distech Controls, the functionality and the protection provided by the device may be impaired.
- ☐ SELV (Separated Extra Low Voltage) inputs/outputs must be connected to class 3 devices or to SELV sections of class 2 devices.
- ☐ If the controller is to be mounted on a metallic support, this same metallic support is to be connected to a protective earth.
- ☐ Equipment without terminal block covers must be wall-mounted or DIN rail-mounted inside a supplementary enclosure (rated as IP20 or better) that can only be accessed by qualified personnel.
- ☐ Equipment with terminal block covers can only be wall-mounted on a flat surface that is sufficiently large to provide space around the equipment. In this installation scenario, conductors must be made inaccessible and wiring must comply with local wiring regulations and methods appropriate for fixed equipment installation in a building (the use of trunking for example).

Any type of modification to any Distech Controls product will void the product's warranty.

Operating, handling, or servicing this product should be ensured by a qualified operator. Turn off the power before any kind of servicing.

Before installation of the Wireless Receiver, verify that local communication regulations allow the installation of wireless devices that operate at a frequency of 868, 902 or 928 MHz. Refer to the Open-to-Wireless™ Application Guide for more information.

Take reasonable precautions to prevent electrostatic discharges to the product when installing, servicing, or operating it. Discharge any accumulated static electricity by touching a grounded object with your hand before handling the product.

Device Markings

Symbol	Description
	CE marking: This device conforms to the requirements of applicable EC directives.
	UKCA marking: This device conforms to the requirements of applicable Great Britain regulations.
	Double Insulation marking: These controllers are built using double insulation.
	Products must be disposed of at the end of their useful life according to local regulations.
	Read the Hardware Installation Guide for more information.
	For indoor use only.
	UL marking: This device conforms to the requirements of the UL certification.
	FCC marking: This device complies with FCC rules part 15, subpart B, class B.
	Warning Symbol: Significant information required. Refer to the Hardware Installation Guide.
	HIGH VOLTAGE Symbol: Direct contact will cause electrical shock or burn.
	Alternating Current
	Direct Current
L	Line
N	Neutral
	Functional Earth. (CEI 60417 n° 5018)

General Wiring Recommendations

Turn off power before any kind of servicing.

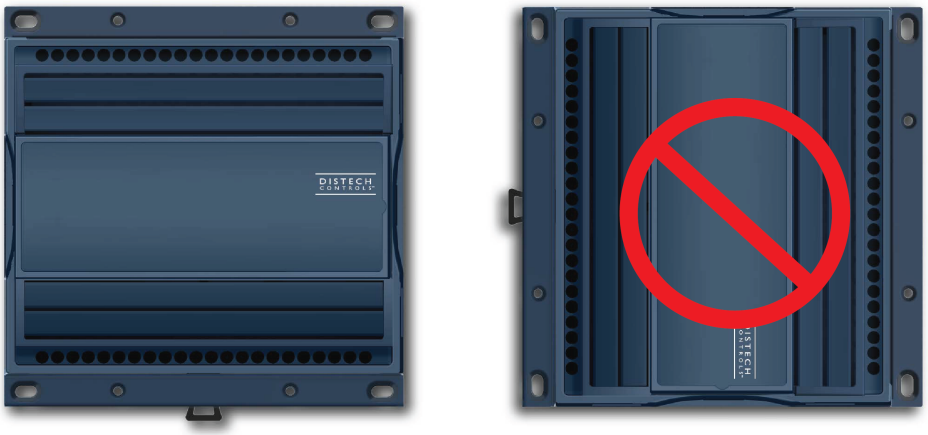
- ☐ All wiring must comply with electrical wiring diagrams as well as national and local electrical codes.
- ☐ To connect the wiring to a device, use the terminal connectors. Use a small flat screwdriver to tighten the terminal connector screws once the wires have been inserted (strip length: 0.25'' (6 mm), maximum tightening torque 0,4 Nm (3.45 in-lb)).
- ☐ Comply with all network and power supply guidelines outlined in the Network Guide.
- ☐ Power type cables (i.e. for power, 3-wire voltage and current inputs and outputs) should be kept apart from other types of wiring to avoid any ambient noise transmission to other wires.
- ☐ Do not connect the universal inputs, analog/digital outputs or common terminals to earth or chassis ground (unless stated otherwise).
- ☐ Keep all wires away from high speed data transmission cables (for example, Ethernet, etc.).
- ☐ Keep input and output wiring in conduits, trays or close to the building frame if possible
- ☐ Conductors must be made inaccessible and wiring must comply with local wiring regulations and methods appropriate for fixed equipment installation in a building.
- ☐ Installation must be carried out in a fashion such that double insulation integrity is maintained.

Mounting Instructions

Each controller can be mounted on a DIN rail to speed up the installation procedure. The controllers are also equipped with four mounting holes 0.28" x 0.15" (7.2 mm x 4 mm), and they can be mounted in panel or on a wall by using the appropriate screw types (use sheet metal, thread forming, or self-tapping screws accordingly).

If the controller is to be installed out of an electrical box, it is necessary to use the optional strain-relief and terminal block cover (refer to the Strain Relief and Terminal Block Cover section for further information).

The controller's mounting orientation must be horizontal with controller's back attached to a vertical wall surface.



Horizontal Mounting Position:
Required for DIN rail mounting
Required for wall mounting

Vertical Mounting Position:
Is Forbidden

Figure 2: Permitted Mounting Positions

DIN Rail-Mounted Installation

1. Ensure the DIN rail is properly mounted on the wall.
2. Simply clip controller onto the DIN rail.

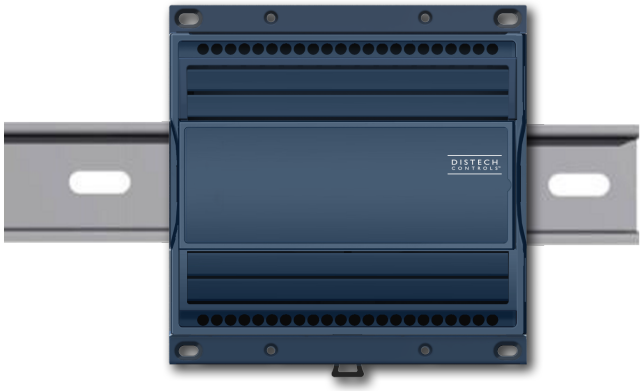


Figure 3: DIN-rail mounted controller

Wall-Mounted Installation

1. Use the mounting holes to mark the location of any holes that need to be drilled.
2. Drill the holes.
3. Clean the surface and mount the controller using the appropriate screw types.

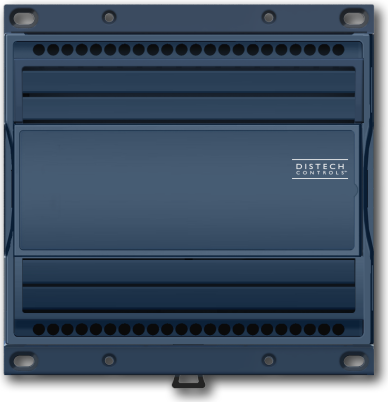


Figure 4: Wall-mounted controller

Device Dimensions

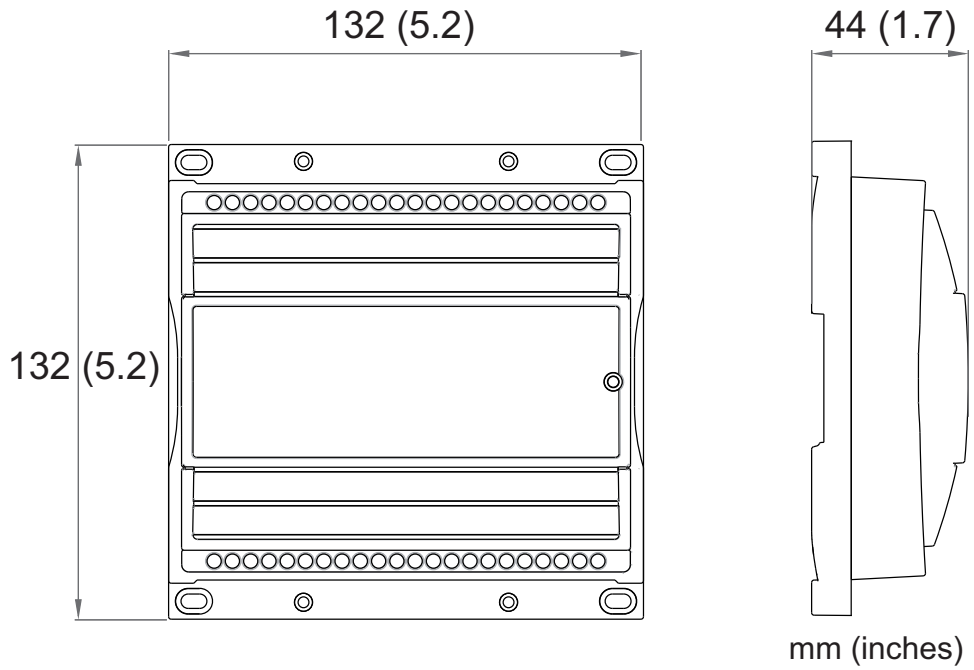


Figure 5: Front view and side view of the enclosure

Power Wiring

Voltage:

100-240 VAC; -15%/+10%; 50/60 Hz

Overvoltage Category II - 2.5 kV

Model	Typical Consumption	Max. Consumption
ECL-PTU-107	< 0.9 W + all external loads	4.0 A
ECL-PTU-207	< 0.9 W + all external loads	4.0 A
ECL-PTU-208	< 2.7 W + all external loads	3.5 A
ECL-PTU-307	< 0.9 W + all external loads	4.0 A
ECL-PTU-308	< 2.7 W + all external loads	3.5 A

Table 1: ECL-PTU Controllers consumption

ECL-PTU-107	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)
ECL-PTU-207	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)
ECL-PTU-208	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)
ECL-PTU-307	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)
ECL-PTU-308	4.0 A external circuit breaker type C or 4.0 A fast acting high breaking external fuse (250 VAC min)

Table 2: ECL-PTU Controllers protection

The power supply must be connected to the mains using the provided detachable connector.

The Network Guide provides extensive information and requirements for powering a controller that uses a LonWorks network for communications. It can be downloaded from the Distech Controls' Documentation and Resources Portal.

Use an external circuit breaker/fuse on the mains to protect the module against power line spikes. The circuit breaker must be located close to the module.

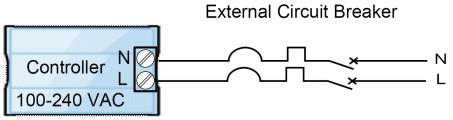


Figure 6: Power wiring

The power wires must remain between 1 mm² (17 AWG) and 1.5 mm² (16 AWG). Make sure the cable performances suit the connected loads.

Operating, handling, or servicing this product must be achieved by a qualified operator. Turn off power before any kind of servicing.

Input Wiring

Each controller has physical connections for six (6) inputs (marked as UIx for Universal Inputs, DIx for Digital Inputs, and SIx for Sensor Inputs). All inputs must be configured properly in EC-*gfx*Program to ensure proper input readings.

All input wiring must be connected using the provided detachable connectors.

Before connecting a sensor to the controller, refer to the installation guide of the equipment manufacturer.

Connectors allow the use of cables up to 1.5 mm² (16 AWG).

	UI	SI	DI
Digital Inputs	■	■	■
Voltage Inputs	■		
Resistive Inputs	■	■	
Pulse Inputs	■	■	■

Table 3: Input Configuration Capabilities

Wiring Digital Inputs (Six – Dix – Six)

This input configuration is used to monitor digital dry contacts.

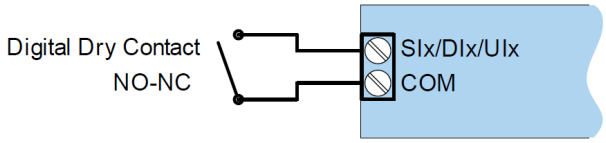


Figure 7: Digital input - Dry contact (NO & NC)

Wiring Voltage Inputs (UIx)

Voltage inputs have a range of 0 to 10 Vdc. Connect the voltage input according to the following figure. The transducer used must be powered externally.

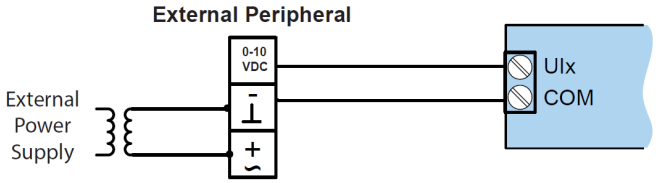


Figure 8: Voltage input – 3-wire transducer with its own power source

Wiring Resistive Inputs (UIx - SIx)

This input configuration is used to monitor 10kΩ type II, type III, and type Z NTC sensors.

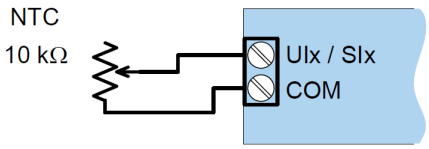


Figure 9: Resistive input – 10 kΩ NTC Sensor input

Wiring Pulse Inputs (UIx - DIx - SIx)

Connect the pulse input according to the following figure for a pulse meter that can pull-down a +3.3 VDC supply with a 10 kΩ pull-up resistor for UIx and SIX, and with a 1 kΩ pull-up resistor for DIx (Internal supply type).

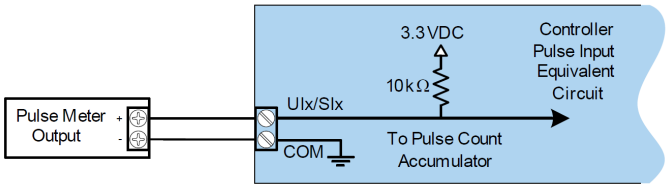


Figure 10: Pulse Input - DIx

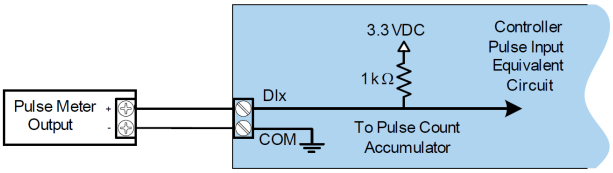


Figure 11: Pulse Input - UIx/SIx

Output Wiring

Depending on models, these controllers have physical connections for analog outputs, digital powered relay outputs, digital relay contact outputs, and digital triac outputs. These outputs are all software-configurable.

All output wiring, except for electric heater outputs, must be connected using the provided detachable connectors. Electric heater output wiring is made directly through the onboard connector.

Controller	Analog Outputs	Digital Relay Contacts (Fan)	Digital Relay Contacts (Heater)	Digital (Triac) Outputs
ECL-PTU-107	0	3	1	2
ECL-PTU-207	4	3	1	2
ECL-PTU-208	2	3	1	2
ECL-PTU-307	2	3	2	4
ECL-PTU-308	2	3	1	4

Table 4: Controller Output Support

Before connecting an output device (actuator, relay, etc.) to the controller, refer to the datasheet and installation guide of the equipment manufacturer.

Wiring Powered Relay Outputs

Three (3) fan relay contact outputs (DO1, DO2 & DO3) can switch up to 3 A (inductive / resistive - total of all fan relay contact outputs) for fan speed control up to 240 VAC (the provided voltage is the same as the controller's power supply).

- ☐ All powered contact output connectors accept wires between 1 mm² (17 AWG) and 1.5 mm² (16 AWG). Select proper gauge according to the current load.
- ☐ All powered relay contact outputs are normally open.
- ☐ It is recommended to use an appropriate external protection if connected to a highly inductive load.

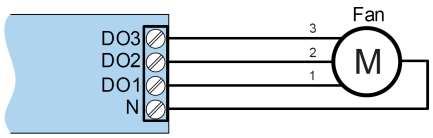


Figure 12: Powered Relay outputs

Wiring Relay Contact Outputs

The ECL-PTU-107, ECL-PTU-207, ECL-PTU-208 and ECL-PTU-308 have one (1) relay contact output (DO4-C4) which can switch up to 9 A (resistive) for electric heater control up to 255 VAC. For example, this output can handle electric heaters up to 2 kW @ 230 VAC.

The ECL-PTU-307 has two (2) relay contact outputs (DO4-C4 and DO11-C11) which can switch up to 6 A (resistive) for electric heater control up to 255 VAC. For example, this output can handle electric heaters up to 1.4 kW @ 230 VAC.

If more power is needed, a relay must be connected to the relay contact output.

- ☐ All relay contact output connectors accept wires between 1.5 mm² (16 AWG) and 2.5 mm² (14 AWG). Select proper gauge according to the current load.
- ☐ All digital relay contact outputs are normally open.
- ☐ Heater relay outputs are unpowered. You must use the same Live conductor (power source) to power the heater as the one used to power the controller.
- ☐ It is recommended to use an appropriate external protection if connected to a highly inductive load.
- ☐ It is recommended to use a 10 A fast-acting, high-breaking fuse to protect the heater relay contact output against short circuit/over-load conditions.

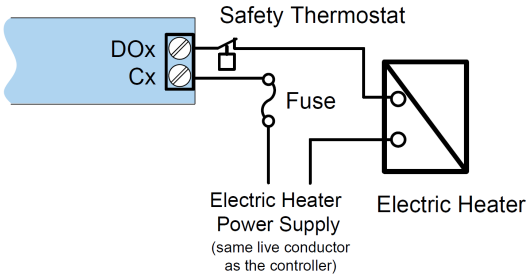


Figure 13: Relay Contact outputs - Electric Heater (I-Electric Heater < I-Max)

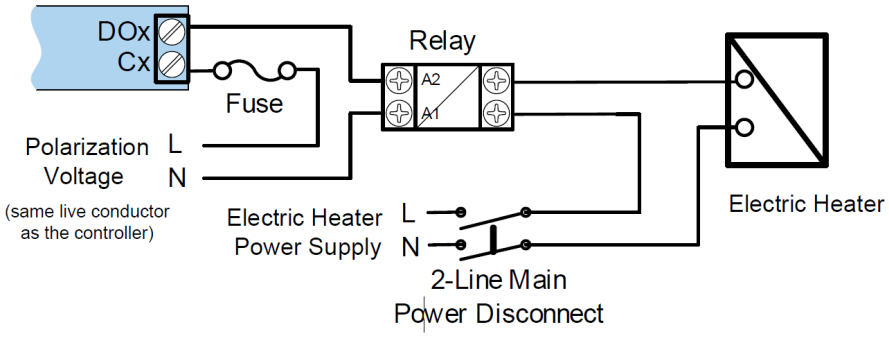


Figure 14: Relay Contact outputs - Electric Heater (I-Electric Heater > I-Max)

Wiring Triac Outputs

Depending on models, triac outputs provide either the same voltage as the power supply (100-240 VAC) or 24 VAC. Refer to the controller's Datasheet for further specifications.

The triac outputs can also be used to turn equipment and devices on and off (two-state outputs) and to control valve and damper actuators using Pulse Width Modulation (PWM).

Controller	Digital (Triac) Outputs (100-240 VAC)	Digital (Triac) Outputs (24VAC)
ECL-PTU-107	DO5 - DO6	-
ECL-PTU-207	DO5 - DO6	-
ECL-PTU-208	-	DO5 - DO6
ECL-PTU-307	DO5 - DO6 – DO9 – DO10	-

Controller	Digital (Triac) Outputs (100-240 VAC)	Digital (Triac) Outputs (24VAC)
ECL-PTU-308	-	DO5 - DO6 – DO9 – DO10

Table 5: Triac outputs names and specifications

- ☐ Triac output connectors accept wires between 1 mm² (17 AWG) and 1.5 mm² (16 AWG). Make sure the cable performances suit the connected loads.
- ☐ To measure the state of a triac output, an external load must be connected.
- ☐ It is not necessary to use a fuse when the onboard 24 Vac output is being used with the triac outputs since it already has built-in short circuit protection (ECL-PTU-208 and ECL-PTU-308 only).

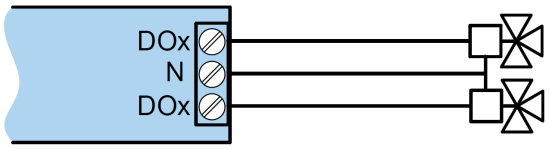


Figure 15: Thermal valve wiring (ECL-PTU-107/207/307)

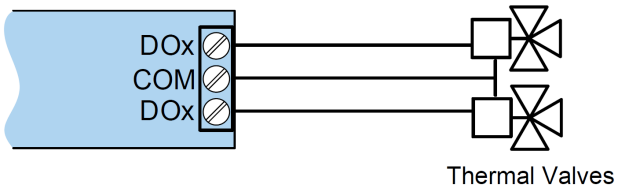


Figure 16: Thermal valve wiring (ECL-PTU-208/308)

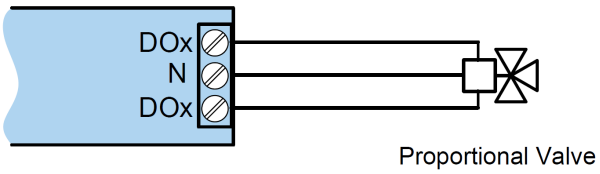


Figure 17: Proportional valve wiring (ECL-PTU-107/207/307)

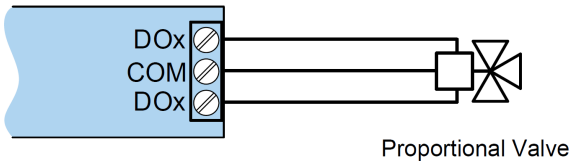


Figure 18: Proportional valve wiring (ECL-PTU-208/308)

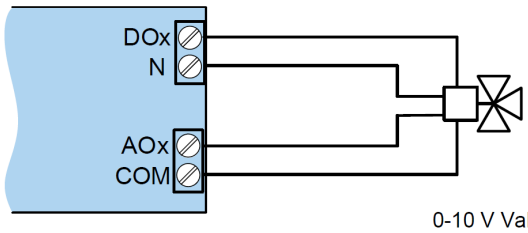


Figure 19: 0-10 V controller-powered valve wiring (ECL-PTU-107/207/307)

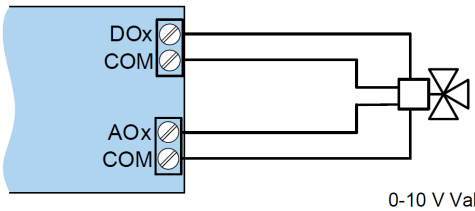


Figure 20: 0-10 V controller-powered valve wiring (ECL-PTU-208/308)

Wiring Analog Outputs (AOx)

Analog outputs can be configured to provide either a discrete signal of 0 or 12 VDC or a linear signal ranging from 0 to 10 VDC. The discrete signal can be used to generate a pulse wave modulation (PWM) signal or a simple two-state signal.

Analog output connectors accept wires between 0.75 mm² (18 AWG) and 1.5 mm² (16 AWG).

If an analog actuator is being controlled, connect the 0 to 10 VDC output, along with an external 24 VAC power source, to the analog actuator according to the following figure.

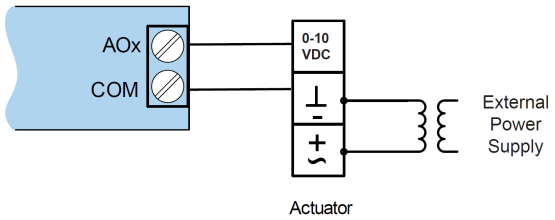


Figure 21: Self-powered 0-10 V actuator wiring

The onboard 24 VAC power supply can be used to power 0-10 V actuators according to the following figure (ECL-PTU-208 and ECL-PTU-308 only):

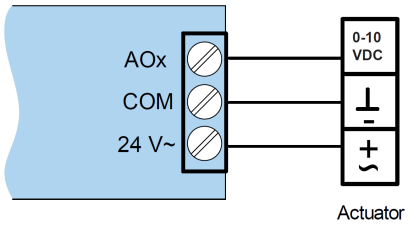


Figure 22: Controller-powered 0-10 V actuator wiring

Communications Wiring

The recommended cable type for LonWorks® communications is 22AWG (0.65 mm), twisted pair, unshielded. The LonWorks communication wire is polarity insensitive and can be laid out in a bus, star, loop or free topology. For loop topology, polarity is important, special care must be taken when connecting the LonWorks network to avoid short circuit.

It is recommended to use the bus topology network configuration for all LonWorks communication wiring, as it allows for easy network troubleshooting.

Connect both wires to the LON+ and LON- terminals of the controller. If inserting multiple wires in the terminals, ensure to properly twist wires together prior to inserting them in the terminal connectors.

For more information and detailed explanations on network topology and wire length restrictions, refer to the Network Guide. It can be downloaded from our website.

It is important to use proper network terminators depending on the type of network topology used. Failure to do so may result in communication errors between controllers.

For a bus topology, 2 network terminators are required (1 at each end of the bus topology channel). For a free topology, 1 network terminator is required and it can be put anywhere on the channel.

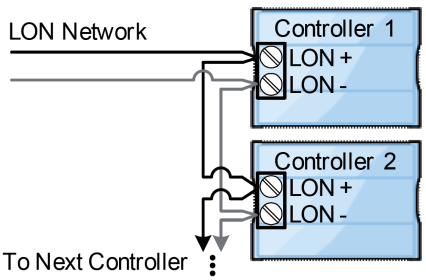


Figure 23: Communications Wiring

Wireless Installation

When connected to a Wireless Receiver, controllers can receive input signals from a wide selection of wireless devices. Compatible wireless devices include temperature sensors, duct sensors, window/door contacts and light switches. These devices are easy to install, and can be mounted on a wide range of building materials.

The Wireless Receiver is available in 315 MHz or 868.3 MHz frequencies.

Before connecting any wireless equipment to the controller, refer to the Open-to-Wireless Application Guide.

Connecting the Wireless Receiver

The Wireless Receiver is connected to the controller using a 2m (6.5ft) telephone cable with 4P4C modular connectors at both ends. Do not exceed this cable length. The Wireless Receiver's telephone socket is located inside the device. To locate it, open the Wireless Receiver by separating its front and back plates.

Figure 24: Location of the Wireless Receiver's telephone socket

Connecting to the Controller's Wireless Port

Each controller has a wireless port in which one end of the Wireless Receiver's telephone cable plugs in.

Strain Relief and Terminal Block Cover

In certain jurisdictions, terminal block covers are required to meet local safety regulations. Strain reliefs and terminal block covers are available for controllers housed in large enclosures and are used to relieve tension on the wiring and conceal the controllers' wire terminals. Strain reliefs and terminal block covers are optional and are sold as peripherals. Strain relief and terminal block covers usage does not comply with DIN rail mounting.

Installing the strain relief and terminal block cover

Prior to connecting all wires, it is recommended to install the strain relief. Two screws are provided for its installation under the bottom part of the enclosure as shown below.

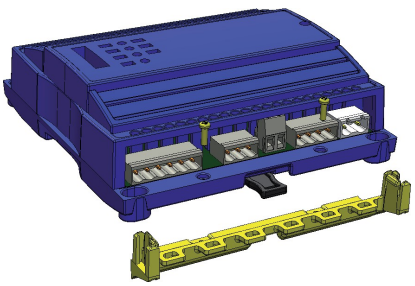


Figure 25: Installing the strain relief

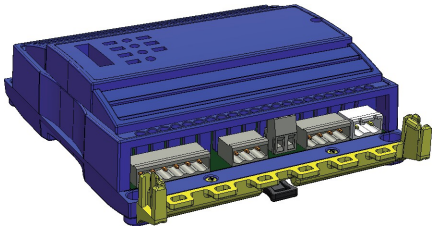


Figure 26: Installed strain relief

Tie wraps can then be used to group wires together and attach them securely to the strain relief in an effort to relieve undue tension. Distech Controls recommends using 0.184'' (4.6 mm) wide tie wraps with a 50 lbs (220 N) tensile strength to attach wires to the strain relief.

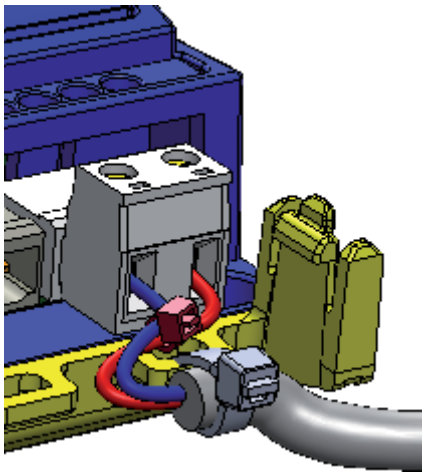


Figure 27: Attaching wires together and to the strain relief - detail

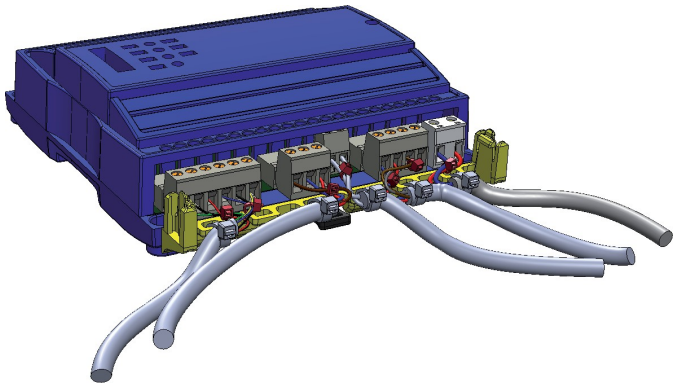


Figure 28: Attaching wires together and to the strain relief - completed

If necessary, the terminal block cover can then be clipped onto the strain relief as shown below.

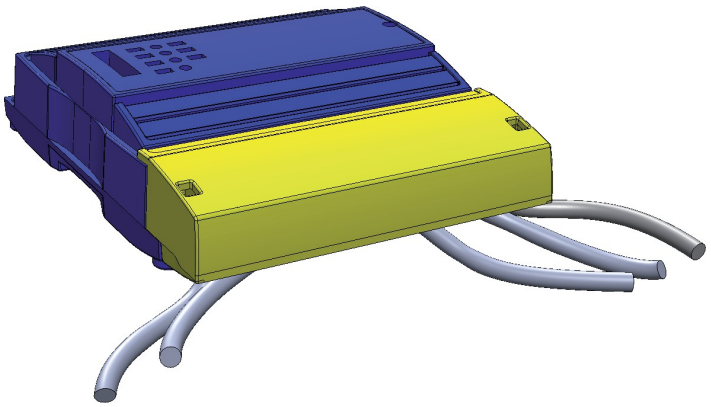


Figure 29: Installing the terminal block cover

Removing the terminal block cover

Turn off power before any kind of servicing.

To remove the terminal block cover, use a flat screwdriver as shown below to unclip the terminal cover from the strain relief.

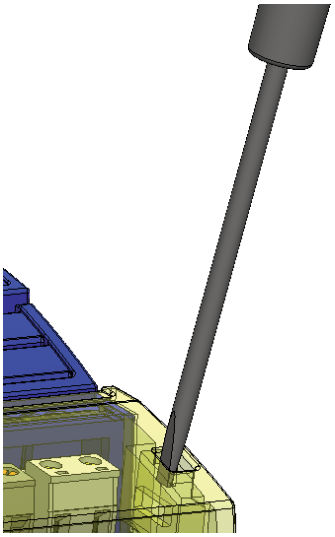


Figure 30: Unclipping the terminal block cover

Disposal

The Waste Electrical and Electronic Equipment (WEEE) Directive set out regulations for the recycling and disposal of products. The WEEE2002/96/EG Directive applies to standalone products, for example, products that can function entirely on their own and are not a part of another system or piece of equipment.

For this reason Distech Controls products are exempt from the WEEE Directive. Nevertheless, Distech Controls products are marked with the WEEE symbol , indicating devices are not to be thrown away in municipal waste.

Products must be disposed of at the end of their useful life according to local regulations and the WEEE Directive.

FCC Statement

Changes or modifications not expressly approved by Distech Controls could void the user's authority to operate the equipment.

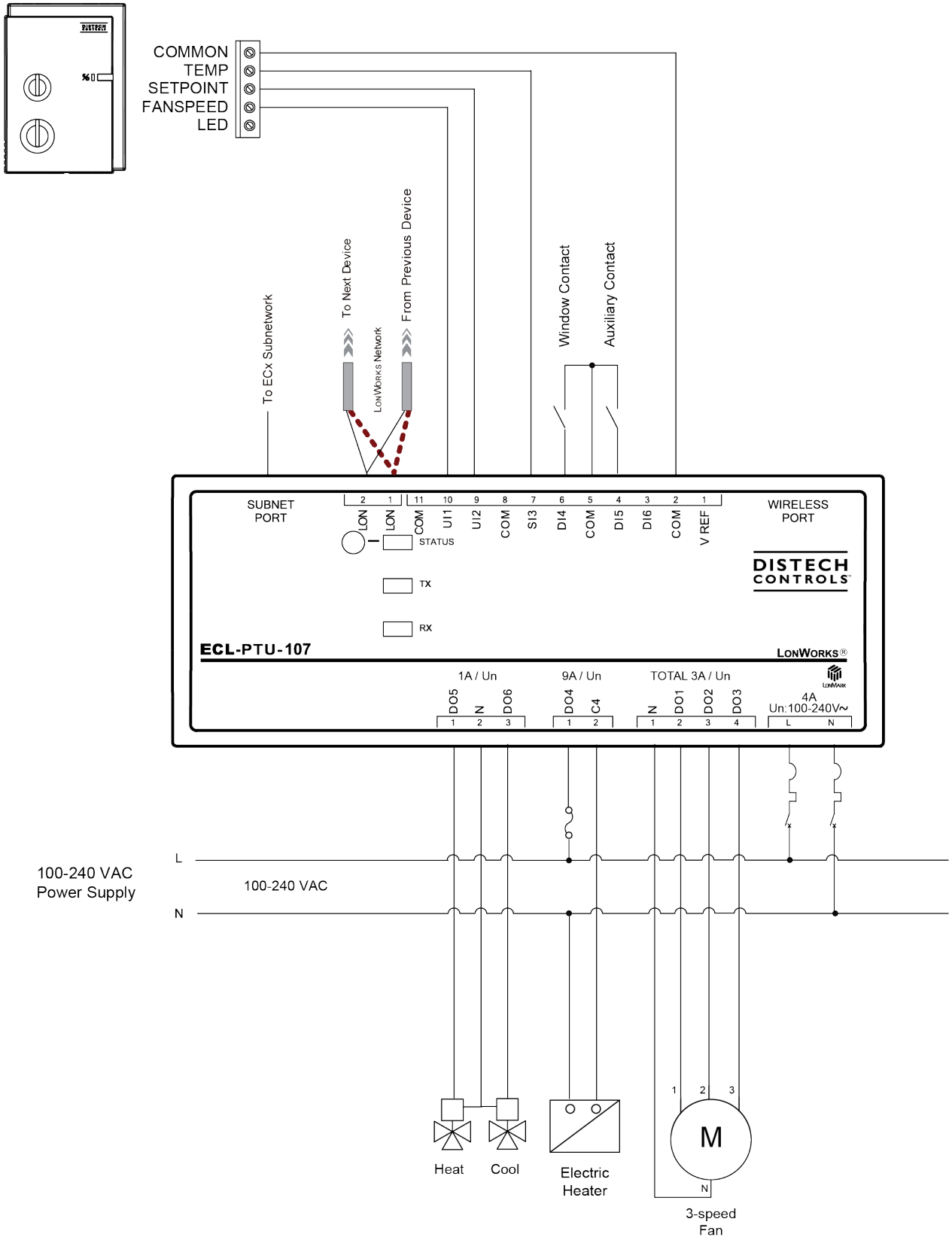
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ☐ Reorient or relocate the receiving antenna.
- ☐ Increase the separation between the equipment and receiver.
- ☐ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ☐ Consult the dealer or an experienced radio/TV technician for help.

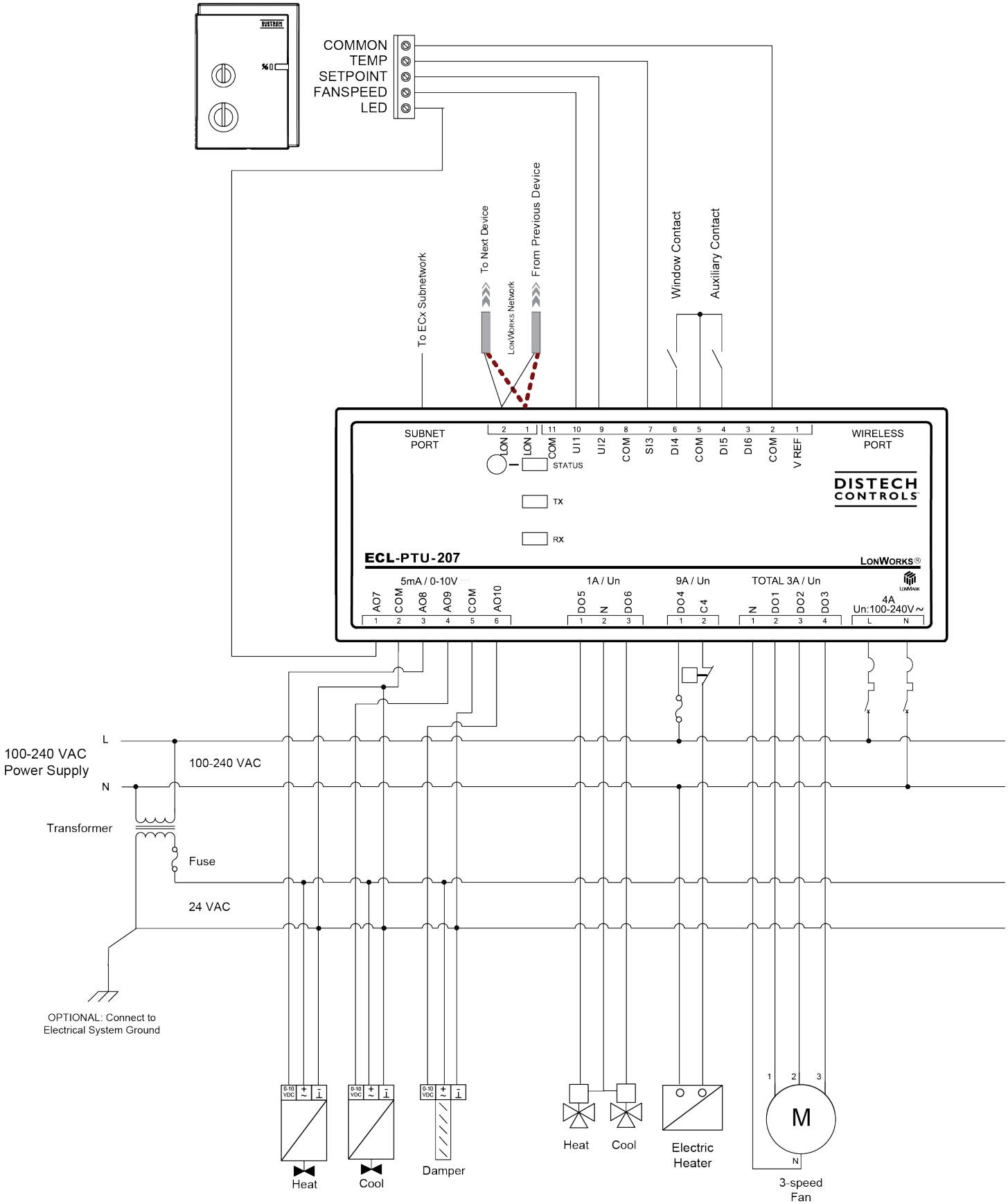
Complementary Information

- ☐ This device is designed for type 1 action
- ☐ This device is designed for type 1.b action
- ☐ This device presents an A class software
- ☐ The EMC immunity test has been passed using 230 VAC and 0.5 A.
- ☐ The Ball Pressure Test temperature is 167°F (75°C)
- ☐ The SELV does not exceed 42 VDC
- ☐ The maximum accessible voltage is 16 VDC.
- ☐ All traveling cables permanently installed present an X type anchor.
- ☐ All cables must be able to operate above 176°F (80°C)
- ☐ This product is not repairable. If the device is physically malfunctioning or requires repair, it must be returned to Distech Controls.

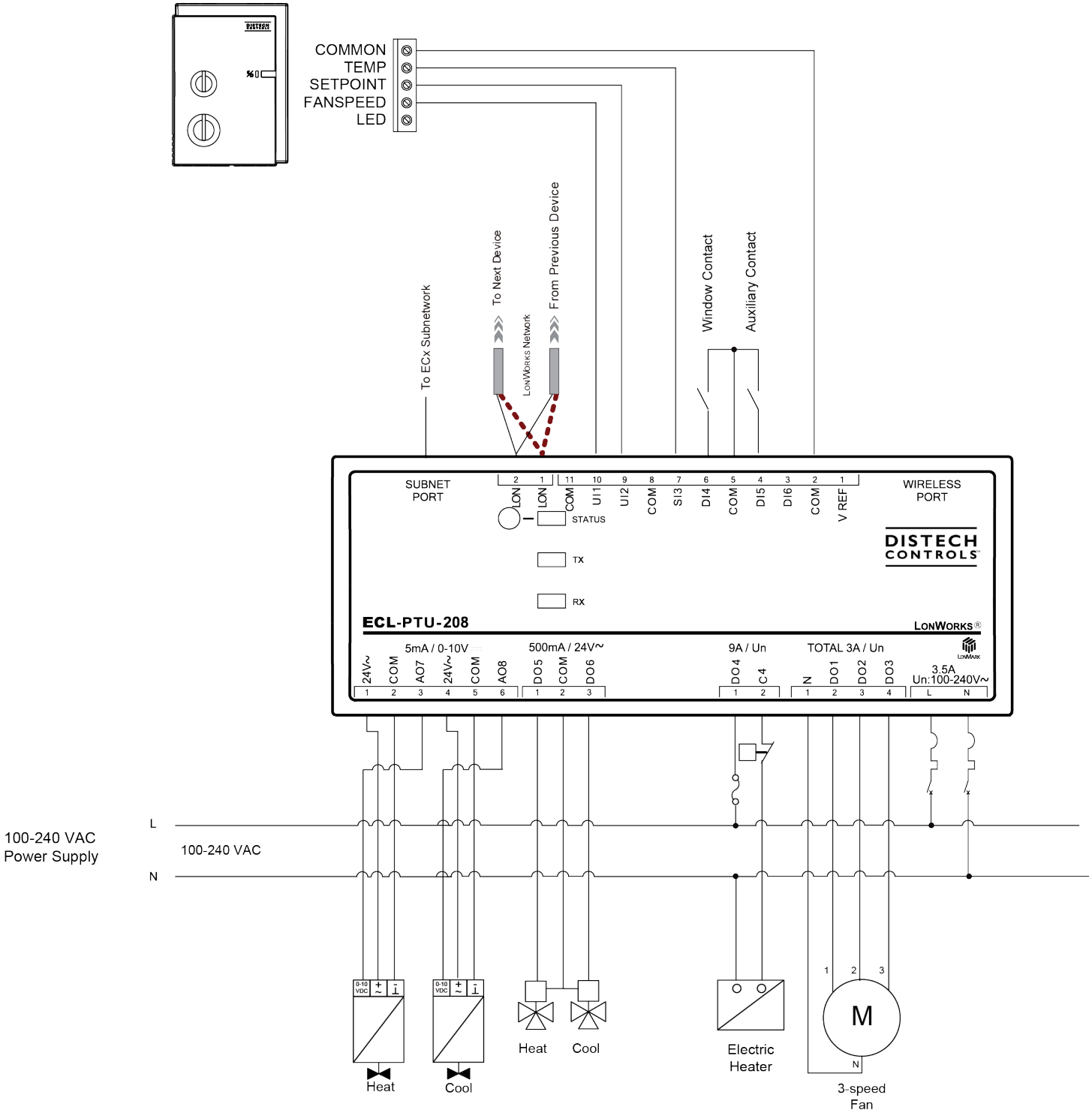
Typical ECL-PTU-107 Wiring Diagram



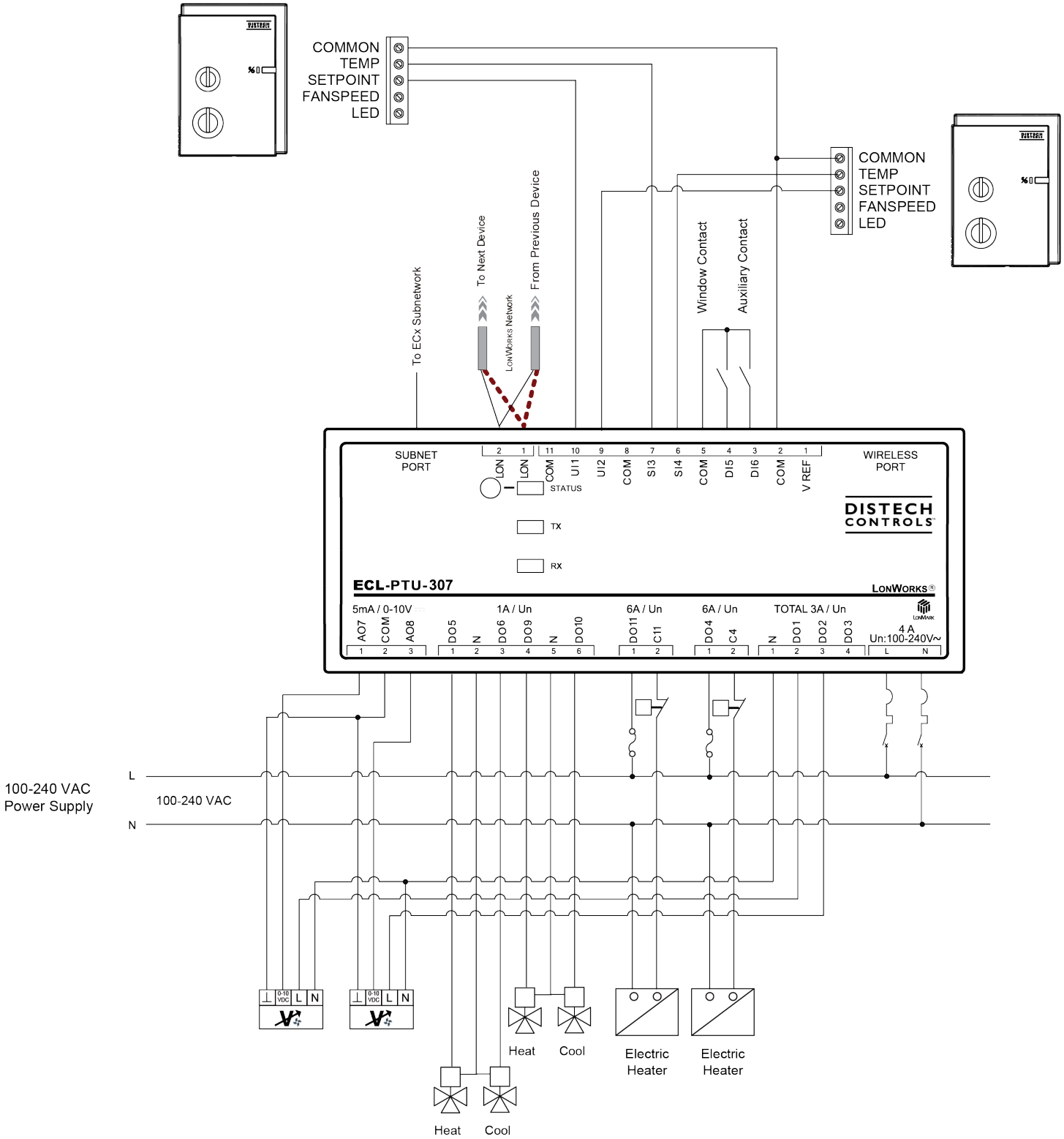
Typical ECL-PTU-207 Wiring Diagram



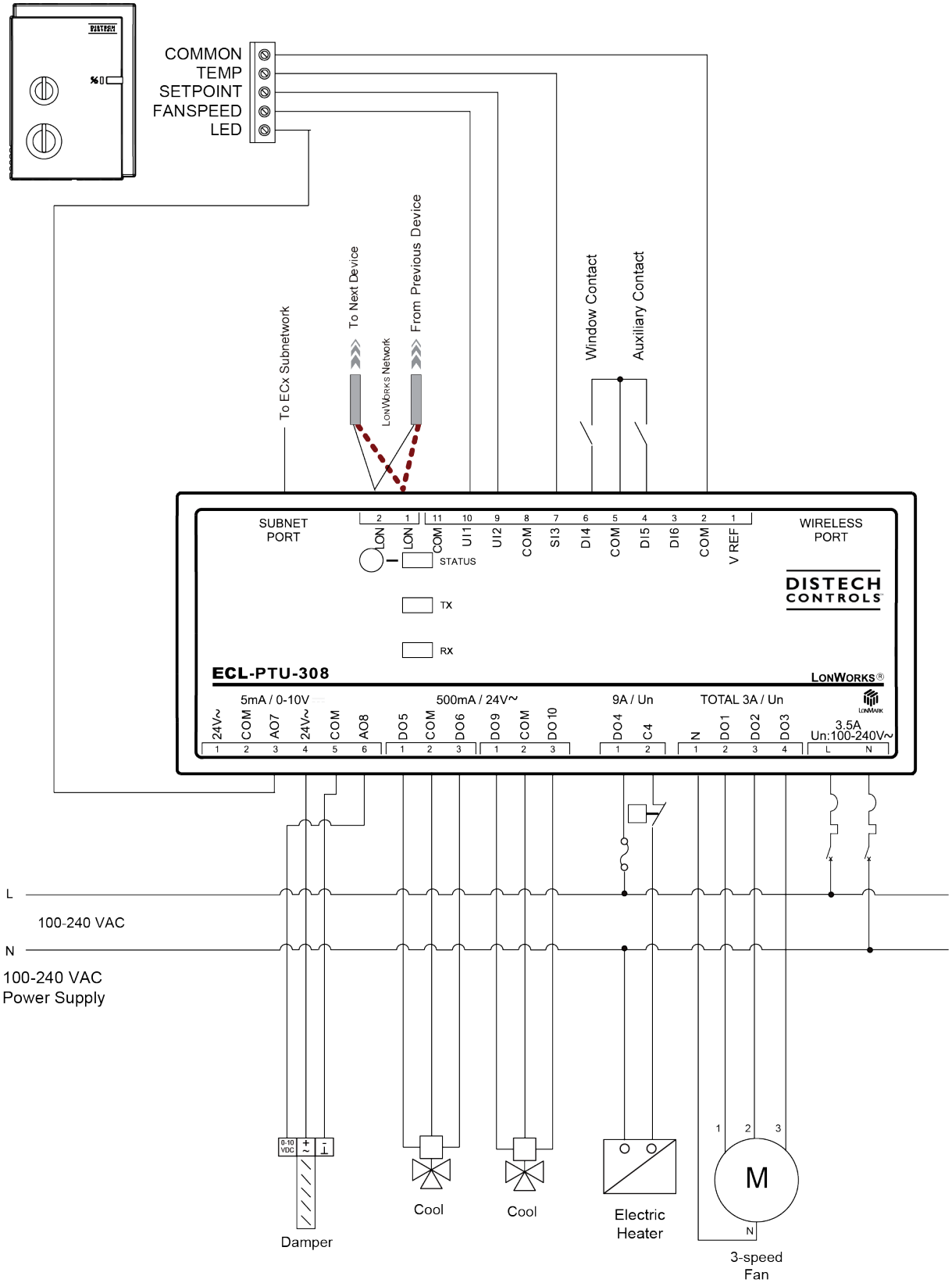
Typical ECL-PTU-208 Wiring Diagram



Typical ECL-PTU-307 Wiring Diagram



Typical ECL-PTU-308 Wiring Diagram



Troubleshooting Guide

Controller is powered but does not turn on

Fuse has blown	Disconnect the power from the controller. Check the fuse integrity. Reconnect power to the controller.

Controller cannot communicate on a BACnet MS/TP network

Network not wired properly	Double check that the wire connections are correct.
Absent or incorrect network termination	Check the network termination(s).
Too many Allure EC-Smart-Vue sensors are providing network access	Disable the Net to Subnet Port Settings jumpers on all controllers. If communications are re-established, re-enable only a few Allure EC-Smart-Vue sensors to have network access.

Controller communicates well over a short network, but does not communicate on large network

Network length	Check that the total wire length does not exceed the specifications of the *Junction Box and Wiring Guideline for Twisted Pair LonWorks Networks*.
Wire type	Check that the wire type agrees with the specification of the *Junction Box and Wiring Guideline for Twisted Pair LonWorks Networks*.
Network wiring problem	Double check that the wire connections are correct.
Absent or incorrect network termination	Check the network termination(s). Incorrect or broken termination(s) will make the communication integrity dependent upon a controller's position on the network.
Extra capacitance	Make sure that no extra capacitance is being connected to the network other than the standard FTT circuit, and a maximum of a 3 meter stub (in bus topology).
Number of controllers on network segment exceeded	The number of controllers on a channel should never exceed 64. Use a router or a repeater in accordance with the *Junction Box and Wiring Guideline for Twisted Pair LonWorks Networks.*
Network traffic	Query node statistics to check for errors. Use a LON protocol analyzer to check network traffic.

Hardware input is not reading the correct value

Input wiring problem	Check that the wiring is correct according to this manual and according to the peripheral device's manufacturer.
Open circuit or short circuit	Using a voltmeter, check the voltage on the input terminal. Short circuit (0V) and open circuit (3.3 V).
Configuration problem	Using the controller configuration wizard, check the configuration of the input. Refer to the controller's user guide for more information.
Over-voltage or over-current at an input	An over-voltage or over-current at one input can affect the reading of other inputs. Respect the allowed voltage / current range limits of all inputs. Consult the appropriate datasheet for the input range limits of this controller.

Hardware output is not operating correctly

Fuse has blown (Auto reset fuse)	Disconnect the power and outputs terminals. Then wait a few seconds to allow the auto-reset fuse to cool down. Check the power supply and the output wiring. Reconnect the power.
Output wiring problem	Check that the wiring is correct according to this manual and according to the peripheral device's manufacturer.
Configuration problem	Using the controller configuration wizard, check the configuration of the output. Refer to the controller's programming user guide for more information.
0 to 10V output, 24VAC powered actuator is not moving.	Check the polarity of the 24VAC power supply connected to the actuator while connected to the controller. Reverse the 24VAC wire if necessary.

Wireless devices not working correctly

Device not associated to controller	Using the device configuration plug-in or wizard, check the configuration of the input. Refer to the device's user guide for more information.
Power discharge	1. Recharge device with light (if solar-powered) or replace battery (if battery-powered), 2. Ensure sufficient light intensity (200lx for 4 hours/day).
Device too far from controller	Reposition the device to be within the range of the Wireless Receiver. For information on typical transmission ranges, refer to the Open-to-Wireless Application Guide.
Configuration problem	Using the device configuration plug-in or wizard, check the configuration of the input. Refer to the device's user guide for more information.

Rx/Tx LEDs

RX LED not blinking	Data is not being received from the LonWorks data bus.
TX LED not blinking	Data is not being transmitted onto the LonWorks data bus.

Status LED– Normal Operation

One fast blink ●	Initialization: The device is starting up.
Fast blink continuous: ● ● ● ● ● (150ms On, 150ms Off, continuous)	Firmware upgrade in progress. Controller operation is temporarily unavailable. The new firmware is being loaded into memory. This takes a few seconds. Do not interrupt power to the device during this time.

The Status LED is always ON	The controller is operating normally.

Status LED blink patterns – Repeats every 2 seconds (highest priority shown first)

Long Blink Continuous  (1s On, 1s Off, continuous)	The controller is unconfigured. Appropriate action: Commission the controller.
Long Long Long blink  (800ms On, 300ms Off, 800ms On, 300ms Off, 800ms On)	The controller is offline. Appropriate action: Set the controller Online.
Long Short Short Short blink  (800ms On, 300ms Off, 150ms On, 300ms Off, 150ms On, 300ms Off, 150ms On)	The controller is in bypass mode. Appropriate action: Set the controller Online.
Short Short Long blink  (150ms On, 300ms Off, 150ms On, 300ms Off, 800 ms On)	Poor-quality power; The device has browned-out: The voltage at the 24VAC and 24VCOM terminals has gone below the device's acceptable limit during power up.
Fast blink 12x:  (80ms On, 80ms Off, 12x)	Wink. The wink function is used to identify a device.

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