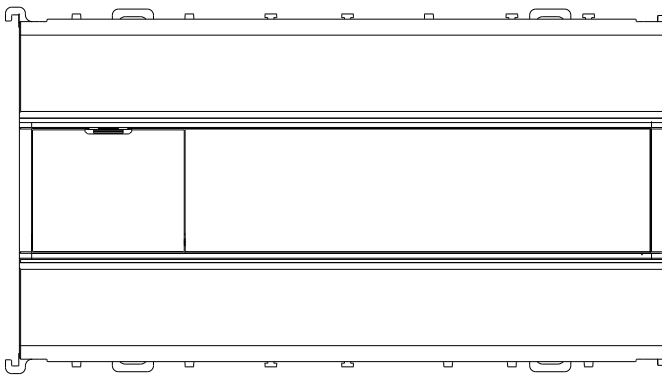


Essential Controller

MOUNTING INSTRUCTIONS

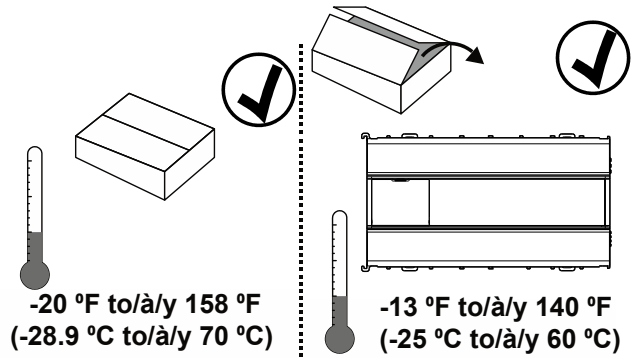
1. CONTENTS OF SHIPMENT

- Controller with Protective Cover: 1 Qty
- Safety Sheet: 1 Qty

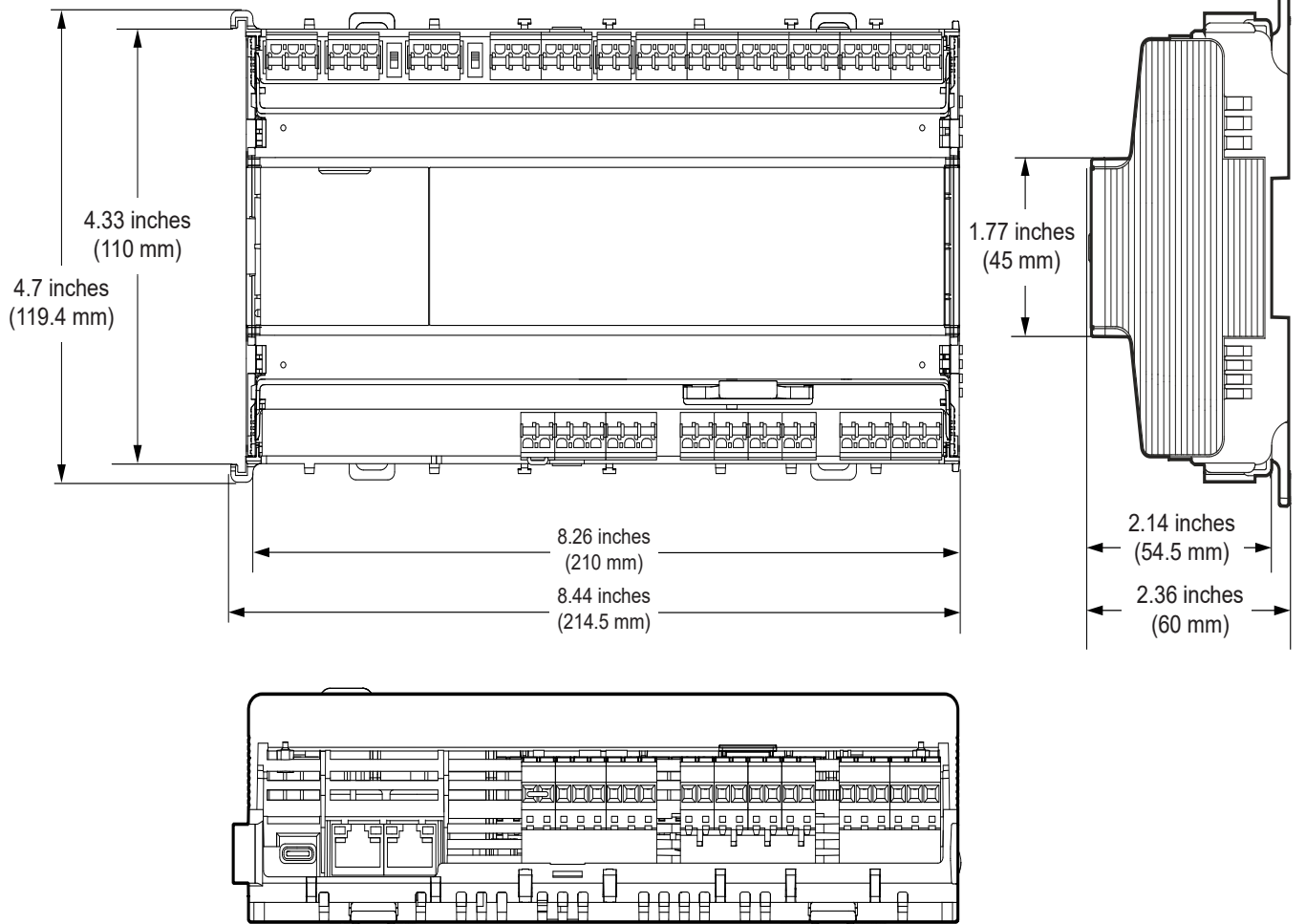


E13

2. STORAGE AND OPERATION



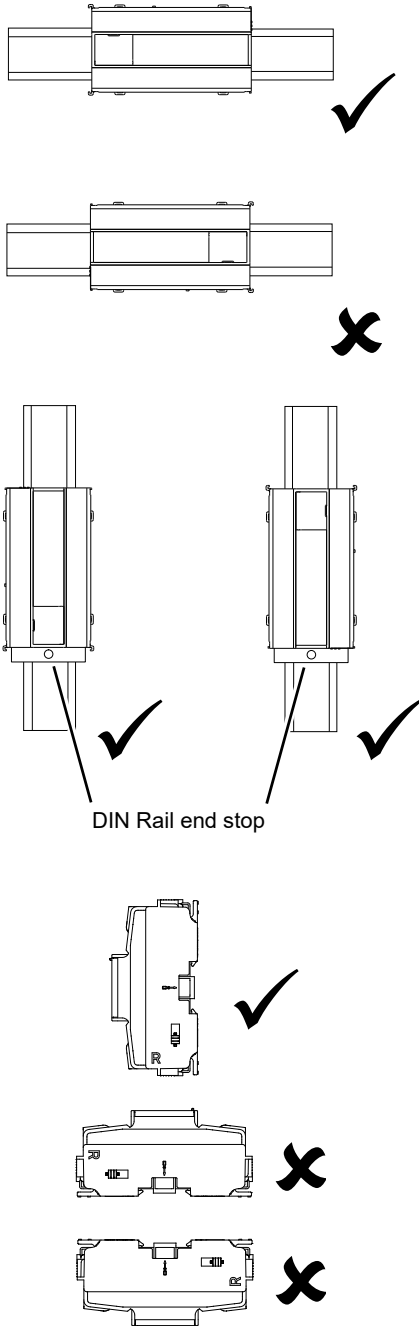
3. DIMENSIONS



NOTE: All the dimensions are in inches (mm). For wiring adapter dimension drawing please refer the **Optimizer Essential_Product Datasheet -31-00870** and **ComfortPoint Niagara Essential 28_Product Datasheet-31-00917**.

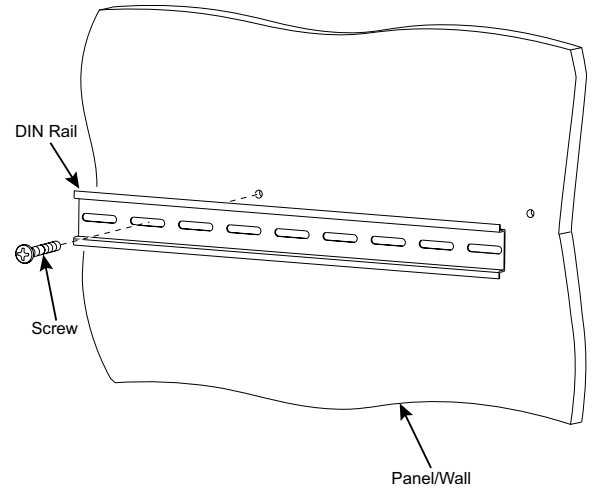
4. MOUNTING PRECAUTIONS

The controllers and wiring adapter support both horizontal and vertical DIN rail mounting on a vertical surface. Do not mount on a horizontal surface.

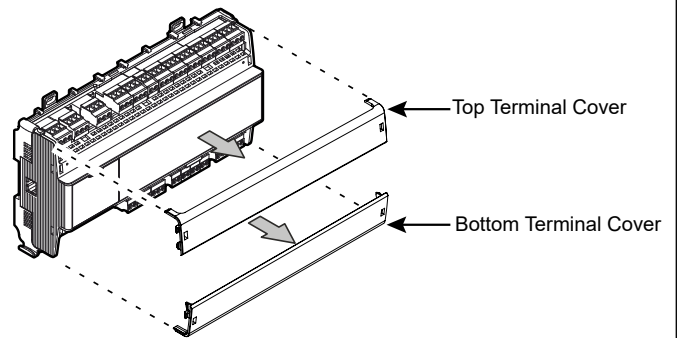


5. MOUNTING THE CONTROLLER ON PANEL DIN RAIL

1. Mount the DIN rail on the panel by using screws.



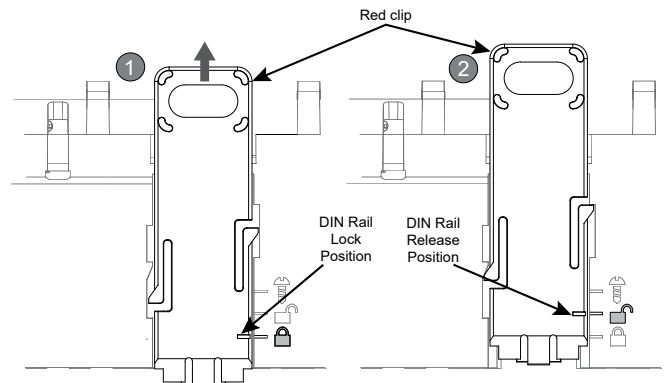
2. Remove the bottom Terminal cover from the controller.



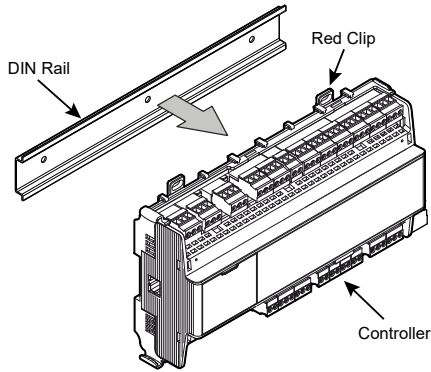
3. Remove the top Terminal Cover from the controller.

4. If IO modules need to be mounted and connected to the Essential Controller using the touch flake connections remove the factory-installed Protective Cover by inserting a flat blade screwdriver into the slot as shown in the above image and push down. If not, keep the Protective Cover attached to the Controller to safeguard the touch flakes.

5. Extend all red clips to the unlock position as shown in the below figure.



6. Hold the controller in an orientation such that the red clip is facing downwards and towards the DIN rail.

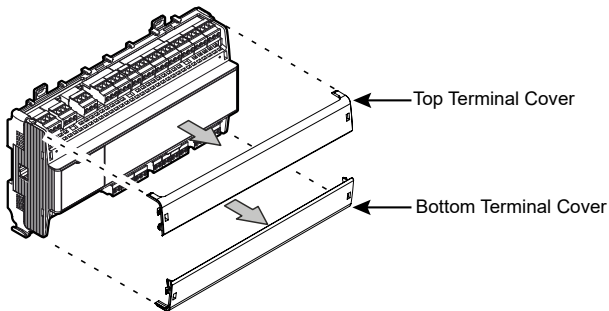


7. Mount the controller onto the DIN rail and push all red clips in to secure it in place.
8. Connect the terminal wires, and Ethernet cables.
9. Replace the terminal covers.
10. If IO modules will not be connected to the Essential Controller using the touch flake connections, please mount and use the Protective Cover.

NOTE: The Protective Cover must be fitted to protect the touch flakes on the side of the controller or IO module. The Essential Controller includes the terminating resistor for the end of the IO BUS, ensure the Protective Cover is always installed at the end of the IO BUS.

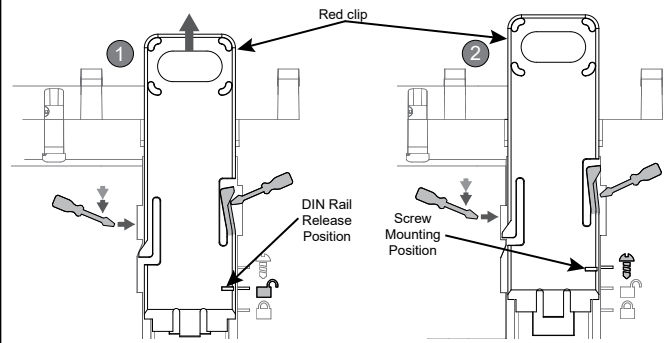
6. MOUNTING THE CONTROLLER ON PANEL USING SCREWS

1. Remove the bottom Terminal cover from the controller.



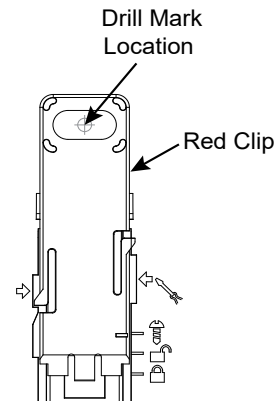
2. Remove the top Terminal cover as described in the previous step.
3. If IO modules need to be mounted and connected to the Essential Controller using the touch flake connections, remove the factory-installed Protective Cover by inserting a flat blade screwdriver into the slot as shown in the above image and push down. If not, keep the Protective Cover attached to the Controller to safeguard the touch flakes.

4. Extend all red clips to the screw mounting position by inserting a flat blade screwdriver at the marked location and moving the notch from the lower to the upper slot, as shown in the figure below.



NOTE: Repeat step 5 of Mounting the controller on a panel using Din rail in case the red clip is in the lock position.

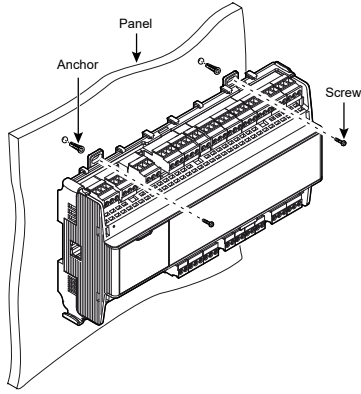
5. Hold the controller along the panel and mark three drilling locations through the red clip slots, as shown in the below figure.



6. Remove the controller from the panel and drill three holes at the marked locations.
7. Insert anchors into the three mounting screw holes.
8. Place the controller on the panel so that the holes are aligned.
9. Insert the screws into the topside holes first and fasten them with a screwdriver.

NOTE: It is recommended to use the 6-18 1" pan head Phillips tapping screws.

10. Insert the screws into the bottom hole and fasten them with a screwdriver.



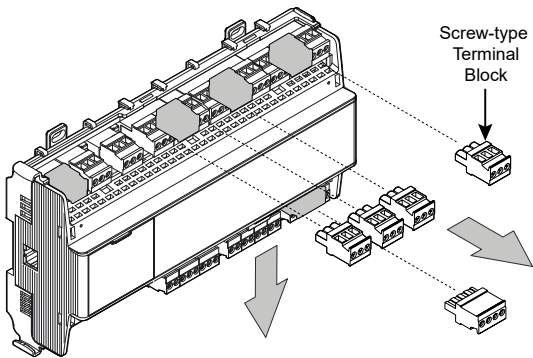
- 11. Connect the terminal wires, and Ethernet cables.
- 12. Replace the terminal covers.
- 13. If IO modules will not be connected to the Essential Controller using the touch flake connections, please mount and use the Protective Cover.

7. TERMINAL BLOCKS

The controller has the screw type terminal blocks by default, factory-installed, and these are removable. Additionally, the controller supports push-in type terminal blocks that are available for purchasing.

Installing the Push-In Terminal Blocks

1. Remove the screw-type terminal blocks from the controller by gently pulling them out manually.

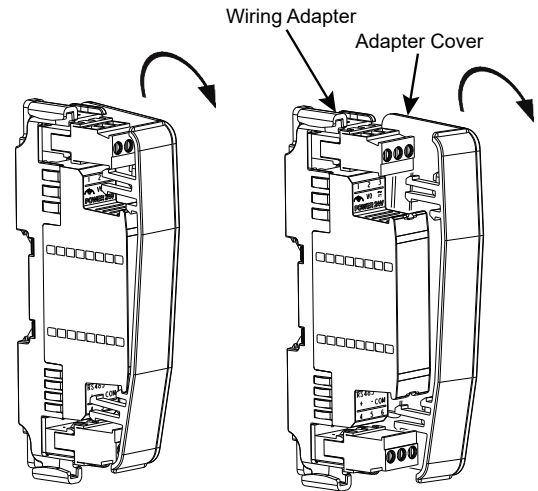


- 2. Install the Push-in terminal blocks onto the controller.
- 3. Remove the insulation 0.19 inches (5 mm) from the wires' end by using a stripping tool.
- 4. Refer to Essential Installation Instruction and Commissioning Guide - 31-00872 for wiring connections and insert the wires into the terminal blocks.

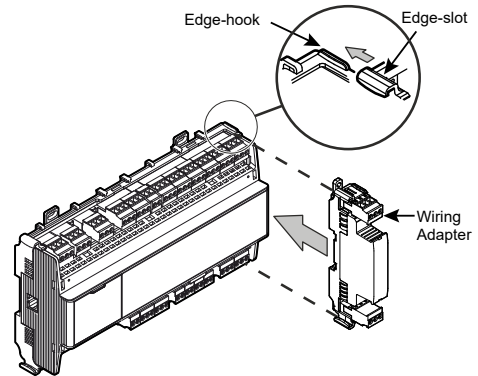
8. MOUNTING THE WIRING ADAPTER ON THE DIN RAIL

NOTE: Use the Wiring Adapter to extend 24 VAC/VDC power and comms to the next DIN rail or to 24 VAC/VDC power and comms to a remote IO module.

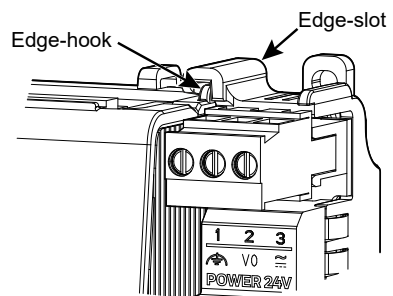
1. Remove the adapter cover by pulling out the cover along the radius arrow as shown in the below image.



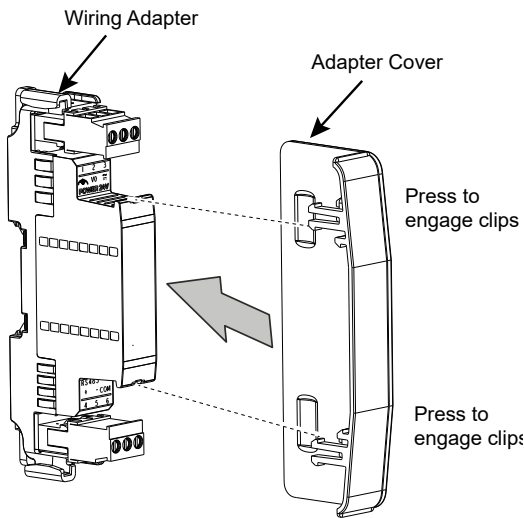
- 2. Extend the red clips on the wiring adapter to the last position.
- 3. Hold the wiring adapter in the position as shown below.



4. Mount the adapter in a way that the edge-slot of the adapter aligns with the axis of the edge-hook of the controller to attach and secure them together.

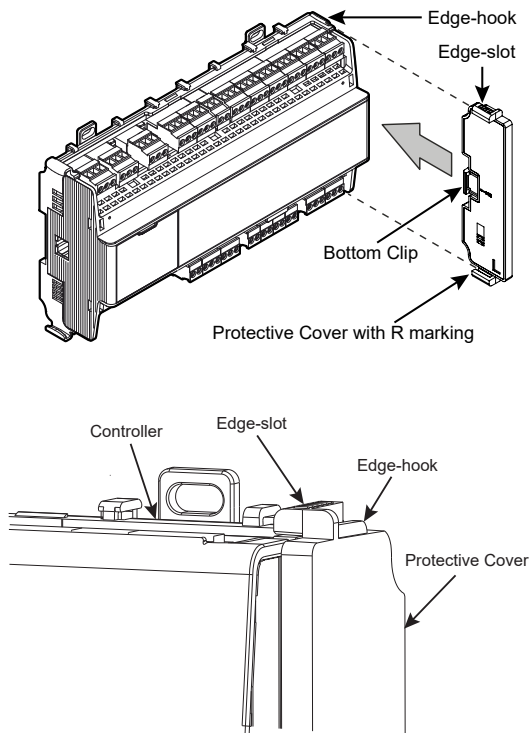


5. Mount the adapter cover on the wiring adapter by firmly pushing it against the axis as shown in the illustration below. There should be no space between the cover and the adapter. In addition to providing end-of-line termination for the RS485 bus, the adapter cover protects the touch flakes.



9. MOUNTING THE PROTECTIVE END COVER ON THE CONTROLLER

1. Hold the Protective end Cover (marked with R), which has the terminating resistor in a way that the edge-slot of the cover aligns with the axis of the edge-hook of the controller, and slide along till the bottom clip is locked with the IO module.



10. REMOVING THE CONTROLLER FROM THE DIN RAIL

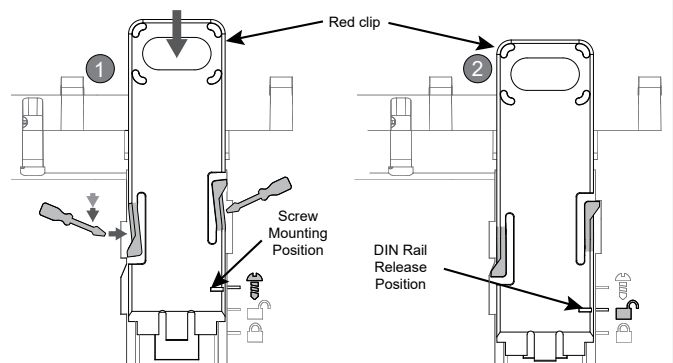
1. Switch off the power supply.
2. Remove the Terminal Covers and Protective Cover if applicable.
3. Disconnect all the controller's communication and power supply terminals.
4. Hold the controller with one hand and insert a flat blade screwdriver into the red clip slot.
5. Pull the red clip downward by using the flat blade screwdriver.
6. After the controller is released from the DIN rail, dis-engage the top two controller clip, slightly tilt the controller on the horizontal axis, lift up and detach the controller from the DIN rail.

11. REMOVING THE CONTROLLER FROM THE WALL OR PANEL

1. Switch off the power supply. Remove the Terminal Covers and Protective Cover if applicable.
2. Remove the Terminal Covers and Protective Cover if applicable.
3. Disconnect all the controller's communication, and power supply terminals.
4. Unscrew the bottom side screws first by using a screwdriver.
5. Hold the controller with one hand, unscrew the top side screws using a screwdriver.

12. SCENARIO FOR RED CLIP

1. If the user wants to attach the controller to a panel using screws, push all red clips down to the unlock mounting position by inserting the flat blade screwdriver at a defined point, as shown in the figure below.



SPECIFICATIONS OF THE CONTROLLER

CONSUMPTION								
Power Consumption With IO Connected								
CONTROLLER	UIO (24 VAC)	UIO (24 VDC)	DI (24 VAC)	DI (24 VDC)	RO (24 VAC)	RO (24 VDC)	SSRO (24 VAC)	SSRO (24 VDC)
N-EPC28-H-S	Max. 76.5 VA	Max. 33.5 W	Max. 63 VA	Max. 27.5 W	Max. 62.5 VA	Max. 27.5 W	Max. 62.5 VA	Max. 27.5 W
N-EPC28-H-P								
Current Consumption With IO Connected								
CONTROLLER	UIO (24 VAC)	UIO (24 VDC)	DI (24 VAC)	DI (24 VDC)	RO (24 VAC)	RO (24 VDC)	SSRO (24 VAC)	SSRO (24 VDC)
N-EPC28-H-S	Max. 3.2 A	Max. 1.4 A	Max. 2.6 A	Max. 1.15 A	Max. 2.6 A	Max. 1.15 A	Max. 2.6 A	Max. 1.15 A
N-EPC28-H-P	Max. 3.2 A	Max. 1.4 A	Max. 2.6 A	Max. 1.15 A	Max. 2.6 A	Max. 1.15 A	Max. 2.6 A	Max. 1.15 A

NOTE:

- Total power consumption when all the IO terminals are in use = 80 VA/35 W
- Total power consumption when no IO terminals are connected = 62 VA/27.5 W
- Auxiliary power supply = As per input power
- Total current consumption when all the IO terminals are in use =Max. 1.5 A (DC)/3.4 (AC)
- Total current consumption when no IO terminals are connected =Max. 1.2 A (DC)/2.7 A (AC)
- Auxiliary current supply = Maximum 6 A also limited by per input power

ELECTRICAL	
PARAMETER	SPECIFICATION
Operating Voltage (AC)	24 VAC (+/-20%) = 19 to 29 VAC 50/60 Hz
Operating Voltage (DC)	24 VDC (+/-20%) = 20 to 30 VDC
Overvoltage Protection	Protected against overvoltage of max. 29 VAC or 40 VDC. Terminals protected against short-circuiting.

OPERATIONAL ENVIRONMENT	
PARAMETER	SPECIFICATION
Storage Temperature	-20 to 158 °F (-28.9 to +70 °C)
Operating temperature	-13 to 140 °F (-25 to 60 °C)
Humidity	5 to 95 % relative humidity (non-condensing)
Vibration Under Operation	0.024" double amplitude (2 to 30 Hz), 0.6 g (30 to 300 Hz)
Dust, Vibration	According to EN60730-1
Protection	IP20 with optional terminal covers
Altitude	13123 ft (4000m)

STANDARDS AND APPROVALS

Product Standards	UL60730-1, UL60730-2-9, UL916, IEC/EN60730-1, Energy Management Equipment, IEC/EN60730-2-9, CAN/CSA-E60730-1:02, IEC/EN61326-1, and IEC/EN61010.
Certification	UL60730-1, UL916, CE, BTL B-BC, BACnet™ Standard 135 version 1.14, ISO 16484-5, AMEV AS-B, FCC Part15, WEEE, C-tick RCM, Subpart B, CAN ICES-3 (B)/NMB- 3(B), RCM, EAC, RoHS II, Ethernet Protocol version IEEE 802.3, EN-1434-3, EN-13757-3, and ISA/IEC 62443-4-2 SL2 Certified.
Shock Protection	SELV
Pollution Class	IP20
Software Class	Class B

IMPORTANT: Keep mains power supply and loads cables separate from signal wiring!

STANDARDS AND APPROVALS



WARNING

Electrical Shock Hazard.

Can cause severe injury, death, or property damage. Disconnect the power supply before beginning installation to prevent electrical shock and equipment damage. More than one power supply may have to be disconnected.

It is prohibited to connect any of the RJ45 sockets of the Advanced controller to a so-called PoE-enabled device ("Power over Ethernet").



CAUTION/MISE EN GARDE/PRECAUCIÓN

To reduce the risk of fire or electric shock, do not interconnect the outputs of different Class 2 circuits.

WEEE



WEEE Directive 2012/19/EC Waste

Electrical and Electronic Equipment Directive

- At the end of the product life, dispose of the packaging and product in an appropriate recycling center.
- Do not dispose of the device with the usual domestic refuse.
- Do not burn the device.

FCC REGULATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

NOTE: 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

However, there is no guarantee that interference will not occur in a particular installation.

Suppose this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. In that case, the user is encouraged to try to correct the interference by one or more of the following measures:

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

CANADIAN REGULATORY STATEMENT

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage.
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

EMF Statement: To comply with the RF exposure requirement, a separation distance of 20 cm between the device and the human should be maintained.

Déclaration d'exposition Attention: Cet émetteur doit être installé pour fournir une distance de séparation d'au moins 20 cm de toute personne.

Professional Installation Warning

- This device must be professionally installed; this should be noted on grantee.
- This device requires a significant technology engineering expertise towards understanding of the tools and relevant technology, not readily available to average consumer. Only a person professionally trained in the technology is competent.

REFERENCE TECHNICAL LITERATURE

TITLE	LITERATURE NUMBER
COMFORTPOINT_NIAGARA_ESSENTIAL_PRODUCT DATASHEET	31-00917
OPTIMIZER ESSENTIAL_PRODUCT DATASHEET	31-00870
ESSENTIAL INSTALLATION INSTRUCTION AND COMMISSIONING GUIDE	31-00872

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