

# A5xx Series Wall Mount Refrigeration and Defrost Controllers

## Installation Instructions

A525

Part No. 24-7664-3310 Rev. D  
Issued October 2018

Refer to the [QuickLIT website](#) for the most up-to-date version of this document.

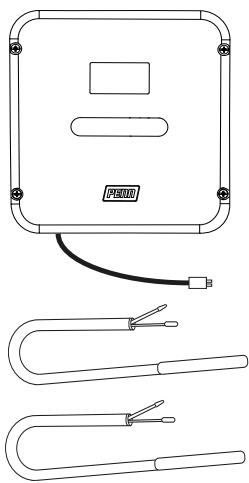
### Application

**IMPORTANT:** Use the A5xx Series Wall Mount Refrigeration and Defrost Controller only as an operating control. Where failure or malfunction of the A5xx Controller could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the A5xx Controller.

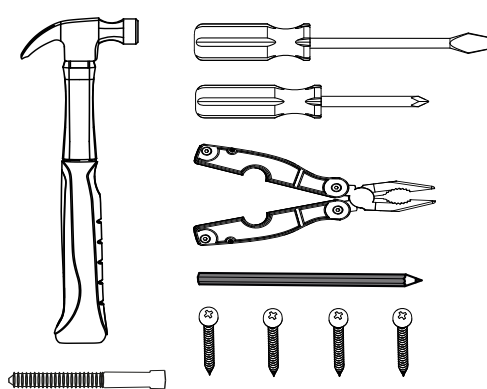
**IMPORTANT:** Utiliser ce A5xx Series Wall Mount Refrigeration and Defrost Régulateur uniquement en tant que dispositif de contrôle de fonctionnement. Lorsqu'une défaillance ou un dysfonctionnement du A5xx Régulateur risque de provoquer des blessures ou d'endommager l'équipement contrôlé ou un autre équipement, la conception du système de contrôle doit intégrer des dispositifs de protection supplémentaires. Veiller dans ce cas à intégrer de façon permanente d'autres dispositifs, tels que des systèmes de supervision ou d'alarme, ou des dispositifs de sécurité ou de limitation, ayant une fonction d'avertissement ou de protection en cas de défaillance ou de dysfonctionnement du A5xx Régulateur.

The A5xx Series Wall Mount Refrigeration and Defrost Controller provides refrigerated space and defrost control for low and medium temperature refrigeration applications. The A5xx Controller includes five line-voltage, dry-contact relays to control the compressor, defrost heater or solenoid, evaporator fans, and user-provided alarm devices. The controller can control two-speed evaporator fans and resistive heat, hot-gas bypass, or passive defrost. You can use the A5xx Controller's adaptive defrost to adjust the defrost schedule to the minimum number of defrost intervals that you require to achieve peak efficiency, save energy, and maintain consistent space temperature. Refer to the *A5xx Series Wall Mount Refrigeration and Defrost Controller Technical Bulletin (LIT-12012405)* and the *A5xx Series Wall Mount Refrigeration and Defrost Controller Quick Reference Card (part no. 24-08809-00111)* for more information about setting up, operating, and troubleshooting the A5xx Controller.

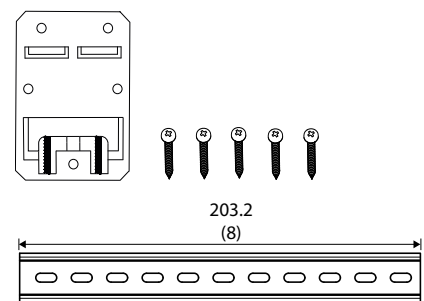
#### Parts included



#### Tools



#### Optional mounting kit, mm (in.)



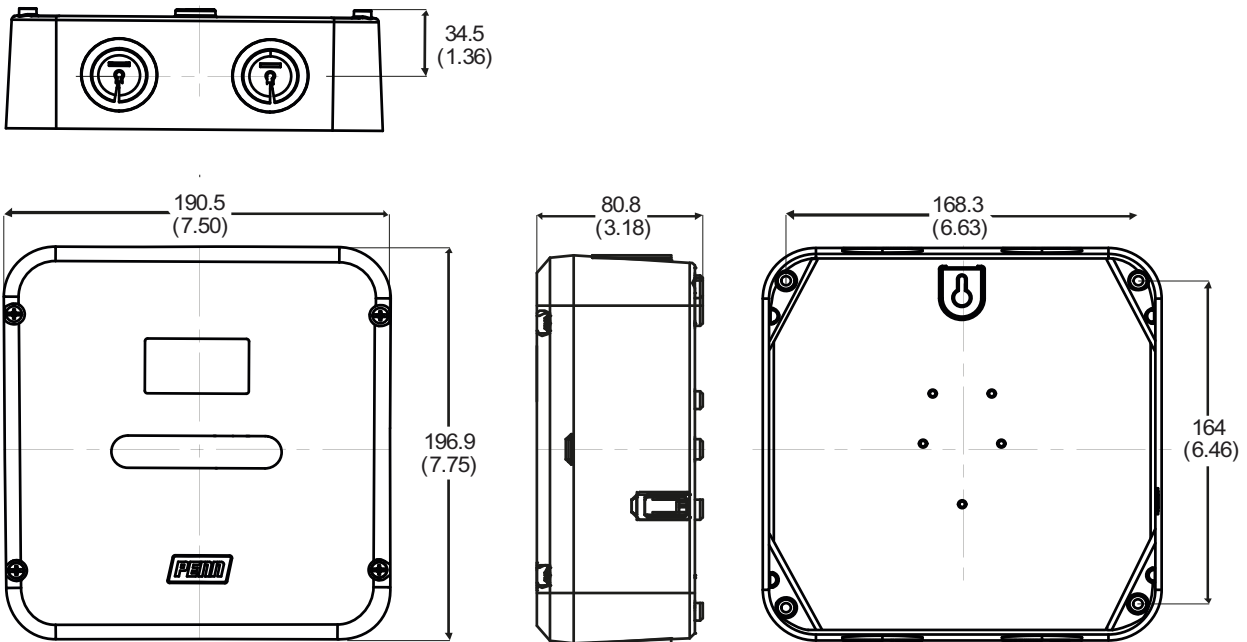
Some A5xx Controller models do not include sensors and you must purchase sensors separately. See [Ordering information](#) and Table 4 for more information.



## Dimensions

The following figure shows the dimensions of the A5xx Controller.

**Figure 1: A5xx Controller with IP65 enclosure dimensions, mm (in.)**



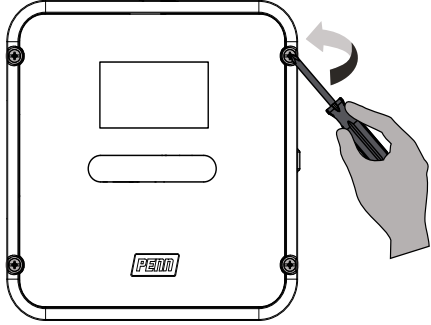
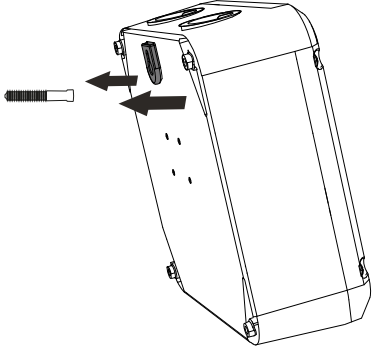
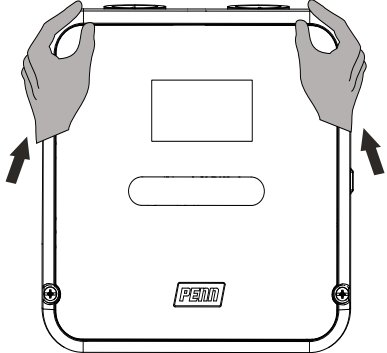
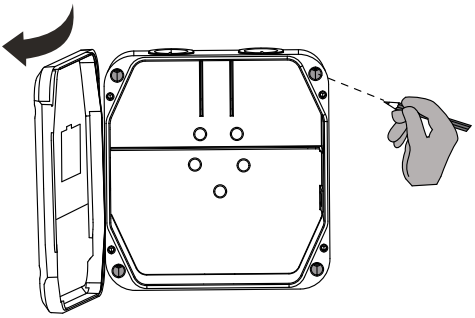
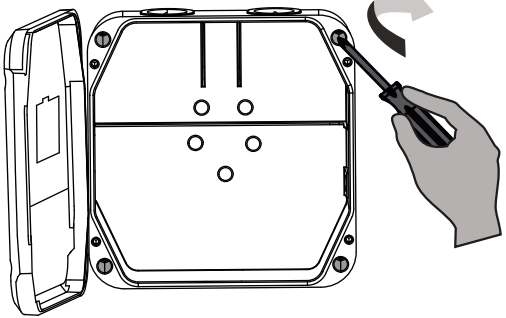
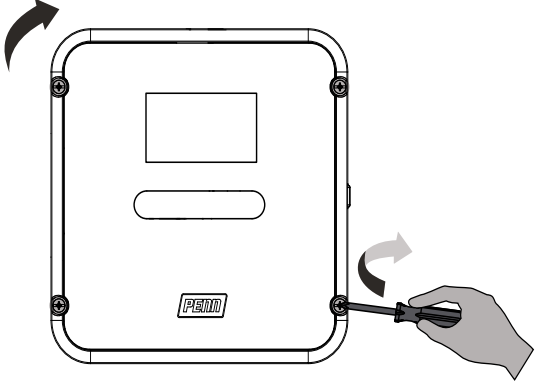
## Mounting

Observe the following A5xx Controller location and mounting guidelines:

- Mount the controller on a flat surface.
- Make sure that the mounting surface can support the controller, mounting hardware, and any user-supplied panel or enclosure.
- Make sure that the controller is in the proper orientation for easy wiring, set up, and viewing.
- Allow sufficient space around the controller to connect and route wires, view the LCD, and use the touchpad.
- Mount the controller in locations free of corrosive vapors. Observe all ambient operating conditions.
- Do not mount the controller on surfaces that vibrate.
- Do not mount the controller in a location where high-voltage relays, motor starters, other sources of electromagnetic emissions, or strong radio frequency may cause electromagnetic interference (EMI).
- Do not install the controller in airtight enclosures.
- Do not install heat generating devices that may cause the ambient temperature to exceed 60°C (140°F) in an enclosure with the controller.
- For wall mount applications, mount the controller on a hard and flat surface.

## Wall mounting

The following figures show how to mount the A5xx Controller to a wall.

<p>①</p>  <p>Loosen the four spring-loaded cover screws. Do not damage the controller's interior components.</p>	<p>②</p>  <p>A. Attach an appropriate fastener onto the wall. B. Position the keyhole slot at the rear of the enclosure base over the fastener.</p>
<p>③</p>  <p>Mount the controller securely on the fastener.</p>	<p>④</p>  <p>A. Open the cover. Use the four holes in the enclosure base to mark the locations for the mounting screws. B. Remove the controller and fastener from the wall.</p>
<p>⑤</p>  <p>A. To mount the controller, use four M4 (#8) pan head screws, 12 mm (0.5 in.) or longer. B. Tighten the screws. Use shims to prevent warping the enclosure.</p>	<p>⑥</p>  <p>Close the cover. Tighten the spring-loaded cover screws to 0.9 to 1.1 N·m (8 to 10 in·lbs).</p>

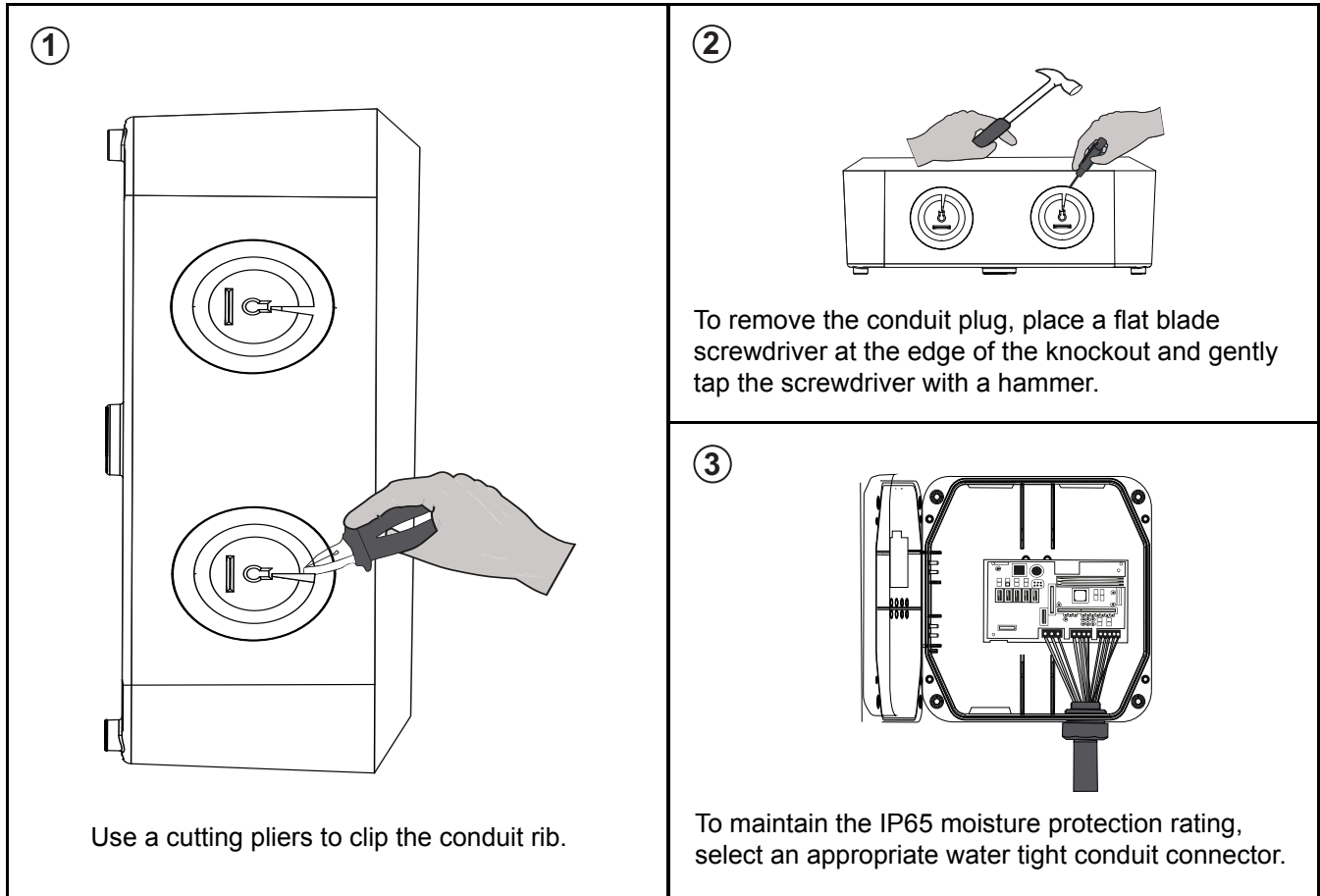
### **DIN rail mounting**

You can order an optional DIN rail mounting kit (part no. BKT524-1K) for the controller. Attach the DIN rail clip assembly to the five holes on the rear of the enclosure base. Refer to the assembly sheet (part no. 24-07664-03361) included with the DIN rail kit for DIN rail mounting procedures.

### **Removing the conduit plug and inserting the liquid tight fitting**

Complete the following steps to remove the conduit plug and insert the liquid tight fitting.

**Figure 3: Removing the conduit plug and inserting the liquid tight fitting**



### **User interface**

**IMPORTANT:** After you install the A5xx Controller, remove the protective plastic film from the controller's front surface.

### **Cleaning the controller**

Remove any loose debris from the controller. Use a soft cloth with a warm, mild detergent solution to wipe the exterior surface. Rinse the cloth with clean water and wipe the controller until it is clean. Dry the controller with a soft cloth.

### **Sealing the USB port**

**Note:** After you use the USB port, insert the attached USB plug into the port so that it is flush with the controller's exterior surface. This action seals the USB port for IP65 protection.

## Wiring

Observe the following wiring guidelines.

### **WARNING**

#### **Risk of electric shock.**

Disconnect or isolate all power supplies before making electrical connections. More than one disconnection or isolation may be required to completely de-energize equipment. Contact with components carrying hazardous voltage can cause electric shock and may result in severe personal injury or death.

### **AVERTISSEMENT**

#### **Risque de décharge électrique.**

Débrancher ou isoler toute alimentation avant de réaliser un branchement électrique. Plusieurs isolations et débranchements sont peut-être nécessaires pour couper entièrement l'alimentation de l'équipement. Tout contact avec des composants conducteurs de tensions dangereuses risque d'entraîner une décharge électrique et de provoquer des blessures graves, voire mortelles.

**IMPORTANT:** Do not exceed the electrical ratings. Exceeding electrical ratings can result in permanent damage and void any warranty.

**IMPORTANT:** Electrostatic discharge can damage control components. Use proper electrostatic discharge precautions during installation, setup, and servicing to avoid damage.

**IMPORTANT:** Do not connect supply power before you finish wiring and checking all wiring connections. Short circuits or improperly connected wires can result in damage and void any warranty.

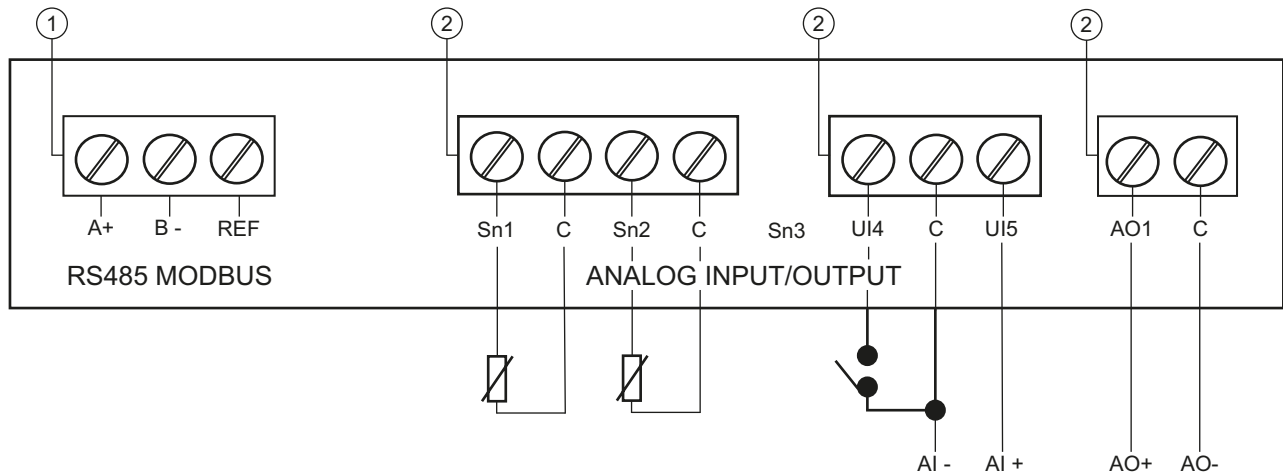
**IMPORTANT:** Run all low-voltage wiring and cables separately from all high-voltage wiring and route wires for national electrical code (NEC) or local electrical code requirements. It is best practice to use shielded cable for low-voltage cables that are exposed to high electromagnetic or radio frequency noise.

**IMPORTANT:** Use copper conductors only. Make all wiring in accordance with local, national, and regional regulations.

## Low-voltage wiring

The following figure and table provide information about the low-voltage wiring terminal blocks, wiring terminal labels, and required wire sizes.

**Figure 4: A5xx Controller low-voltage terminal block connections (internal to control)**



**Table 1: A5xx Controller low-voltage terminal block, terminals, and wire sizes**

Callout	Terminal block label	Terminal label	Description, function, and requirements	Wire sizes
1	RS485 Modbus	+	The RS485 Modbus communications terminal block provides a restricted connection to the Modbus connections on an optional Precision Superheat Controller (PSHC). Do not connect another Modbus device to these terminals.	0.20 mm <sup>2</sup> –0.30 mm <sup>2</sup> (26 AWG–22 AWG) stranded wires and twisted-leads cable
		-		
		REF	The RS485 Modbus signal common or reference	
2	Analog inputs and outputs	Sn1	Sensor 1 (Sn1) is the main space temperature sensor. Connect either lead from the sensor to Sn1. Connect the other lead to a common (C) terminal. <b>Note:</b> Sensor wires for the A5xx Controller are not polarity sensitive.	0.30 mm <sup>2</sup> –1.50 mm <sup>2</sup> (22 AWG–16 AWG) stranded wires and twisted-leads cable
		C	The A5xx Controller includes three low-voltage common terminals. All of the low-voltage C terminals are connected together on the PC board.	
		Sn2	The evaporator temperature sensor. Connect either lead from the sensor to Sn2. Connect the other lead to a C terminal. <b>Note:</b> Sensor wires for the A5xx Controller are not polarity sensitive.	
		Sn3	Unavailable	
		UI4	You can configure universal input 4 (UI4) as a 0 VDC–10 VDC analog input or dry contact binary input. Connect a 0 VDC–10 VDC input or binary input to the UI4 (+) terminal and a C (common/-) on the low-voltage terminal block.	
		UI5	You can configure universal input 5 (UI5) as a 0 VDC–10 VDC analog input or dry contact binary input. Connect a 0 VDC–10 VDC input or binary input to the UI5 (+) terminal and a C (common/-) on the low-voltage terminal block.	
		AO1	The A5xx Controller does not support AO1. Do not connect to this terminal.	

## Sensor wiring

See the following table for information about the wire gauge and maximum sensor wire length required to wire the controller. Observe the following sensor wiring guidelines:

- Keep the sensor leads as short as possible in your application. Additional resistance in long sensor cables can create an offset between the actual temperature and the displayed temperature.
- When extending sensor leads, it is best practice to use 0.33 mm<sup>2</sup> (22 AWG), stranded, two-wire, twisted pair cable with a cable shield.
- Solder the wire leads. Use butt splice connectors instead of wire nuts to connect the sensor leads to extension leads.

**Note:** Sensor leads are not color coded or polarity-specific.

**Table 2: Maximum required sensor cable lengths and wire sizes**

Wire gauge	Maximum sensor cable length <sup>1</sup>
1.3 mm <sup>2</sup> (16 AWG)	150 m (492 ft)
0.82 mm <sup>2</sup> (18 AWG)	100 m (328 ft)
0.52 mm <sup>2</sup> (20 AWG)	60 m (196 ft)
0.33 mm <sup>2</sup> (22 AWG)	40 m (131 ft)

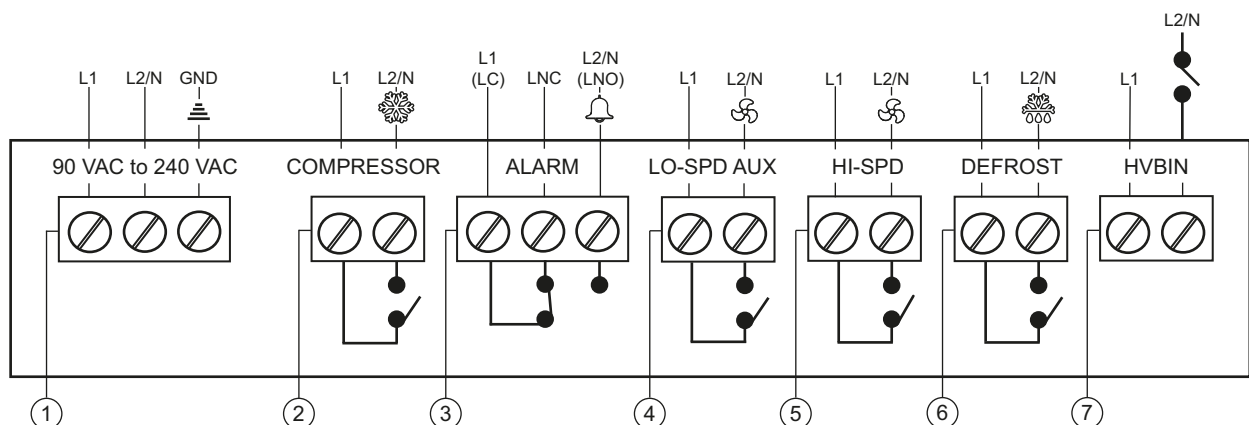
1. These cable lengths have less than 0.6°C (1°F) error between the sensed temperature at the A99B sensor and the displayed temperature.

**IMPORTANT:** When you connect sensors with shielded cable to an A5xx Controller, connect the cable shield drain lead to one of the C terminals on the input sensor terminal block. Do not connect the shield at any other point along the cable. Isolate and insulate the shield drain at the sensor end of the cable. Connecting a cable shield at more than one point can enable transient currents to flow through the sensor cable shield, which can cause erratic control operation.






## High-voltage wiring

The following figure and table provide information about the high-voltage wiring terminal blocks, wiring terminal labels, and wire sizes. See Table 5 to Table 9 for the relay electrical ratings.

**Figure 5: A5xx Controller high-voltage terminal block connections (internal to control)**



**Table 3: A5xx Controller high-voltage terminal blocks, terminals, and wire sizes**

Callout	Terminal block label	Terminal voltage	Description, function, and requirements	Required wire sizes
1	90 VAC–240 VAC	L1	Two terminals for supply power connection to the A5xx Controller. Requires 90 VAC–240 VAC; 15 VA (0.25 A maximum)	0.75 mm <sup>2</sup> –2.50 mm <sup>2</sup> (18 AWG–14 AWG)
		L2/N		
		GND	Earth ground connection terminal	
2	Compressor 		Two terminals for line-voltage, single-pole, single-throw (SPST), dry-contact relay to control the compressor.	1.50 mm <sup>2</sup> –6.0 mm <sup>2</sup> (16 AWG–10 AWG)
3	Alarm 	L1/LC	The common (LC), normally-open (LNO), normally-closed (LNC) terminals for line-voltage, single-pole, double-throw (SPDT), dry-contact relay to control the user-supplied alarm devices.	0.30 mm <sup>2</sup> –2.50 mm <sup>2</sup> (22 AWG–14 AWG)
		LNC		
		L2/N/LNO		
4	Lo-spd aux 		The A5xx Controller includes two terminals for line-voltage, SPST, dry-contact relay to control an auxiliary device such as a user-provided alarm device or the low-speed on two-speed evaporator fans.	0.30 mm <sup>2</sup> –2.50 mm <sup>2</sup> (22 AWG–14 AWG)
5	Hi-spd 		Two terminals for line-voltage, SPST, dry-contact relay to control single-speed evaporator fans or the high-speed (hi-spd) on two-speed evaporator fans.	0.75 mm <sup>2</sup> –2.50 mm <sup>2</sup> (18 AWG–14 AWG)
6	Defrost 		Two terminals for line-voltage, SPST, dry-contact relay to control the resistive defrost heater or bypass the defrost solenoid.	1.5 mm <sup>2</sup> –6.0 mm <sup>2</sup> (16 AWG–10 AWG)
7	HVBIN		Two line-voltage binary input terminals for use with the line-voltage defrost temperature termination switch. These terminals require an external power source to provide 120 VAC–240 VAC, 50/60 Hz activation power when the external, user-supplied defrost termination switch closes.	0.30 mm <sup>2</sup> –1.50 mm <sup>2</sup> (22 AWG–16 AWG)

### Connecting to a BACnet® network

Some A5xx Controller models have an optional RS485 BACnet® interface expansion card that connects the A5xx Controller to a standard BACnet network so that you can monitor and control the A5xx Controller with a Building Automation System (BAS). Refer to the *Connecting to a BACnet network* section in the *A5xx Series Wall Mount Refrigeration and Defrost Controller Technical Bulletin (LIT-12012405)* for detailed information about how to configure an A5xx Controller with a BACnet interface expansion card to connect to a standard BACnet network.

### Repair information

If the A5xx Series Wall Mount Refrigeration and Defrost Controller fails to operate within its specifications, replace the unit. For a replacement A5xx Controller, contact your PENN® or Johnson Controls® sales representative or distributor.



## Ordering information

Refer to the *A5xx Series Wall Mount Refrigeration and Defrost Controller Technical Bulletin (LIT-12012405)* for more information about the A5xx Controller.

**Table 4: Accessories**

Product code	Description
<b>A99BB-200C</b>	Positive temperature coefficient (PTC) silicon sensor with PVC cable; cable length: 2 m (6.5 ft); range: -40°C to 100°C (-40°F to 212°F)
<b>A99BB-300C</b>	PTC silicon sensor with PVC cable; cable length: 3 m (9.8 ft); range: -40°C to 100°C (-40°F to 212°F)
<b>A99BB-400C</b>	PTC silicon sensor with PVC cable; cable length: 4 m (13.1 ft); range: -40°C to 100°C (-40°F to 212°F)
<b>A99BB-500C</b>	PTC silicon sensor with PVC cable; cable length: 5 m (16.4 ft) range: -40°C to 100°C (-40°F to 212°F)
<b>A99BB-600C</b>	PTC silicon sensor with PVC cable; cable length: 6 m (19.7 ft) range: -40°C to 100°C (-40°F to 212°F)
<b>BKT524-1K</b>	Bracket for mounting the A5xx Controller to 35 mm DIN rail. Includes five mounting screws
<b>BKT287-1R</b>	305 mm (12 in.) section of 35 mm DIN rail
<b>TS-6340K-F00</b>	10K ohms NTC sensor with 1.5 m (4.9 ft) cable; available in Europe only

## Electrical ratings

Table 5 to Table 9 show the output relay electrical ratings.

**Table 5: SPST compressor relay electrical ratings**

	cULus			EN
	24 VAC	120 VAC	240 VAC	240 VAC
<b>Applied AC voltage at 50/60 Hz</b>	24 VAC	120 VAC	240 VAC	240 VAC
<b>Horsepower</b>	1 HP			
<b>Full load amperes</b>	n/a	16 A	8 A	8 A
<b>Locked rotor amperes</b>	n/a	96 A	48 A	48 A
<b>Resistive amperes</b>	10 A			
<b>Pilot duty VA</b>	125 VA at 24 VAC to 240 VAC			

**Table 6: SPDT alarm relay electrical ratings**

	cULus			EN
	24 VAC	120 VAC	240 VAC	240 VAC
<b>Applied AC voltage at 50/60 Hz</b>	24 VAC	120 VAC	240 VAC	240 VAC
<b>Horsepower (LC/LNO and LC/LNC)</b>	1/2 HP			
<b>Full load amperes (LC/LNO and LC/LNC)</b>	n/a	9.8 A	4.9 A	4.9 A
<b>Locked rotor amperes (LC/LNO and LC/LNC)</b>	n/a	58.8 A	29.4 A	29.4 A
<b>Resistive amperes (LC/LNO and LC/LNC)</b>	10 A			
<b>Pilot duty VA (LC/LNO and LC/LNC)</b>	125 VA at 24 VAC to 240 VAC			

**Table 7: SPST lo-spd aux relay electrical ratings<sup>1</sup> (Part 1 of 2)**

	cULus			EN
	24 VAC	120 VAC	240 VAC	240 VAC
<b>Applied AC voltage at 50/60 Hz</b>	24 VAC	120 VAC	240 VAC	240 VAC
<b>Horsepower</b>	1/2 HP			
<b>Full load amperes</b>	n/a	9.8 A	4.9 A	4.9 A
<b>Locked rotor amperes</b>	n/a	58.8 A	29.4 A	29.4 A

**Table 7: SPST lo-spd aux relay electrical ratings<sup>1</sup> (Part 2 of 2)**

	cULus		EN
Resistive amperes	10 A		
Pilot duty VA	125 VA at 24 VAC to 240 VAC		

**Table 8: SPST hi-spd relay electrical ratings**

	cULus			EN
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC
Horsepower	1/2 HP			
Full load amperes	n/a	9.8 A	4.9 A	4.9 A
Locked rotor amperes	n/a	58.8 A	29.4 A	29.4 A
Resistive amperes	10 A			
Pilot duty VA	125 VA at 24 VAC to 240 VAC			

**Table 9: SPST defrost relay electrical ratings**

	UL			EN
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC <sup>1</sup>
Resistive amperes	10 A	24 A <sup>1</sup>	24 A <sup>1</sup>	24 A <sup>1</sup>
Pilot duty VA	125 VA at 24 VAC to 240 VAC			

1. The A5xx Controller is rated for 24 A at temperatures up to 45°C (113°F). When the controller operates from 45°C to 60°C (113°F to 140°F), the ampere rating decreases from 24 A to 15 A at a rate of 0.6 A per 1°C. The A5xx Controller is not rated for use in ambient conditions above 60°C (140°F).


## Technical specifications

### ***A5xx Series Wall Mount Refrigeration and Defrost Controller (Part 1 of 2)***

Product	A525
Power consumption	1.8 VA maximum
Supply power	84 VAC–260 VAC, 50/60 Hz, 10 VA maximum
Ambient conditions	Operating: -30°C to 60°C (-22°F to 140°F), 0% to 95% RH noncondensing Shipping and storage: -40°C to 85°C (-40°F to 185°F), 0% to 95% RH noncondensing
Temperature sensing range	-40°C to 50°C (-40°F to 122°F)
Input signal (Sn1 and Sn2)	A99B PTC temperature sensor TS-6340K-F00 NTC temperature sensor; available in Europe only
Input signal (UI4 and UI5)	0 VDC–10 VDC input for leak detector status or dry contact binary input with a switch wired between UI4 or UI5 and C
HVBIN signal	120 VAC or 240 VAC
Sensor offset range	± 3°C or ± 5°F
RS485 Modbus	Maximum distance: 100 ft; default baud rate: 9.6K baud <b>Note:</b> Also supports baud rate of 19.2K
RS485 BACnet expansion interface (included with some models)	Maximum distance: 5,000 ft (1,524 m); baud rate: 38.4K; address range: 1-127; default address: 10
External USB	Use a standard USB flash drive to extract hazard analysis critical control point (HACCP) data or to install firmware for future upgrades.
Enclosure	IP65 watertight, corrosion-resistant, high-impact thermoplastic
Dimensions (H x W x D)	196.8 mm (7.75 in.) x 190.5 mm (7.5 in.) x 82.6 mm (3.25 in.)

## Technical specifications

### A5xx Series Wall Mount Refrigeration and Defrost Controller (Part 2 of 2)

Weight	1.1 kg (2.4 lb)
	<b>North America:</b> <b>United States:</b> cULus Listed; UL60730-1, UL60730-2-9, File SA516; FCC Compliant to CFR47, Part 15, Subpart B, Class B limits <b>Canada:</b> cULus Listed; CAN/CSA-E60730-1:15, CAN/CSA-E60730-2-9:15, File SA516; Industry Canada (IC) compliant to Canadian ICES-003, Class B limits
	<b>Europe:</b> CE Mark – Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and Low Voltage Directive; RoHS Directive
	<b>Australia and New Zealand:</b> RCM Mark, Australia/NZ emissions compliant

These performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

**Table 10: UL conformity declaration information**

Information	Description
Purpose of control	Sensing control or operating control
Construction of control	Electronic independently mounted control
Number of cycles	Compressor relay: 100,000
	Defrost relay: 30,000
	Evaporator relay: 30,000
	Alarm relay: 8,000
Method of mounting control	Four mounting screws or optional DIN rail mounting kit
Type 1C or type 2C action	Micro-interruption
Heat and fire resistance category	D
Rated impulse voltage	4,000 V
Ball pressure temperature	125°C (257°F)
Cover screw torque requirements	To maintain IP65 rating, tighten enclosure cover screws to 0.9 to 1.1 N·m (8 to 10 in·lb)

**Table 11: A99B type PTC temperature sensor<sup>1</sup>**

Ambient sensing and operating conditions	Type A99BA: -40°C to 100°C (-40°F to 212°F); 0% to 100% RH, condensing Type A99BB: -40°C to 100°C (-40°F to 212°F); 0% to 100% RH, condensing Type A99BC: -40°C to 120°C (-40°F to 248°F); 0% to 100% RH, condensing
Reference resistance	1,035 ohms at 25°C (77°F) 855 ohms at 0°C (32°F)
Accuracy	0.5°C (32.9°F) between -15°C and 57°C (5°F and 135°F)
Sensor construction	Probe: stainless steel; 50 mm x 6.0 mm (1.9 in. x 0.2 in.)
Sensor cable sheath	Type A99BA: shielded PVC cable Type A99BB: PVC cable Type A99BC: high temperature silicon cable
Wire gauge	22 AWG (0.33 mm <sup>2</sup> )
Ambient storage conditions	Type A99BA: -40°C to 105°C (-40°F to 221°F); 0% to 100% RH, condensing Type A99BB: -40°C to 105°C (-40°F to 221°F); 0% to 100% RH, condensing Type A99BC: -40°C to 130°C (-40°F to 266°F); 0% to 100% RH, condensing
Shipping weight	41 g (1.4 oz) for A99B sensor with 2 m (6.5 ft) cable

1. Refer to the A99B Series Temperature Sensors Product/Technical Bulletin (LIT-125186) for accuracy ratings outside of these temperature ranges.

2. When any A99B temperature sensor or NTC temperature sensor connects to the A5xx Controller, the range of the displayed temperature values is restricted to -40°C to 60°C (-40°F to 140°F).

**Table 12: TS6340K-F00 NTC temperature sensor**

<b>Ambient sensing and operating conditions</b>	-40°C to 100°C (-40°F to 212°F); 0% to 100% RH, condensing
<b>Reference resistance</b>	10K ohms at 25°C (77°F)
<b>Sensor construction</b>	Probe: stainless steel; 50 mm x 6.0 mm (2 in. x 0.2 in.) Cable length: 1.5 m (4.9 ft)
<b>Sensor cable sheath</b>	PVC cable

**Note:** When any A99B temperature sensor or NTC temperature sensor connects to the A5xx Controller, the range of the displayed temperature values is restricted to -40°C to 60°C (-40°F to 140°F).

## North American emissions compliance

### United States

*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 or TV technician for help.

### Canada

*This Class (B) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la Classe (B) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.*

### Software terms:

Use of the software that is in (or constitutes) this product or access to the cloud or hosted services applicable to this product, if any, is subject to applicable terms set forth at [www.johnsoncontrols.com/techterms](http://www.johnsoncontrols.com/techterms). Your use of this product constitutes an agreement to such terms. If you do not agree to be bound by such terms, you may return the unused product to your place of purchase.

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