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A5xx Series Wall Mount Refrigeration and Defrost Controllers Catalog Page

Description

The A5xx Series Wall Mount Refrigeration and Defrost Controllers provide 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 A5xx Controller can control two-speed evaporator fans and resistive heat, hot-gas bypass, or passive defrost.

The A5xx Controller's adaptive defrost adjusts the defrost schedule to the minimum number of defrost intervals required to achieve peak efficiency, save energy, and maintain consistent space temperature.

Refer to the *A5xx Series Wall Mount Electronic Refrigeration and Defrost Controller Product Bulletin (LIT-12012987)* for important product application information. The A5xx Controller includes an IP65 enclosure with holes in the enclosure base for wall and surface mounting. You can order an optional DIN rail mounting kit (part no. BKT524-1K).

Applications

You can use the A5xx Controller with single condenser evaporator refrigeration systems such as walk-in coolers and freezers.

Features and benefits

- **Plain language programming**—Displays a scrolling alphanumeric message system that shows you what to program.
- **Time-based defrost or adaptive defrost**—Provides a choice between a conventional time-based defrost or the more advanced adaptive defrost. Adaptive defrost improves efficiency by learning and automatically adjusting the defrost schedule of your system.
- **Meets Title 24 standards**—You can program the controller to determine when to operate the fan or when to set the fan to off. This feature provides better air circulation in the conditioned space and meets energy efficiency standards.
- **Complete integration with PENN Quick Response Expansion Valve (QREV) and Precision Superheat Controller (PSHC)—**Facilitates the adjustment of superheat levels and the selection of refrigerant types for optimal efficiency.
- **Alarming—**Facilitates the programming of high-temperature, low-temperature, door open, man-in-room, refrigeration leaks, high-pressure, low-pressure, and sensor failure conditions. Failure messages display in plain language to reduce confusion about the source of an alarm.
- **Reporting and recording**—Automatically records temperatures at preferred intervals to improve food safety. You can also create reports to show that food storage occurs at the required temperatures.
- **Program copy and firmware updates**—Features a USB port that you can use to upload your preferred settings or to update the controller's operating firmware.

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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 the nearest Johnson Controls® representative.

Parts included

Some A5xx Controllers include two Johnson Controls and PENN® A99B temperature sensors; other A5xx Controller models do not include any temperature sensors and you must purchase the specified A99B sensors separately. For more information about the A99B temperature sensors, refer to the *A99B Temperature Sensors Product Technical Bulletin (LIT-125186)* or contact the nearest Johnson Controls or PENN distributor or sales representative.

Selection charts

A5xx Series Wall Mount Refrigeration and Defrost Controllers

Product code	Description
A525AEDN-0000C	Electronic wall mount refrigeration and defrost controller with two sensor inputs and five output relays. Does not include sensors.
A525AEDN-0203C	Electronic wall mount refrigeration and defrost controller with two sensor inputs and five output relays. Includes two A99B type sensors.

Accessories

Accessories for the A5xx Controller

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

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Electrical ratings

The following tables provide the relay electrical ratings for the control relays in the A5xx Controller.

Single-pole single-throw (SPST) compressor relay electrical ratings (100,000 cycles)

	UL 60730			EN 60730
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC
Horsepower	n/a	1 hp	1 hp	1 hp
Full load amperes	n/a	16 A	8 A	8 A
Locked rotor amperes	n/a	96 A	48 A	48 A
Resistive amperes	10 A	n/a	n/a	n/a
Pilot duty VA	125 VA at 24 VAC to 240 VAC			

Single-pole double-throw (SPDT) alarm relay electrical ratings

	UL 60730			EN 60730
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC
Horsepower (LC/LNO and LC/LNC)	n/a	1/2 hp	1/2 hp	1/2 hp
Full load amperes (LC/LNO and LC/LNC)	n/a	9.8 A	4.9 A	4.9 A
Locked rotor amperes (LC/LNO and LC/LNC)	n/a	58.8 A	29.4 A	29.4 A
Resistive amperes (LC/LNO and LC/LNC)	10 A			
Pilot duty VA (LC/LNO and LC/LNC)	125 VA at 24 VAC to 240 VAC			

SPST low-speed fan or auxiliary (lo-spd aux) relay electrical ratings

	UL 60730			EN 60730
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC
Horsepower	n/a	1/2 hp	1/2 hp	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			

SPST high-speed (hi-spd) relay electrical ratings (30,000 cycles)

	UL 60730			EN 60730
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC
Horsepower	n/a	1/2 hp	1/2 hp	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			

SPST defrost relay electrical ratings (30,000 cycles)

	UL 60730			EN 60730
Applied AC voltage at 50/60 Hz	24 VAC	120 VAC	240 VAC	240 VAC
Resistive amperes	10 A	24 A[1]	24 A[1]	24 A[1]
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).

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Technical specifications

A5xx Series Wall Mount Refrigeration and Defrost Controllers	
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	-40°C to 50°C (-40°F to 122°F)
Input signal (Sn1 and Sn2)	A99B PTC temperature sensor: 1,035 ohms at 25°C (77°F) TS-6340K-F00 NTC temperature sensor: 10K ohms at 25°C (77°F); available in Europe only
Input signal (UI 4 and UI 5)	0 VDC–10 VDC input for leak detector status or dry contact binary input with a switch wired between terminals UI 4 or UI 5 and a common (C) terminal
HVBIN signal	120 VAC or 240 VAC
Sensor offset range	±3°C or ±5°F
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 cm (3.25 in.)
Weight	1.1 kg (2.4 lb)
Compliance CE	**North America** **United States:** cULus Listed; UL60730-1, UL60730-2-9, File SA516; FCC Compliant to CFR47, Part 15, Subpart B, Class B limits **Canada:** 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
	Europe: 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
	Australia and New Zealand: RCM Mark, Australia/NZ emissions compliant

These performance specifications are nominal and confirm 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.

