Code No. LIT-1901075
Issued April 2018

A52x Series Electronic Refrigeration Controller with Adaptive Defrost Catalog Page

Description

The A52x Electronic Refrigeration Controller with Adaptive Defrost (A52x Controller) provides refrigerated space control and defrost control for medium and low-temperature refrigeration applications. The A525 Controller has five line-voltage relays to control the compressor, defrost functions, high and low speed evaporator fans, and user-provided alarms. The controller can also control resistive heat, hot-gas bypass, off-cycle defrost, and two-speed evaporator fans. The adaptive defrost feature adjusts the defrost schedule to the minimum number of defrost intervals required to maintain peak efficiency, save energy, and maintain consistent space temperature. The A52x Controller has an IP65 enclosure with holes in the enclosure base for wall-surface mounting. An optional DIN Rail mounting kit (Part No. BKT524-1K) is also available. Refer to the A52x Series Electronic Refrigeration Controller with Adaptive Defrost Product Bulletin (LIT-12012987) for important product application information.

Applications

The A52x Controller is designed for single condenser evaporator refrigeration systems such as walk-in coolers and freezers.

Features and Benefits

- **Plain Language Programming**—Displays a scrolling alpha-numeric message system that tells you what you need to program.
- **Adaptive or Time-Based Defrost**—Offers you a choice between a conventional time-based defrost or the more advanced adaptive defrost that learns and automatically adjusts the defrost schedule of your system to improve efficiency.
- **Meets Title 24 Evaporator Fan Efficiency Standards**—Allows you to program the system to determine when to operate the fan at high-speed, low-speed, or when the fan should be set to off. This provides better air circulation in the conditioned space and meets energy efficiency standards.
- **Complete Integration with PENN Quick Response Expansion Valve and Precision Superheat Controller—**Allows you to adjust the Superheat levels for optimal efficiency and to select the type of refrigerant that you want the system to use.
- **Alarming—**Allows you to program the A52x Controller for high temperature conditions, low temperatures, door open, man-in-room, refrigeration leaks, high system pressure, low pressure, and sensor failures. The system displays each failure in plain language to avoid confusion about the cause of an alarm.
- **Reporting and Recording**—Automatically records temperature at desired intervals. This feature improves food safety and allows you to create reports showing that food is stored 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 operating firmware when new versions are available.

Repair Information

Do not attempt to repair the A52x Refrigeration Controller. If you have a defective or improperly functioning controller, contact your nearest authorized Johnson Controls/PENN Distributor or Sales Representative with the A52x Controller model number. The A52x Controller model number is on the label on the inside cover of the controller.

A52x Electronic Refrigeration Controller with Adaptive Defrost (A52x Controller)

Ordering Information

Each A52x Controller includes two Johnson Controls/PENN® A99B Series Temperature Sensors. Refer to the A99B Series Temperature Sensors Product Technical Bulletin (LIT-125186) for detailed installation procedures and technical specifications. See the following Accessories table to order accessories for the A52x Controllers. Refer to the A99B Series Temperature Sensors Product/Technical Bulletin (LIT-125186) or contact your nearest Johnson Controls/PENN distributor or sales representative for more information about A99B Temperature Sensors.

Selection Charts

A52x Electronic Refrigeration Controller with Adaptive Defrost

Product Code	Description
A525AEDN-0203C	Line voltage, IP65 enclosure, single or two speed evaporator fan, 6-1/2 ft (2 m) and 9-3/4 ft (3 m) sensor leads
A524AEDN-0203C	Line voltage, IP65 enclosure, single speed evaporator fan, 6-1/2 ft (2 m) and 9-3/4 ft (3 m) sensor leads

Accessories for the A52x Controller

Product Code	Description
BKT287-1R	305 mm (12 in.) section of 35 mm DIN rail
BKT524-1K	Bracket for mounting A52x Controller to 35 mm DIN rail, includes five mounting screws

Technical Specifications

A52x Electronic Refrigeration Controller with Adaptive Defrost	
Product	A524/A525
Power Consumption	1.8 VA maximum
Supply Power	84 VAC to 260 VAC, 50/60 HZ, 10 VA maximum
Ambient Conditions	**Operating:** 30C°–60C° (-22F°–140F°), 0 to 95% RH non-condensing **Shipping and Storage:** -40C°–85C° (-40F°–185F°), 0 to 95% RH non-condensing
Temperature Sensing	-40C°–50C° (-40F°–122F°)

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A52x Electronic Refrigeration Controller with Adaptive Defrost	
Input Signal (Sn1 and Sn2)	1,035 ohms at 25°C (77°F) for A99B PTC temperature sensors 10,000 ohms at 25°C (77°F) for TS-6340 NTC temperature sensors
Input Signal (UI 4 and UI 5)	0–10 VDC input for leak detector status or dry contact binary input with a switch wired between terminals UI4 or UI5 and a common (C) terminal
HVBIN Signal	120 VAC or 240 VAC
Sensor Offset Range	±3ºC or ±5ºF
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	**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 (2014/30/EU) and Low Voltage Directive (2014/35/EU); RoHS Directive (2011/65/EU)
	Australia and New Zealand: RCM Mark, Australia/NZ emissions compliant