System 450 Reset Control Modules with Real-Time Clock and Relay Output Catalog Page

LIT-1900658

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Description

System 450™ is a family of modular, digital electronic controls that is easily assembled and set up to provide reliable temperature, pressure, and humidity control for a wide variety of HVAC/R applications, commercial process applications, and industrial process applications.

The System 450 control system is designed to replace System 350™ and System 27 control systems, and to provide many additional features and benefits with fewer than twenty model variations.

System 450 control modules provide a field-configurable out-of-the-box solution. Most System 450 control modules can control temperature, pressure, and humidity systems simultaneously.

A single C450 control module can be set up as a stand-alone control or connected to expansion modules to control up to ten On/Off relay and proportional analog outputs, based on any of the three available inputs.

System 450 reset control modules provide many of the features of the standard models for temperature and humidity control. In addition, these modules provide setpoint reset, real-time setback scheduling, and run-time balancing (equal run time) capability.

Refer to the following documents for important product application information:

- *System 450™ Series Modular Controls Product Bulletin (LIT-12011458)*
- *System 450™ Series Modular Control Systems with Reset Control Modules Technical Bulletin (LIT-12011842)*
- *System 450™ Series Reset Control Modules with Real-Time Clock and Relay Output Installation Instructions (Part No. 24-7664-2888)*

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Features and Benefits

Durable, Compact, Interchangeable Modular Components with Plug-Together Connectors and DIN Rail or Direct Wall Mount Capability

Eliminate field wiring between modules and allow you to quickly and easily design, assemble, install, and upgrade your control systems.

Versatile, Multipurpose, Field-Configurable Control Modules and Expansion Modules Designed for Global Use

Allow you to create a wide variety of application-specific control systems capable of controlling temperature, pressure, or humidity, or all three conditions simultaneously, with only a small suite of module models.

Control Modules with Bright Backlit LCDs and Four-Button Touchpad User Interfaces, Up to Three Hard-Wired Input Sensors and Up to Ten Relay or Analog Outputs (In Any Combination) per Control System

Provide quick, clear, visual status of your System 450 control system inputs and outputs with the touch of a button and enable you to quickly and easily set up and adjust your control system.

Multipurpose, All-in-One Control Modules

Enable simple stand-alone, single-module control systems that are temperature, pressure, and humidity capable out of the box and easy to set up in the field to replace a wide variety of OEM HVAC/R and process controls.

An Extensive Suite of Compatible Temperature and Humidity Sensors and Pressure Transducers

Allows you to monitor and control a wide range of HVACR and process conditions in a variety of standard and global units of measurement.

High Input Signal Selection

Enables your control system to monitor a temperature, pressure, or humidity condition with two or three sensors (of the same type) and control your system outputs based on the highest condition value sensed by the referenced sensors.

Differential Control

Enables your control system to monitor and maintain a temperature, pressure, or humidity differential between two sensor points within a system, process, or space.

Reset Control Features

- Adjustable minimum and maximum setpoint temperatures (reset control modules only) enable compliance with the manufacturer's specifications for your controlled HVAC/R and process equipment.
- Selectable shutdown-high and shutdown-low temperature settings (reset control modules only) saves you energy by shutting down controlled equipment when the ambient temperature either rises or drops to a point where heating or cooling is no longer required.
- Real time clock and adjustable setback temperature (reset control modules only) save you energy by setting back heating, cooling, or humidity setpoints during scheduled unoccupied periods (24-hour day, 7-day week schedule).
- User-defined reset control capability (reset control modules only) saves you energy in a wide variety of temperature and humidity reset control applications by adjusting the temperature or humidity control loop, based on changes in ambient outdoor temperature or other uncontrolled condition.

Repair Information

If the System 450 reset control module fails to operate within its specifications, replace the unit. For a replacement System 450 reset control module, contact the nearest Johnson Controls® representative.

Selection Chart

Refer to the *System 450 Compatible Sensors, Transducers, and Accessories Catalog Page (LIT-1900662)* for temperature sensors and humidity sensors compatible with the System 450 reset control modules. Reset control modules control temperature and humidity, but not pressure.

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Table 1: Reset System 450 Modules and Accessories Ordering Information

Product Code Number	Product Description
C450RBN-3C	Reset Control Module with LCD, Four-Button Touchpad UI, and SPDT relay output; provides one SPDT output relay. One A99BC-25C temperature sensor with 0.25 m (9-1/4 in.) silicon leads and one A99BC-300C temperature sensor with 3 m (9 ft 10 in.) silicon leads are included in the box with the Reset Control Module.
C450RCN-3C	Reset Control Module with LCD, Four-Button Touchpad UI, and SPDT relay output; provides two SPDT output relays. One A99BC-25C temperature sensor with 0.25 m (9-1/4 in.) silicon leads and one A99BC-300C temperature sensor with 3 m (9 ft 10 in.) silicon leads are included in the box with the Reset Control Module.
BKT287-1R	DIN Rail; 0.30 m (12 in.) long
BKT287-2R	DIN Rail; 1 m (39-1/3 in.) long
BKT287-3R	DIN Rail; 0.61 m (24 in.) long
BKT287-4R	DIN Rail; 0.36 m (14 in.) long
PLT344-1R	DIN Rail End Clamps (Two clamps)
WHA-C450-100C	System 450 module connection extension cable, 100 cm (3.3 ft) long

Technical Specifications

Table 2: C450RBN-3C and C450RCN-3C Reset Control Modules with Real-Time Clock and Relay Output Technical Specifications

Specification	Description
Product	C450RBN-3C and C450RCN-3C: System 450 Reset Control Module models are sensing controls and operating controls with LCD, four-button touchpad, and SPDT relay output C450RBN-3C: Control Module with one SPDT output relay C450RCN-3C: Control Module with two SPDT output relays
Power Consumption	C450RBN-3C: 0.9 VA maximum C450RCN-3C: 1.3 VA maximum
Supply Power	Internal Supply Power: C450YNN-1C Power Supply Module External Supply Power: 24 VAC (20 to 30 VAC) Safety Extra-Low Voltage (SELV) (Europe), Class 2 (North America), 50/60 Hz, 10 VA minimum ⓘ **Note:** A System 450 control module or module assembly can use an internal or an external supply power source, but must not be connected to both simultaneously.

Table 2: C450RBN-3C and C450RCN-3C Reset Control Modules with Real-Time Clock and Relay Output Technical Specifications

Specification	Description
Ambient Operating Conditions	Temperature: -40 to 66°C (-40 to 150°F) Humidity: Up to 95% RH noncondensing; maximum dew point 29°C (85°F)
Ambient Shipping and Storage Conditions	Temperature: -40 to 80°C (-40 to 176°F) Humidity: Up to 95% RH noncondensing; maximum dew point 29°C (85°F)
Input Signal	0 to 5 VDC for humidity sensors 1,035 ohms at 25°C (77°F) for A99 PTC temperature sensors
Output Relay Contacts	**General:** 1/2 HP at 120/240 VAC, SPDT
	Specific: AC Motor Ratings 120 VAC • AC Full-Load Amperes: 9.8 A • AC Locked-Rotor Amperes: 58.8 A 208/240 VAC • AC Full-Load Amperes: 4.9 A • AC Locked-Rotor Amperes: 29.4 A 10 Amperes AC Non-inductive at 24 / 240 VAC Pilot Duty: 125 VA at 24 / 240 VAC
Clock Accuracy	±4 minutes per year
Clock Backup Power	12 hours (capacitor reserve)
Setback Events	One occupied and one unoccupied event per day; 7 day schedule
Analog Input Accuracy	Resolution: 14 bits
Control Construction	Independently mounted control, surface mounted with Lexan® 950 enclosure suitable for DIN rail mounting or direct mounting to a hard, even surface.
Dimensions (H x W x D)	127 x 61 x 61 mm (5 x 2-3/8 x 2-3/8 in.)
Weight	C450RBN-3C: 209 g (0.46 lb) C450RCN-3C: 222 g (0.49 lb)
Compliance	**United States:** cULus Listed; UL 60730-1, File E27734; FCC Compliant to CFR47, Part 15, Subpart B, Class B

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Table 2: C450RBN-3C and C450RCN-3C Reset Control Modules with Real-Time Clock and Relay Output Technical Specifications

Specification	Description
	Canada: cULus Listed; CAN/CSA-E60730-1, File E27734; Industry Canada (IC) Compliant to Canadian ICES-003, Class B limits
CE	**Europe:** CE Mark – Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
	Australia and New Zealand: RCM mark, Australia/NZ Emissions Compliant

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

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. Your use of this product constitutes an agreement to such terms.

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Contact information

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