

CH-PCV Programmable VAV Box Controllers for the BCM System Catalog Page

CH-PCV1617-0, CH-PCV1632-0

Code No. LIT-1901021
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CH-PCVs are programmable, digital controllers tailored for controlling VAV boxes.

The CH-PCV controllers feature an integral digital pressure sensor, an integral damper actuator, and a 32-bit microprocessor. The controllers' small package size facilitates quick field installation and efficient use of space, while not compromising high-tech control performance.

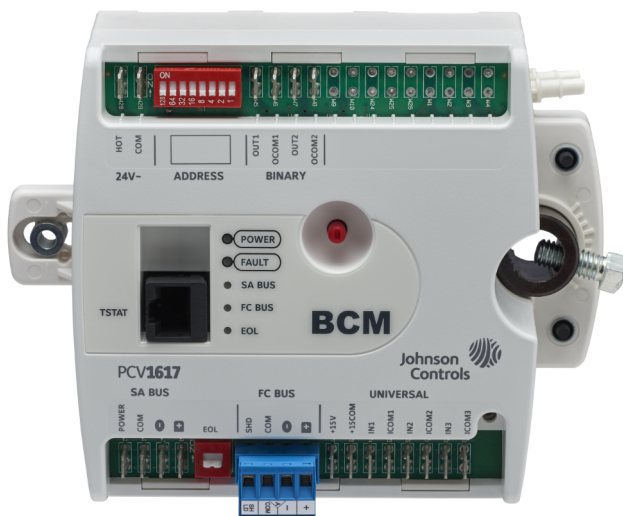
These features make the CH-PCV the product of choice for VAV box control. The wide variety of both communicating and non-communicating room sensor models provides options for measuring and displaying zone temperature, occupancy detection, duct temperature, zone humidity and dew point determination, carbon dioxide (CO₂) level, setpoint adjustments, VAV box fan speed control, and discharge air temperatures.

The CH-PCV1617 models are designed for cooling only VAV box control applications, while the CH-PCV1632 models are better suited for cooling with reheat VAV and fan control applications.

Refer to the *CH-PC Series Programmable Controllers and Related Products for Building Control Management (BCM) System Product Bulletin (LIT-12011914)* for product application details and single point of contact information.

If the product fails to operate within its specifications, replace the product. For a replacement product, contact the nearest Johnson Controls® representative.

Figure 1: CH-PCV1617 Controller



Features

- Standard Protocol with BTL Listing—Provides interoperability with Johnson Controls® and third-party Building Automation System (BAS) products that use the widely accepted BACnet® standard.
- Standard Hardware and Software Platform—Uses a common hardware design throughout the family line to support standardized wiring practices and installation workflows. Also uses a common software design to support use of a single tool for control applications, commissioning, and troubleshooting to minimize technical training.
- State-Based Application Control Logic with Adaptive, Automatically Tuned Control Loops—Prevents simultaneous heating and cooling, reduces commissioning time, eliminates change-of-season re-commissioning, and reduces wear and tear on mechanical devices.
- Universal Inputs—Allow multiple signal options per channel to provide input flexibility.
- Complete Product Family with Modular Components—Meets any HVAC equipment or building system control requirement using only the needed components.
- Three universal inputs that allow an increased number of low cost sensor options.
- A state-of-the-art, digital non-flow pressure sensor to provide 14-bit resolution with bidirectional flow operation that supports automatic correction for polarity on high- and low-pressure DP tube connections. This pressure sensor eliminates high- and low-pressure connection mistakes.
- A fast response actuator that drives the damper from full open to full closed (90°) in 60 seconds to reduce commissioning time.

Table 1: CH-PCV Series Point Type Counts Per Model

Point Types	Signals Accepted	CH-PCV1617	CH-PCV1632
Modular Jacks		8-pin SA Bus supports analog non-communicating sensor	
Universal Input (UI)	Analog Input, Voltage Mode, 0–10 VDC Analog Input, Resistive Mode, 0–2k ohm, RTD (1k NI [Johnson Controls], 1k PT, A998 SI), NTC (10k Type L, 2.252k Type 2) Binary Input, Dry Contact Maintained Mode	3	3
Binary Output (BO)	24 VAC Triac	2	3
Configurable Output (CO)	Analog Output, Voltage Mode, 0–10 VDC Binary Output Mode, 24 VAC Triac		2
Integrated Actuator	Internal	1	1
Integrated Flow Sensor	Internal	1	1
Zone Sensor Input	On SA Bus	Up to 4 NS Series Network Zone Sensors	

Table 2: CH-PCV Series Ordering Information

Product Code Number	Description
CH-PCV1617-0	Includes 8-pin TSTAT Port for use with TE-7xx Series Non-Communicating Sensors
CH-PCV1632-0	32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus, Includes 8-pin TSTAT Port for use with TE-7xx Series Non-Communicating Sensors

Accessories

Table 3: CH-PC Family Accessories (Order Separately)

Product Code Number	Description
FX-ATV7003-0	Handheld VAV Box Balancing Tool
NS Series Sensors	NS Series Network Sensors: Refer to the <i>NS Series Network Sensors Product Bulletin (LIT-12011574)</i> for specific sensor model descriptions.
Y64T15-0	Transformer, 120/208/240 VAC Primary to 24 VAC Secondary, 92 VA, Foot Mount, 30 in. Primary Leads and 30 in. Secondary Leads, Class 2
Y65A13-0	Transformer, 120 VAC Primary to 24 VAC Secondary, 40 VA, Foot Mount (Y65AS), 8 in. Primary Leads and 30 in. Secondary Leads, Class 2
Y65T42-0	Transformer, 120/208/240 VAC Primary to 24 VAC Secondary, 40 VA, Hub Mount (Y65SP+), 8 in. Primary Leads and Secondary Screw Terminals, Class 2
Y65T31-0	Transformer, 120/208/240 VAC Primary to 24 VAC Secondary, 40 VA, Foot Mount (Y65AR+), 8 in. Primary Leads and Secondary Screw Terminals, Class 2
AP-TBK1002-0	2-Position Screw Terminal that Plugs onto CH-PCV Output Point Spade Lug
AP-TBK1003-0	3-Position Screw Terminal that Plugs onto CH-PCV Output Point Spade Lugs
AP-TBK4SA-0	Replacement MS/TP SA Bus Terminal, 4-Position Connector, Brown (Bulk Pack of 10)
AP-TBK4FC-0	Replacement MS/TP FC Bus Terminal, 4-Position Connector, Blue (Bulk Pack of 10)
AP-TBK3PW-0	Replacement Power Terminal, 3-Position Connector, Gray (Bulk Pack of 10)
AS-CBLVMA-1	Cable Adapter, 8-Pin Female Socket to 6-Pin Male Jack (Bulk Pack of 10)
AS-CBLVMA-2	Cable Adapter, 8-Pin Female Socket to 8-Pin Male Jack with 6-Pin Female Socket for Wireless Commissioning Converter (Bulk Pack of 10)
MS-TBKLV03-0	Terminal Block Kit - CH-PCA Line Voltage AC Power - 3 Pieces
MS-TBKRO02-0	Terminal Block Kit -CH-PCA 2-Position Relay Output - 9 Pieces
MS-TBKRO03-0	Terminal Block Kit - CH-PCA 3-Position Relay Output - 6 Pieces
MS-TBKCO04-0	Terminal Block Kit - CH-PCA 4-Position Configurable Output - 6 Pieces
MS-TBKUI04-0	Terminal Block Kit - CH-PCA 4-Position Universal Input - 3 Pieces
MS-TBKUI05-0	Terminal Block Kit - CH-PCA 5-Position Universal Input - 3 Pieces
CH-PCVACT-701	Actuator Assembly Gearbox Replacement Kit for CH-PCV1615-0, CH-PCV1617-0, CH-PCV1630-0, CH-PCV1632-0, and CH-PCV1832-0
NS-WALLPLATE-0	Network Sensor Wall Plate

Table 4: CH-PCV Series Technical Specifications

Product Code Numbers	CH-PCV1617-0: 32-bit, Integrated VAV Controller, Actuator, Pressure Sensor, 3 UI and 2 BO, 24 VAC; FC and SA Bus; also includes 8-pin TSTAT Port for use with TE-7xx Series Non-Communicating Sensors CH-PCV1632-0: 32-bit, Integrated VAV Controller, Actuator, DPT, 3 UI, 3 BO, 2 CO, 24 VAC; FC and SA Bus; also includes 8-pin TSTAT Port for use with TE-7xx Series Non-Communicating Sensors
Supply Voltage	24 VAC (nominal, 20 VAC minimum/30 VAC maximum), 50/60 Hz, Power Supply Class 2 (North America), Safety Extra-Low Voltage (SELV) (Europe)
Power Consumption	10 VA typical, 14 VA maximum Note: VA rating does not include any power supplied to the peripheral devices connected to Binary Outputs (BOs) or Configurable Outputs (COs), which can consume up to 12 VA for each BO or CO, for a possible total consumption of an additional 60 VA (maximum).
Ambient Conditions	Operating: 0 to 50°C (32 to 122°F) Storage: -40 to 70°C (-40 to 158°F)
Terminations	CH-PCV1617 and CH-PCV1632: Inputs/Outputs, SA Bus, and Supply Power: 6.3 mm (1/4 in.) Spade Lugs FC Bus Pluggable Screw Terminal Block TSTAT Modular Port: RJ-45 8-Pin Modular Jack
Controller Addressing	BACnet/MSTP DIP switch set; valid controller device addresses 4–127 (Device addresses 0–3 and 128–255 are reserved and not valid controller addresses.)
Communications Bus	RS-485 3-wire FC Bus between the supervisory controller and CH-PC 4-wire SA Bus from the CH-PCV controller, NS Series Network Sensors, and other sensor/actuator devices, includes a terminal to source 15 VDC supply power from CH-PCV to SA Bus devices.
Processor	RX630 32-bit Renesas microcontroller
Memory	1 MB Flash Memory and 512 KB RAM
Analog Input/Analog Output Accuracy	Analog Input: 15-bit resolution on UIs Analog Output: 0–10 VDC ± 200 mV
Air Pressure Differential Sensor	Range: -1.5 in. to 1.5 in. W.C. Performance Characteristics: Accuracy: ±0.75% Full Span Maximum (±0.0225 in. W.C.) Typical accuracy at zero (null) pressure is ±0.003 in. W.C.
Mounting	Mounts to damper shaft using single set screw and to duct with single mounting screw.
Actuator Rating	4 N•m (35 lb•in.) minimum shaft length = 44 mm (1-3/4 in.)
Dimensions	(Height x Width x Depth): 165 x 125 x 73 mm (6.5 x 4.92 x 2.9 in.) Center of Output Hub to Center of Captive Spacer: 135 mm (5-5/16 in.)
Weight	0.65 kg (1.45 lb)
Compliance	United States: UL Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment; FCC Compliant to CFR47, Part 15, Subpart B, Class A Canada: UL Listed, File E107041, CCN PAZX7, CAN/CSA C22.2 No. 205, Signal Equipment; Industry Canada Compliant, ICES-003 Europe: CE Mark – Johnson Controls, Inc. 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 BACnet International: BACnet Testing Laboratories (BTL) Protocol Revision 7 Listed BACnet Application Specific Controller (B-ASC)



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