

FX-PCV Programmable VAV Box Controller Series

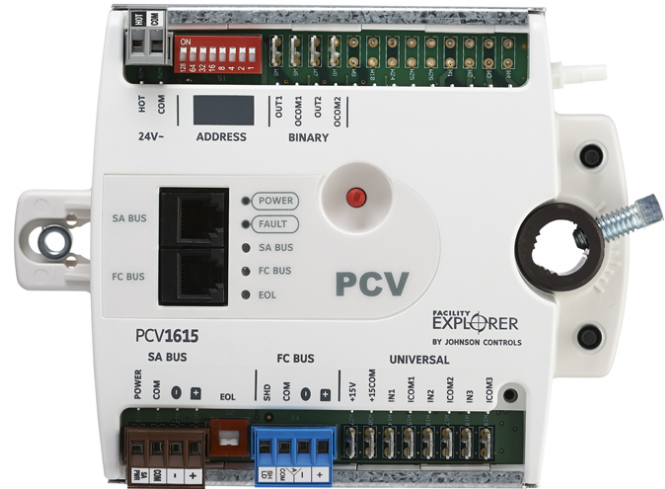
FX-PCVs are programmable digital controllers tailored for VAV applications that can be switched between MS/TP and N2 Communications protocols. When they are used as MS/TP devices, they communicate through the BACnet® MS/TP protocol. In N2 mode, they can be used as replacements for legacy Johnson Controls® controllers.

- ① **Note:** When replacing a VMA1400 Series controller on an existing N2 network, the FX-PCV18 Series controller is the preferred device because certain existing sensor models can be reused. FX-PCV18 controllers are intended for use as functional replacements for the VMA1410, VMA1415, VMA1420, and VMA1440 controllers only. FX-PCV18 controllers support field-selectable BACnet MS/TP or N2 protocols.

The FX-PCV1930 programmable controller uses BACnet/IP networking for higher speed communication with the Controller Configuration Tool (CCT) and improved bandwidth. This gives you more flexibility in choosing controllers for your site's specific needs.

The FX-PCV1615 and FX-PCV1930 controllers feature an integral digital differential pressure transducer (DPT), 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 controllers easily adapt NS Series Network Sensors for zone and discharge air temperature sensing.

Figure 1: FX-PCV1615 Controller



The FX-PCV1626 Controller is shipped with an actuator but without a differential pressure transducer (DPT), making the controller well suited for commercial zoning applications or for pressure-dependent VAV box applications where no DPT is required.

The FX-PCV1656 controller is shipped without a differential pressure transducer but with an integrated actuator and ball valve linkage. This controller is for use on the Johnson Controls VG-1000 1/2 to 1 inch valves and needs to be used primarily as a replacement for the FX-PCV assembly of the VG-1000 Series Smart Valve product. The smart valve product line is ideal for chilled beam applications.

The FX-PCV1628 includes a DPT but does not have an actuator. Without an actuator, this controller is well suited for controlling large VAV boxes that require more than 4 N•m of torque.

These features make the FX-PCV16 controllers the product of choice for VAV systems. The wide variety of network sensor models provides options for measuring and displaying zone temperature, occupancy detection, duct temperature, zone humidity and dewpoint determination, carbon dioxide (CO2) level, setpoint adjustments, VAV box fan speed control, and discharge air temperatures.

The FX-PCV18 models are designed to be functional replacements for the VMA14xx Series Variable Air Volume Modular Assembly Controllers. They contain a sensor bus port and accessories well suited for replacing VMA14xx Controllers.

Application documentation

Refer to the *FX-PC Series Programmable Controllers and Related Products Product Bulletin (LIT-12011657)* for product application details and single point of contact information.

Features and benefits

Standard BACnet Protocol

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

Allow an increased number of low cost sensor options.

A State-of-the-Art, Digital Non-Flow Pressure Sensor

Provides 14-bit resolution with bi-directional flow operation that supports automatic

correction for polarity on high- and low-pressure DP tubeconnections. This pressure sensor eliminates high- and low-pressure connection mistakes.

A fast response actuator

Drives the damper from full open to full closed (90°) in 60 seconds to reduce commissioning time.

FX-ZFR Wireless Field Controller (FC) or Sensor/Actuator (SA) Bus Interface

Both the FX-ZFR1800 Series Wireless and WNC1800/FX-ZFR182x Pro Series Wireless Field Bus (FX-ZFR Pro) provide a wireless alternative to hard-wired system counterparts, offering application flexibility and mobility with minimal disruption to building occupants.

Wireless Field Controller (FC)/Sensor/Actuator (SA) Bus Interface (where available)

Provides a wireless alternative to hard-wired field bus networking and sensor connections, providing application flexibility, mobility, and minimal disruption to building occupants.

Bluetooth® Wireless Commissioning Interface

Provides an easy-to-use connection to the configuration and commissioning tool.

Auto-Tuned Control Loops

Reduce commissioning time, eliminate change-of-season re-commissioning, and reduce wear and tear on mechanical devices.

Universal Inputs and Configurable Outputs

Allow multiple signal options per channel to provide input/output flexibility.

Optional Local User Interface Display

Allows convenient monitoring and adjusting capabilities at the local device.

BACnet Testing Laboratories™ (BTL) Listing

Ensures interoperability with other BTL-listed devices. BTL is a third-party agency which validates that BAS vendor products meet the BACnet industry-standard protocol.

32-bit Microprocessor

Ensures optimum performance and meets industry specification.

BACnet Automatic Discovery support

Enables easy controller integration

Integral end-of-line (EOL) switch

MS/TP Field Controllers have an integral end-of-line (EOL) switch that enables field controllers to be terminating devices on the communications bus

Troubleshooting

Pluggable communications bus and supply power terminal blocks expedite installation and troubleshooting.

Writable Flash Memory

Allows standard or customized applications to be downloaded from the CCT and enables persistent application data.

DPT Feature

Models that include a DPT feature a state-of-the-art digital non-flow DPT 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.

Fast Response Actuator

Models that include actuators feature a fast response actuator that drives the damper from full open to full closed (90°) in 60 seconds to reduce commissioning time.

FX-PCV Series point type counts per model

Table 1: FX-PCV Series point type counts per model

		FX-PCV 1615	FX-PCV 1626	FX-PCV 1628	FX-PCV 1656	FX-PCV 1930
Communication Protocol		BACnet MS/TP, N2				BACnet/IP
Modular Jacks		6-pin SA Bus with four communicating sensors and 6-pin FC Bus for tool support				
		6-pin FC Bus for tool support				
Point Types	Signals Accepted					
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)	3	3	3	3	3
	Binary Input, Dry Contact Maintained Mode					
Binary Output (BO)	24 VAC Triac	2	3	3	3	3
Configurable Output (CO)	Analog Output, Voltage Mode, 0–10 VDC		2	2	2	2
	Binary Output Mode, 24 VAC Triac					
Integrated Actuator	Internal	1	1		1 with ball valve linkage	1
Integrated Flow Sensor	Internal	1		1		1
Zone Sensor Input	On SA Bus ¹	Up to 4 NS Series Network Zone Sensors				
		Up to 9 FX-WRZ sensors when using the FX-ZFR or FX-ZFR Pro Series wireless router configuration and up to 5 WRZ sensors when using the one-to-one FX-WRZ78xx wireless configuration				

¹ A total of 10 MS/TP master addresses (FX-PCXs), not including sensor addresses (MS/TP), can be used in a single FX-PCV controller.

Table 2: FX-PCV18 Series point type counts per model

Point types	Signals accepted	FX-PCV1826	FX-PCV1832
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	3	3
Configurable Output (CO)	Analog Output, Voltage Mode, 0–10 VDC Binary Output Mode, 24 VAC Triac	2	2
Integrated Actuator	Internal	1	1
Differential Pressure Transducerb	Internal		1
Zone Sensor Input	On SA Bus ¹	Up to 4 NS Series Network Zone Sensors Up to 9 FX-WRZ sensors when using the FX-ZFR or FX-ZFR Pro Series wireless router configuration and up to 5 FX-WRZ sensors when using the one-to-one FX-WRZ78xx wireless configuration	

¹ A total of 10 MS/TP master addresses (FX-PCXs), not including sensor addresses (MS/TP), can be used in a single FX-PCV controller.

Repair information

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

FX-PCV Series ordering information

Table 3: FX-PCV Series ordering information

Product code number	Description
FX-PCV1615-1	32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI and 2 BO; 24 VAC; FC Bus, and SA Bus
FX-PCV1626-1	32-bit, Integrated VAV Controller and Actuator, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus (No DPT)
FX-PCV1628-1	32-bit, Integrated VAV Controller and DPT, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus (No Actuator)

Table 3: FX-PCV Series ordering information

Product code number	Description
FX-PCV1630-1	32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus
FX-PCV1630-1G	Buy American. Integrated VAV Box Controller, Actuator and Pressure Sensor: 3 UI, 3 BO and 2 CO, 24 VAC; FC and SA Bus, non-isolated power supply
FX-PCV1656-1	32-bit, Integrated VAV Controller and Actuator, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus, Integrated Ball Valve Linkage
FX-PCV1826-1	32-bit, Integrated VAV Controller and Actuator, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus; Includes cable adapters for use when replacing VMA14xx Series controllers. Recommended replacement for VMA1440 controller (No DPT)
FX-PCV1832-1	32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI and 2 BO; 24 VAC; FC Bus, and SA Bus includes cable adapters for use when replacing VMA14xx Series controllers. Recommended replacement for VMA1410, VMA1415, or VMA1420 controller.
FX-PCV1930-0	32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI, 3 BO, and 2 CO; 24 VAC; and SA Sensor Port; Integral Real-time Clock; 2 Ethernet Ports for BACnet/IP Network Communications

Accessories

Table 4: FX-PC Family accessories (order separately)

Product code number	Description
FX-DIS1710-0	Local Controller Display. Text only available in English.
FX-BTCVT-1	Bluetooth® Commissioning Converter
TL-BRTRP-0	Portable BACnet/IP to MS/TP Router
FX-ATV7003-0	Handheld VAV Box Balancing Tool
FX-ZFR1810-1	Wireless Field Bus Coordinator, 10 mW Transmission Power. Functions with FX Supervisory Controllers.
FX-ZFR1811-1	Wireless Field Bus Router, 10 mW Transmission Power. Functions with FX-PC controllers and FX-WRZxxx Series Wireless Sensors

Table 4: FX-PC Family accessories (order separately)

Product code number	Description
FX-ZFR1812-1	Wall-mount Wireless Field Bus Router, 10 mW Transmission Power. Functions with BACnet FX-PC controllers and FX-WRZ Series Wireless Mesh Room Sensors.
FX-ZFRCBL-0	Wire Harness which allows an FX-PCV1610/1620 to be connected to an SA Bus device (Bluetooth Commissioning Converter, Local Controller Display, or NS Series Sensor) when its SA Bus RJ-12 jack is occupied by an FX-ZFR1811 router.
FX-BTCVTCBL-700	Cable Replacement Set for the FX-BTCVT-1 or the FX-ATV7003-0; Includes One 5 ft (1.5 m) Retractable Cable
FX-WRZ Series Wireless Sensors	FX-WRZ Series Wireless Sensors: Refer to the <i>FX-WRZ Series Wireless Room Sensors Product Bulletin (LIT-12011687)</i> for specific sensor model descriptions.
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.

Table 4: FX-PC Family accessories (order separately)

Product code number	Description
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 FX-PCV Output Point Spade Lug
AP-TBK1003-0	3-Position Screw Terminal that Plugs onto FX-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 - FX-PCA Line Voltage AC Power - 3 Pieces

Table 4: FX-PC Family accessories (order separately)

Product code number	Description
MS-TBKRO02-0	Terminal Block Kit -FX-PCA 2-Position Relay Output - 9 Pieces
MS-TBKRO03-0	Terminal Block Kit - FX-PCA 3-Position Relay Output - 6 Pieces
MS-TBKCO04-0	Terminal Block Kit - FX-PCA 4-Position Configurable Output - 6 Pieces
MS-TBKUI04-0	Terminal Block Kit - FX-PCA 4-Position Universal Input - 3 Pieces
MS-TBKUI05-0	Terminal Block Kit - FX-PCA 5-Position Universal Input - 3 Pieces
FX-PCVACT-701	Actuator Assembly Gearbox Replacement Kit for FX-PCV1615-0, FX-PCV1617-0, FX-PCV1630-0, FX-PCV1632-0, and FX-PCV1832-0
NS-WALLPLATE-0	Network Sensor Wall Plate
TE730-29C-0	Platinum 1k ohm Thin Film Resistive Temperature Sensor
TE730-39C-0	Platinum 1k ohm Thin Film Resistive Temperature Sensor with Integral Manual Occupancy Override Push Button
FX-WRZ7860-0	One-to-One ZigBee Wireless Receiver for Wireless Sensor Only Applications
FX-WRZSST-120	Wireless Sensing System Tool Kit

Table 4: FX-PC Family accessories (order separately)

Product code number	Description
ZFR-USBHA	<p>USB Dongle with ZigBee® Driver provides a wireless connection through CCT to allow wireless commissioning of the wirelessly enabled FX-PCA, FX-PCG, FX-PCV, and FX-PCX programmable controllers. Also allows use of the FX-ZFR Checkout Tool (FX-ZCT) in CCT.</p> <p>ⓘ Note: The ZFR-USBHA-0 replaces the IA OEM DAUBI_2400 ZigBee USB dongle. For additional information on the ZFR-USBHA-0 ZigBee dongle, refer to the <i>FX-ZFR Series Wireless Field Bus System Technical Bulletin (LIT-12011660)</i> or <i>FX-ZFR Series Wireless Field Bus System Quick Reference Guide (LIT-12011696)</i>.</p>

FX-PCV Series technical specifications

Table 5: FX-PCV Series technical specifications

<p>Product Code Numbers</p>	<p>FX-PCV1615-1: 32-bit, Integrated VAV Controller/Actuator/Pressure Sensor, 3 UI and 2 BO; 24 VAC; FC and SA Bus</p> <p>FX-PCV1626-1: 32-bit, Integrated VAV Controller and Actuator, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus (No DPT)</p> <p>FX-PCV1628-1: 32-bit, Integrated VAV Controller and DPT, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus (No Actuator)</p> <p>FX-PCV1630-1: 32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI, 3 BO, 2 CO; 24 VAC; FC and SA Bus</p> <p>FX-PCV1630-1G: Buy American. Integrated VAV Box Controller, Actuator and Pressure Sensor: 3 UI, 3 BO and 2 CO, 24 VAC; FC and SA Bus, non-isolated power supply</p> <p>FX-PCV1656-1: 32-bit, Integrated VAV Controller and Actuator, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus, Integrated Ball Valve Linkage (No DPT)</p> <p>FX-PCV1826-1: 32-bit, Integrated VAV Controller and Actuator, 3 UI, 3 BO, and 2 CO; 24 VAC; FC Bus, and SA Bus, with 8–9in TSTAT Port, Recommended for use as a replacement for VMA1440 (No DPT)</p> <p>FX-PCV1832-1: 32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI, 3 BO, 2 CO; 24 VAC; FC and SA Bus, with 8-pin TSTAT Port. Recommended for use as a replacement for VMA1410, VMA1415, or VMA1420</p> <p>FX-PCV1930-0: 32-bit, Integrated VAV Controller/Actuator/DPT, 3 UI, 3 BO, and 2 CO; 24 VAC; and SA Sensor Port; Integral Real-Time Clock; 2 Ethernet Ports for BACnet/IP Network Communications</p>
<p>Communications Protocol</p>	<p>FX-PCV16xx and FX-PCV18xx:BACnet MS/TP, N2 FX-PCV1930-0:BACnet/IP</p>
<p>Supply Voltage</p>	<p>24 VAC (nominal, 20 VAC minimum/30 VAC maximum), 50/60 Hz, Power Supply Class 2 (North America), Safety Extra-Low Voltage (SELV) (Europe)</p>
<p>Power Consumption</p>	<p>10 VA typical, 14 VA maximum</p> <p>ⓘ 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).</p>
<p>Ambient Conditions</p>	<p>Operating: 0°C to 50°C (32°F to 122°F); 10 to 90% RH noncondensing</p> <p>Storage: -40°C to 80°C (-40°F to 176°F); 5 to 95% RH noncondensing</p>

Table 5: FX-PCV Series technical specifications

<p>Terminations</p>	<p>FX-PCV1615, FX-PCV1626, FX-PCV1628, FX-PCV1630, and FX-PCV1656:</p> <p>Inputs/Outputs: 6.3 mm (1/4 in.) Spade Lugs</p> <p>FC Bus, SA Bus, and Supply Power: 4-Wire and 2-Wire Pluggable Screw Terminal Blocks</p> <p>FC and SA Bus Modular Ports: RJ-12 6-Pin Modular Jacks</p> <p>FX-PCV1832-0:</p> <p>Inputs/Outputs, SA Bus, and Supply Power: 6.3 mm (1/4 in.) Spade Lugs</p> <p>N2/FC Bus Pluggable Screw Terminal Block</p> <p>TSTAT Modular Port: RJ-45 8-Pin Modular Jack</p> <p>FX-PCV1930:</p> <p>Inputs/Outputs: 6.3 mm (1/4 in.) Spade Lugs</p> <p>SA Bus and Supply Power: 4-Wire and 2-Wire Pluggable Screw Terminal Blocks</p> <p>SA Bus Modular Ports: RJ-12 6-Pin Modular Jacks</p>
<p>Controller Addressing</p>	<p>For BACnet MS/TP-configured controllers: DIP switch set: valid field controller device addresses 4-127 (device addresses 0-3 and 128-255 are reserved)</p> <p>For BACnet/IP controllers: three rotary switches to assign a unique number for each controller on the subnet to identify it in the Controller Tool for uploading, downloading, and commissioning.</p> <p>For N2-configured controllers: DIP switch set; valid control device addresses 1-255</p>
<p>Communications Bus ¹</p>	<p>FX-PCV16xx and FX-PCV18xx models:</p> <p>RS-485, field selectable between BACnet MS/TP and N2 communications:</p> <p>N2/FC Bus: 1.5 mm (18 AWG) standard 3-wire, twisted, shielded cable recommended between the supervisory controller and field controllers</p> <p>BACnet MS/TP: 0.6 mm (22 AWG) stranded, 4-wire (2-twisted pairs) shielded cable recommended from the FX-PCV controller for network sensors and other sensor/actuator devices; includes a terminal to source 15 VDC supply power from FX-PCV to SA Bus devices</p> <p>FX-PCV1930-0:</p> <p>BACnet/IP: Two Ethernet ports; 10/100 Mbps; 8-pin RJ-45 connector</p>

Table 5: FX-PCV Series technical specifications

Processor	<p>FX-PCV16 (32-bit) and FX-PCV18 models: RX630 32-bit Renesas® microcontroller</p> <p>FX-PCV1930-0: RX63N 32-bit Renesas microcontroller</p>
Memory	<p>FX-PCV16 (32-bit) and FX-PCV18 models: 1 MB Flash Memory and 512 KB RAM</p> <p>FX-PCV1930-0: 16 MB serial flash memory and 8 MB of SDRAM</p>
Input and Output Capabilities	<p>FX-PCV1615-1:</p> <p>3 - Universal Input: Defined as 0–10 VDC, 4–20 mA, 0–600k ohm, or Binary Dry Contact</p> <p>2 - Binary Outputs: Defined as 24 VAC Triac (internal power source)</p> <p>FX-PCV1626-1, FX-PCV1628-1, FX-PCV1630-1, FX-PCV1630-1G, FX-PCV1656-1, FX-PCV1826-1, FX-PCV1832-1 and FX-PCV1930-0:</p> <p>3 - Universal Input: Defined as 0–10 VDC, 4–20 mA, 0–600k ohm, or Binary Dry Contact</p> <p>3 - Binary Outputs: Defined as 24 VAC Triac (internal power source)</p> <p>2 - Configurable Outputs: Defined as 0–10 VDC or 24 VAC Triac BO</p>
Analog Input/Analog Output Accuracy	<p>Analog Input: 15-bit resolution on UIs</p> <p>Analog Output: 0–10 VDC ± 200 mV</p>
Differential Pressure Transducer	<p>Range: -1.5 in. to 1.5 in. W.C.</p> <p>Performance Characteristics:</p> <p>Accuracy: ±0.75% Full Span Maximum ² (±0.0225 in. W.C.)</p> <p>Typical accuracy at zero (null) pressure is ±0.003 in. W.C. ³</p>
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	<p>(Height x Width x Depth): 165 mm x 125 mm x 73 mm (6.5 in. x 4.92 in. x 2.9 in.)</p> <p>Center of Output Hub to Center of Captive Spacer: 135 mm (5-5/16 in.)</p>
Weight	0.65 kg (1.45 lb)

Table 5: FX-PCV Series technical specifications

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 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: FX-PCV16xx and FX-PCV18 models: BACnet Testing Laboratories (BTL) Protocol Revision 7 Listed BACnet Application Specific Controller (B-ASC) FX-PCV1930-0: BACnet Testing Laboratories (BTL) Protocol Revision 12 Listed BACnet Advanced Application Controller (B-AAC) Pending



- 1 For more information, refer to the *FX-PC Series Controllers MS/TP Communications Bus Technical Bulletin (LIT-12011670)*.
- 2 Combined error due to calibration, accuracy, non-linearity, and temperature variation.
- 3 Includes error due to non-linearity

Conformance Disclaimer

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