
FX-PCA Advanced Application Programmable Controller

FX-PCA Series Controllers are programmable controllers that can communicate using BACnet®/IP, MS/TP, or N2 communications protocols, depending on the model. The FX-PCA4911 communicates using BACnet/IP communications protocol, and is a BACnet Advanced Application Controller (B-AAC). The other FX-PCA Series controllers can be switched between MS/TP and N2 Communications protocols and when used as MS/TP devices are BACnet Advanced Application Controllers (B-AACs).

FX-PCA Series Controllers can also operate as stand-alone controllers in applications that do not require a networked supervisory device or for network applications where it is preferred to have the scheduling, alarming, and/or trending performed locally in the field controllers.

The FX-PCA4911 communicates using BACnet/IP communications protocol, and is a BACnet Advanced Application Controller (B-AAC). The FX-PCA4911 controllers operate on BACnet/IP networks and integrate into Johnson Controls and third-party systems. The FX-PCA3611 model includes a fast persistence feature that allows data values to be held a configurable value, up to once per second. Persistence refers to how often samples of data are stored locally. In the event of a problem, such as a loss of power, data can be retrieved up to the rate that the data is persisted, minimizing the potential loss of data. When power is restored, previously persisted data, up to the rate of persistence, remains available and accessible. For example, if persistence is configured for once per second, you only risk losing one second of data. Persisting data may be essential for situations that require greater data accuracy, including certain methods of utility data collection and billing.

FX-PCA2612 controller models feature line-voltage relay outputs, making these controllers well suited for use in terminal units. The FX-PCA2612-2 model uses a line-voltage power supply, eliminating the need for a 24 VAC transformer in line-voltage applications.

Application documentation

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

Features and benefits

Standard BACnet Protocol

Provides interoperability with other 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.

ZigBee® 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

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, Configurable Outputs, and Point Expansion Modules

Allow multiple signal options to provide input/output flexibility.

BACnet Testing Laboratories™ (BTL) Listed

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 specifications.

End-of-Line (EOL) Switch in MS/TP Field Controllers

Enables field controllers to be terminating devices on the communications bus.

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 Controller Configuration Tool (CCT) and enables persistent application data.

Support for the FX-DIS17

Remote display for monitoring and commanding of I/O and configuration parameters

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-PCA series point type counts per model

Table1: FX-PCA Series point type counts per model

		FX-PCA2611	FX-PCA2612	FX-PCA3611	FX-PCA4911
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			
Point Types	Signals Accepted				
Universal Input (UI)	Analog Input, Voltage Mode, 0-10 VDC	6	5	8	10
	Analog Input, Current Mode, 4-20 mA				
	Analog Input, Resistive Mode, 0-2k ohm, RTD (1k NI [Johnson Controls], 1k PT, A99B SI), NTC (10k Type L, 2.25k Type 2)				
	Binary Input, Dry Contact Maintained Mode				
Binary Input (BI)	Dry Contact Maintained Mode	2	4	6	6
	Pulse Counter/Accumulator Mode (High Speed), 100 Hz				
Analog Output (AO)	Analog Output, Voltage Mode, 0-10 VDC	2		6	4
	Analog Current Mode, 4-20 mA				
Binary Output (BO)	24 VAC Triac	3		6	4
Configurable Output (CO)	Analog Output, Voltage Mode, 0-10 VDC	4	4		4
	Binary Output Mode, 24 VAC Triac				
Relay Output (RO)	Relay Output: Single-Pole, Double-Throw (SPDT)		2 - SPDT		
	Relay Output: Single-Pole, Single-Throw (SPST)				

FX-PCA Series ordering information

Table2: FX-PCA Series ordering information

Product code number	Description
FX-PCA2611-0	17-Point Advanced Application Programmable Controller with 6 UI, 2 BI, 4 CO, 3 BO, and 2 AO; 24 VAC; SA Bus; FC Bus; Integral Real-time Clock
FX-PCA2612-1	18-Point Advanced Application Programmable Controller with 5 UI, 4 BI, 4 CO, 2 SPDT RO, and 3 SPST RO; 24 VAC; SA Bus; FC Bus; Integral Real-time Clock
FX-PCA2612-2	18-Point Advanced Application Programmable Controller with 5 UI, 4 BI, 4 CO, 2 SPDT RO, and 3 SPST RO; 100–240 VAC; SA Bus; FC Bus; Integral Real-time Clock
FX-PCA3611-0	26-Point Advanced Application Programmable Controller with 8 UI, 6 BI, 6 BO, and 6 AO; 24 VAC; SA Bus; FC Bus; Integral Real-time Clock; Improved Fast Persistence
FX-PCA3611-0A ¹	26-Point Advanced Application Programmable Controller with 8 UI, 6 BI, 6 BO, and 6 AO; 24 VAC; SA Bus; FC Bus; Integral Real-time Clock
FX-PCA4911-0	28-Point Advanced Application Programmable Controller with 10 UI, 6 BI, 4 BO, 4 AO, and 4 CO; 24 VAC; SA Sensor Port; Integral Real-time Clock; 2 Ethernet Ports for BACnet/IP Communications

¹ This model is currently available only in Asia; contact your local Johnson Controls representative for more information.

Accessories

Table3: FX-PCA accessories

Product code number	Description
FX-DIS1710-0	Local display/keypad
FX-BTCVT-1	Bluetooth Commission Converter
TL-MAP 1810-0	Mobile Access Portal Gateway
TL-BRTRP-0	Portable BACnet/IP to MS/TP Router
FX-ZFR1812-1	Wall Mount Wireless Field Bus Router for use in ZFR1800 Wireless Field Bus System. For more information, refer to the <i>FX-ZFR Series Wireless Field Bus System Product Bulletin (LIT-12011686)</i> .
FX-WNC1800-xx	Wireless Network Coordinator (WNC) Gateway for use in FX-ZFR Pro Series Wireless Field Bus system.
FX-ZFR1821-x and FX-ZFR1822-x	FX-ZFR1821 or FX-ZFR1822 Pro Wireless Router/Repeater for use in FX-ZFR Pro Series Wireless Field Bus system. For more information refer to the <i>WNC1800/FX-ZFR182x Pro Series Wireless Field Bus System Product Bulletin (LIT-12012378)</i> .
FX-ZFR1820 and FX-ZFR1823	FX-ZFR1820 FX-ZFR1823 Pro Coordinator Radio for use in FX-ZFR Pro Series Wireless Field Bus system. For more information refer to the <i>WNC1800/FX-ZFR182x Pro Series Wireless Field Bus System Product Bulletin (LIT-12012378)</i> .

Table3: FX-PCA accessories

Product code number	Description
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
FX-BTCVTCBL-700	Cable Replacement Set for the FX-BTCVT-1 or the FX-ATV7003-0; Includes One 1.5 m (5 ft) 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.
Y64T15-0	Transformer, 120/208/240 VAC Primary to 24 VAC Secondary, 92 VA, Foot Mount, 76 cm (30 in.) Primary Leads and 76 cm (30 in.) Secondary Leads, Class 2
Y65A13-0	Transformer, 120 VAC Primary to 24 VAC Secondary, 40 VA, Foot Mount (Y65AS), 20 cm (8 in.) Primary Leads and 76 cm (30 in.) Secondary Leads, Class 2
Y65T42-0	Transformer, 120/208/240 VAC Primary to 24 VAC Secondary, 40 VA, Hub Mount (Y65SP+), 20 cm (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+), 20 cm (8 in.) Primary Leads and Secondary Screw Terminals, Class 2
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)
MS-TBKLV03-0	Terminal Block Kit - FX-PCA Line Voltage AC Power - 3 Pieces
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-WRZ7860-0	One-to-One ZigBee Wireless Receiver for Wireless Sensor Only Applications
FX-WRZSST-120	Wireless Sensing System Tool Kit

Table3: FX-PCA accessories

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>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>

Technical specifications

Table4: technical specifications

Product Code Numbers	
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	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 84 VA (maximum).
Ambient Conditions	Operating: 0°C to 50°C (32°F to 122°F); 10 to 90% RH noncondensing Storage: -40°C to 80°C (-40°F to 176°F); 5 to 95% RH noncondensing
Addressing	BACnet® MS/TP: 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	3-wire FC bus between the supervisory controller and other controllers 4-wire SA bus between controller, network sensors and other sensor/actuator devices, includes a lead to source 15 VDC supply power (from controller) to bus devices.
Real-Time Clock Backup Power Supply	Super capacitor maintains power to the onboard real-time clock for a minimum of 72 hours when supply power to the controller is disconnected.
Memory	16 MB flash memory and 8 MB SDRAM
Terminations	Input/Output: Fixed Screw Terminal Blocks SA/FC Bus and Supply Power: 4-Wire and 3-Wire Pluggable Screw Terminal Blocks SA Bus Port: RJ-12 6-Pin Modular Jack
Mounting	Horizontal on single 35 mm DIN rail mount (preferred), or screw mount on flat surface with three integral mounting clips on controller
Housing	Enclosure material: ABS and polycarbonate, Rating V0 minimum Protection Class: IP20 (IEC529)
Weight	0.5 kg (1.1 lb)

Table4: technical specifications

<p>Compliance</p> <p>CE</p>	<p>United States: UL Listed, File E107041, CCN PAZX, UL 916, Energy Management Equipment</p>
	<p>FCC Compliant to CFR47, Part 15, Subpart B, Class A</p>
	<p>Canada: UL Listed, File E107041, CCN PAZX7 CAN/CSA C22.2 No. 205, Signal Equipment</p>
	<p>Industry Canada Compliant, ICES-003</p>
	<p>Europe: Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.</p>
	<p>Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant</p>
<p>BACnet International: BACnet Testing Laboratories™ (BTL) Protocol Revision 15 Listed and Certified BACnet Advanced Application Controller (B-AAC)</p>	

The performance specifications are nominal and conform to acceptable industry standard. 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.

Patents

Patents: <http://jciapat.com>

Product warranty

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

Points of single contact

APAC	Europe	NA/SA
JOHNSON CONTROLS	JOHNSON CONTROLS	JOHNSON CONTROLS
C/O CONTROLS PRODUCT MANAGEMENT	WESTENDHOF 3	507 E MICHIGAN ST
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