FX-PCA Advanced Application Programmable Controller Catalog Page

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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 model operates on BACnet/IP networks and integrates into Johnson Controls® and third-party BACnet/IP systems.

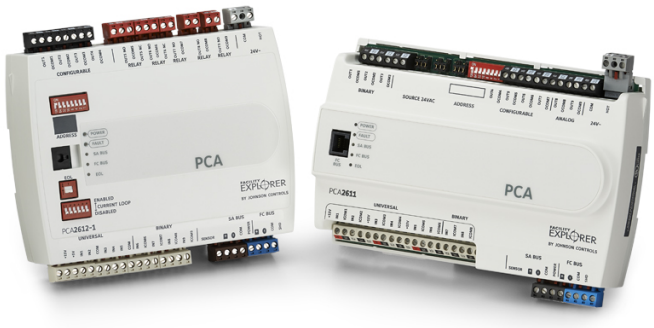
The FX-PCA3613 model includes a fast persistence feature that allows data values to be held a configurable value, up to once per second. Persistence refers to how often samples of data are stored locally. In the event of a problem, such as a loss of power, data can be retrieved up to the rate that the 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.

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

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

Figure 1: FX-PCA Series Advanced Application Programmable Controllers



Features

- 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 FX-PCT and enables persistent application data.
- Support for the FX-DIS17 remote display for monitoring and commanding of I/O and configuration parameters

Table 1: 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			

Table 1: FX-PCA Series Point Type Counts per Model

		FX-PCA2611	FX-PCA2612	FX-PCA3611	FX-PCA4911
Point Types	**Signals Accepted**				
Universal Input (UI)	Analog Input, Voltage Mode, 0–10 VDC Analog Input, Current Mode, 4–20 mA Analog Input, Resistive Mode, 0–2k ohm, resistance temperature detector (RTD) (1k NI [Johnson Controls], 1k PT, A99B SI), negative temperature coefficient (NTC) (10k Type L, 2.252k Type 2) Binary Input, Dry Contact Maintained Mode	6	5	8	10
Binary Input (BI)	Dry Contact Maintained Mode Pulse Counter/Accumulator Mode (High Speed), 100 Hz	2	4	6	4
Analog Output (AO)	Analog Output, Voltage Mode, 0–10 VDC Analog Current Mode, 4–20 mA	2		6	4
Binary Output (BO)	24 VAC Triac	3		6	4
Configurable Output (CO)	Analog Output, Voltage Mode, 0–10 VDC Binary Output Mode, 24 VAC Triac	4	4		4
Relay Output (RO)	Relay Output: Single-Pole, Double-Throw (SPDT) Relay Output: Single-Pole, Single-Throw (SPST)		2 - SPDT 3 - SPST		

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

Table 2: 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

Table 3: 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 *FX-ZFR Series Wireless Field Bus System Product Bulletin (LIT-12011686)*.
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 *WNC1800/FX-ZFR182x Pro Series Wireless Field Bus System Product Bulletin (LIT-12012378)*.
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 *WNC1800/FX-ZFR182x Pro Series Wireless Field Bus System Product Bulletin (LIT-12012378)*.
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 3: FX-PCA Accessories

Product Code Number	Description
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 FX-WRZ Series Wireless Room Sensors Product Bulletin (LIT-12011687) for specific sensor model descriptions.
NS Series Sensors	NS Series Network Sensors: Refer to the *NS Series Network Sensors Product Bulletin (LIT-12011574)* 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
ZFR-USBHA	USB Dongle with ZigBee® Driver provides a wireless connection through FX-PCT 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 FX-PCT. 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 *FX-ZFR Series Wireless Field Bus System Technical Bulletin (LIT-12011660)* or *FX-ZFR Series Wireless Field Bus System Quick Reference Guide (LIT-12011696)*.

Technical Specifications

Table 4: FX-PCA Series Technical Specifications

Product Code Numbers	**FX-PCA2611-0** –17-Point Advanced Application Programmable Controller with Integral Real-Time Clock and 24 VAC Supply Power **FX-PCA2612-1** –18-Point Advanced Application Programmable Controller with Integral Real-Time Clock and 24 VAC Supply Power **FX-PCA2612-2** –18-Point Advanced Application Programmable Controller with Integral Real-Time Clock and 100–240 VAC Supply Power **FX-PCA3611-0** –26-Point Advanced Application Programmable Controller with Integral Real-time Clock, 24 VAC Supply Power, and Fast Persistence **FX-PCA3611-0A** –26-Point Advanced Application Programmable Controller with Integral Real-Time Clock and 24 VAC Supply Power **FX-PCA4911-0** –28-Point FX-PCA with Integral Real-Time Clock and 24 VAC Supply Power; Communicates over BACnet/IP network
Supply Voltage	**FX-PCA2611-0, FX-PCA2612-1** , **FX-PCA3611-0A, FX-PCA3611-0**, and **FX-PCA4911-0** : 24 VAC (nominal, 20 VAC minimum/30 VAC maximum), 50/60 Hz, Power Supply Class 2 (North America), Safety Extra Low Voltage (SELV) (Europe) **FX-PCA2612-2:** 100–240 VAC 50/60 Hz
Power Consumption	**FX-PCA2611-0, FX-PCA3611-0, FX-PCA3611-0A, and FX-PCA4911-0:** 14 VA maximum **FX-PCA2612-1:** 30 VA maximum **FX-PCA2612-2:** 40 VA maximum **Note:** VA ratings do 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 to 50°C (32 to 122°F); 10 to 90% RH noncondensing; Pollution Degree 2 **Storage:** -40 to 80°C (-40 to 176°F); 5 to 95% RH noncondensing
Controller Addressing	**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) **For BACnet/IP controllers:** 3 rotary switches to assign unique number for each controller on the subnet to identify it in the Controller Tool for uploading, downloading, and commissioning **For N2-configured controllers:** DIP switch set; valid control device addresses 1–255
Communications Bus	**RS-485, field selectable between BACnet MS/TP and N2 communications:** 3-wire FC Bus between the supervisory controller and FX-PC controllers 4-wire SA Bus between FX-PC controller, NS Series Network Sensors, and other sensor/actuator devices, includes a lead to source 15 VDC supply power (from FX-PC controller) to bus devices. **FX-PCA4911-0:** BACnet/IP over Ethernet cable 4-wire SA Bus between field controller, network sensors, and other sensor/actuator devices, includes a lead-to source 15 VDC supply power (from field controller) to bus devices.
Processor	**FX-PCA2611-0, FX-PCA2612-1, FX-PCA2612-2, FX-FAC3611-0, and FX-FAC3611-0A:** H8SX/166xR Renesas® microcontroller **FX-PCA3611-0 and FX-PCA3611-0A:** RX630 32-Bit Renesas® microcontroller **FX-PCA4911-0:** RX63N 32-Bit Renesas® microcontroller
Memory	**FX-PCA2611-0, FX-PCA2612-1, and FX-PCA2612-2:** 4 MB Flash Memory and 1 MB RAM **FX-PCA4911-0:** 16 MB Flash Memory and 8 MB RAM

Table 4: FX-PCA Series Technical Specifications

Input and Output Capabilities	**FX-PCA3611-0** 6 - Universal Inputs: Defined as 0–10 VDC, 4–20 mA, 0–600k ohm, or Binary Dry Contact 2 - Binary Inputs: Defined as Dry Contact Maintained or Pulse Counter/Accumulator Mode 2 - Analog Outputs: Defined as 0–10 VDC or 4–20 mA 3 - Binary Outputs: Defined as 24 VAC Triac (selectable internal or external source power) 4 - Configurable Outputs: Defined as 0–10 VDC or 24 VAC Triac BO **FX-PCA2612-1 and FX-PCA2612-2:** 5 - Universal Inputs: Defined as 0–10 VDC, 4–20 mA, 0–600k ohm, or Binary Dry Contact 4 - Binary Inputs: Defined as Dry Contact Maintained or Pulse Counter/Accumulator Mode 4 - Configurable Outputs: Defined as 0–10 VDC or 24 VAC Triac BO 2 - Relay Outputs: (Single-Pole, Double-Throw) Rated as UL 916; 1/4 hp 120 VAC, 1/2 hp 240 VAC; 360 VA Pilot Duty at 120/240 VAC (B300); 3 A Non-inductive 24-240 VAC; EN 60730: 6 (4) N.O. or N.C. only 3 - Relay Outputs: (Single-Pole, Single-Throw) Rated as UL 916: 1/4 HP 120 VAC, 1/2 HP 240 VAC; 360 VA Pilot Duty at 120/240 VAC (B300); 3 A Non-inductive 24-240 VAC; EN 60730: 6 (4) N.O. or N.C. only **FX-PCA3611-0A and FX-PCA3611-0:** 8 - Universal Inputs: Defined as 0–10 VDC, 4–20 mA, 0-600k ohms, or Binary Dry Contact 6 - Binary Inputs: Defined as Dry Contact Maintained or Pulse Counter/Accumulator Mode 6 - Binary Outputs: Defined as 24 VAC Triac (external power source only) 6 - Analog Outputs: Defined as 0–10 VDC or 4–20 mA **FX-PCA4911-0:** 10 - Universal Inputs: Defined as 0–10 VDC, 4–20 mA, 0–600k ohms, or Binary Dry Contact 6 - Binary Inputs: Defined as Dry Contact Maintained or Pulse Counter/Accumulator Mode 4 - Binary Outputs: Defined as 24 VAC Triac (external power source only) 4 - Analog Outputs: Defined as 0-10 VDC or 4–20 mA 4 - Configurable Outputs: Defined as AO mode , 0–10 VDC or BO mode, 24 VAC Triac
Analog Input/Analog Output Resolution and Accuracy	Analog Input: 15-bit resolution Analog Output: 15-bit resolution and ±200 mV in 0–10 VDC applications
Terminations	**FX-PCA2611-0, FX-PCA3611-0, and FX-PCA3611-0A:** Input/Output: Fixed Screw Terminal Blocks FC Bus, SA Bus and Supply Power: 3-wire and 4-wire Pluggable Screw Terminal Blocks FC Bus and SA Bus Port: RJ-12 6-pin Modular Jacks **FX-PCA2612-1 and FX-PCA2612-2:** Input/Output: Pluggable Screw Terminal Blocks FC Bus, SA Bus and Supply Power: 3-wire and 4-wire Pluggable Screw Terminal Blocks FC Bus and SA Bus Port: RJ-12 6-pin Modular Jacks **FX-PCA4911-0:** Input/Output: Fixed Screw Terminal Blocks SA Bus and Supply Power: 3-wire and 4-wire Pluggable Screw Terminal Blocks SA Bus Port: RJ-12 6-pin Modular Jacks
Mounting	Horizontal on single 35 mm DIN rain mount (preferred), or screw mount on flat surface with three integral mounting clips on controller
Housing	Enclosure material: ABS and polycarbonate UL94 5VB; self-extinguishing; Plenum-rated Protection Class: IP20 (IEC529) (except the FX-PCA2612 controller)
Dimensions (Height x Width x Depth)	**FX-PCA2611-0**: 150 x 190 x 53 mm (5-7/8 x 7-1/2 x 2-1/8 in.) including terminals and mounting clips **FX-PCA2612 Models:** 150 x 164 x 53 mm (5-7/8 x 6-7/16 x 2-1/8 in.) including terminals and mounting clips **FX-PCA3611-0, FX-PCA3611-0A and FX-PCA4911-0:** 150 x 224 x 57.5 mm (5-7/8 x 8-3/4 x 2-1/4 in.) including terminals and mounting clips **Note:** Mounting space for FX-PCA26 models requires an additional 50 mm (2 in.) space on top, bottom, and front face of controller for easy cover removal, ventilation, and wire terminations.

Table 4: FX-PCA Series Technical Specifications

Weight	0.5 kg (1.1 lb)
Compliance CE	**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. Johnson Controls declares that theFX-PCA2612-2 models are also in compliance with the essential requirements and other relevant provisions of the Low Voltage Directive. Declared as Independently Mounted, Intended for Panel Mounting, Operating Control Type 1.B, 4kV rated impulse voltage, 100°C ball pressure test.
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant
	BACnet International: **FX-PCA26xx Models** - BACnet Testing Laboratories (BTL) Protocol Revision 7 Listed BACnet Advanced Application Controller (B-AAC) **FX-PCA3611-0A and FX-PCA3611-0:** - BACnet Testing Laboratories™ Protocol Revision 9 (BTL) Listed BACnet Advanced Application Controller (B-AAC) **FX-PCA4911-0:** BACnet Testing Laboratories™ Protocol Revision 12 (BTL) Listed BACnet Advanced Application Controller (B-AAC)

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.

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