Code No. LIT-1900673
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Facility Explorer One-to-One Wireless Room Sensing System

Description

The Facility Explorer One-to-One Wireless Room Sensing System enables RF room sensors to wirelessly communicate to FX-PC Series Programmable Controllers (FX-PCA, FX-PCG, and FX-PCV). This One-to-One Wireless Room Sensing System is the functional equivalent of an NS Series Network Sensor, but it eliminates all the hard wiring between the room sensor and the controller.

The two main components of this system are the FX-WRZ Series Wireless Room Sensor and the FX-WRZ7860-0 Receiver. Depending on the model, the FX-WRZ Series Sensor can transmit sensed temperature, temperature setpoint, sensed humidity, occupancy status, and low battery conditions. FX-WRZ Series Wireless Room Sensor models are available with or without an LCD, and are designed for indoor intra-building applications only.

Several models of FX-WRZ Series Wireless Room Sensors include an onboard passive infrared (PIR) occupancy sensor that detects motion to determine if a space is occupied. This feature provides up to 30% energy savings in high-energy usage environments such as schools, dormitories, offices, and hospitals by adjusting the temperature of the space based on the occupancy status. In addition, the PIR occupancy sensor facilitates trending of floor space usage in these environments.

The FX-WRZ7860-0 Receiver acts as an interface between the FX-WRZ Series Wireless Room Sensors and the FX-PC Series Programmable Controller. The FX-WRZ7860-0 receives the data from the FX-WRZ Series Wireless Sensors, and passes it onto the FX-PC Series Programmable Controller over its Sensor Actuator (SA) Bus.

In a typical application, one FX-WRZ Series Wireless Room Sensor reports to one FX-WRZ7860-0 Receiver; however, you can associate up to five FX-WRZ Series Wireless Room Sensors with a single FX-WRZ7860-0 Receiver. In these multi-sensor applications, the receiver passes all of the room sensors' data to the FX-PC Series Programmable Controller. You can then configure the FX-PC Series Programmable Controller to either average the room sensors' temperature and humidity inputs, or select the highest or lowest sensed temperature and humidity for control of the target zone.

Refer to the *Facility Explorer One-to-One Wireless Room Sensing System Product Bulletin (LIT-12011664)* for important product application information.

Facility Explorer One-to-One Wireless Room Sensing System

Features

- One-to-One Wireless RF Design
- Stylish, Lightweight Wireless Room Sensors with Occupancy Override Button
- 60-Second Transmission Intervals
- Built-in Integral Wireless Signal Strength Testing
- Multiple Sensor Temperature Averaging and High/Low Selection
- Onboard PIR Occupancy Sensor Available on Some Wireless Room Sensors
- Compact, Easily Installed Receiver
- Simple DIP Switch Settings
- Optional, Battery-Powered Wireless Sensing System Tool
- High Resistance to RF Interference from Other Radio Devices or RF Noise Sources
- Optional Repeater
- Blinking LED Light to Indicate Firmware Version — flashes five seconds after startup to indicate the firmware revision. For example, firmware revision 3 is indicated by the LED flashing three times during the startup process.

Repair Information

If the Facility Explorer One-to-One Wireless Room Sensing System fails to operate within its specifications, replace the affected components. For replacement components, contact the nearest Johnson Controls® representative.

Selection Charts

Facility Explorer One-to-One Wireless Room Sensing System Components (Part 1 of 2)

Product Code Number	Description
FX-WRZ7860-0	One-to-One Wireless Receiver
FX-WRZMHN01-0	Wireless Room Temperature and Humidity Sensor with PIR Occupancy Sensor, Battery Level/Signal Strength LED, and Manual Occupancy Override Button
FX-WRZMNN01-0	Wireless Room Sensor (No Temperature or Humidity Sensing) with PIR Occupancy Sensor, Battery Level/Signal Strength LED, and Manual Occupancy Override Button
FX-WRZMTB01-0	Wireless Room Temperature Sensor with PIR Occupancy Sensor, Display, Setpoint Adjustment Scale: 55 to 80°F (13 to 27°C), F/C Button, and Manual Occupancy Override Button
FX-WRZMTN01-0	Wireless Room Temperature Sensor with PIR Occupancy Sensor, Battery Level/Signal Strength LED, and Manual Occupancy Override Button
FX-WRZTHB00-0	Wireless Room Temperature and Humidity Sensor with Display, Warmer/Cooler (+/-) Setpoint Adjustment or Setpoint Adjustment Scale: 55 to 85°F (13 to 27°C), F/C Button, RH Button, and Manual Occupancy Override Button

Facility Explorer One-to-One Wireless Room Sensing System (Continued)

Facility Explorer One-to-One Wireless Room Sensing System Components (Part 2 of 2)

Product Code Number	Description
FX-WRZTHN00-0	Wireless Room Temperature and Humidity Sensor with Battery Level/Signal Strength LED and Manual Occupancy Override Button
FX-WRZTHP00-0	Wireless Room Temperature and Humidity Sensor with Warmer/Cooler (+/-) Setpoint Adjustment and Manual Occupancy Override Button
FX-WRZTTB00-0	Wireless Room Temperature Sensor with Display, F/C Button, and Manual Occupancy Override Button
FX-WRZTTD00-0	Wireless Room Temperature Sensor with Display, F/C Button, Fan Speed Control, and Manual Occupancy Override Button
FX-WRZTTP00-0	Wireless Room Temperature Sensor with Warmer/Cooler (+/-) Setpoint Adjustment, Battery Level/Signal Strength LED, and Manual Occupancy Override Button
FX-WRZTTR00-0	Wireless Room Temperature Sensor with Battery Level/Signal Strength LED, Manual Occupancy Override Button, and No Setpoint Adjustment
FX-WRZTTS00-0	Wireless Room Temperature Sensor with Setpoint Adjustment Scale: 55 to 80°F (13 to 27°C), Battery Level/Signal Strength LED, and Manual Occupancy Override Button

FX-WRZ Series Sensor Model Comparison

Sensor Model	Temperature	3% Humidity	Display	F/C Button	Fan Control	Occupancy Override Button	PIR Occupancy Sensor	Setpoint Adjustment Dial[1]
FX-WRZMHN01-0	x	x				x	x	NO DIAL
FX-WRZMNN01-0						x	x	NO DIAL
FX-WRZMTB01-0	x		x	x		x	x	CONFIG
FX-WRZMTN01-0	x					x	x	NO DIAL
FX-WRZTHB00-0	x	x	x	x		x		CONFIG
FX-WRZTHN00-0	x	x				x		NO DIAL
FX-WRZTHP00-0	x	x				x		W/C
FX-WRZTTB00-0	x		x	x		x		CONFIG
FX-WRZTTD00-0	x		x	x	x	x		CONFIG
FX-WRZTTP00-0	x					x		W/C
FX-WRZTTR00-0	x					x		NO DIAL
FX-WRZTTS00-0	x					x		SCALED

1. Warmer/cooler temperature offset (W/C), single-value in 55 to 85°F (13 to 29°C) range (SCALED), system-configured - available on display models only (CONFIG), no setpoint dial (NO DIAL)

Accessories

Product Code Number	Description
T-4000-119	Allen-Head Adjustment Tool: 1/16 in. (1.6 mm), 30 Tools per Bag
FX-WRZSST-120	Wireless Sensing System Tool: For Use with an FX-WRZ Series Sensor, to Function as a Site Survey Tool for the FX-WRZ7860-0 One-to-One Room Temperature Sensing System, or for the FX-ZFR1800 Series Wireless Field Bus System
CBL-NETWORK6-0	6 ft (1.8 m) SA Bus Interface Cable to Connect FX-WRZ7860-0 Receiver to FX-PC Series Programmable Controller
CBL-NETWORK25	25 ft (7.6 m) SA Bus Interface Cable to Connect FX-WRZ7860-0 Receiver to FX-PC Series Programmable Controller
CBL-NETWORK50	50 ft (15.2 m) SA Bus Interface Cable to Connect FX-WRZ7860-0 Receiver to FX-PC Series Programmable Controller
CBL-NETWORK75	75 ft (22.9 m) SA Bus Interface Cable to Connect FX-WRZ7860-0 Receiver to FX-PC Series Programmable Controller
CBL-NETWORK100	100 ft (30.5 m) SA Bus Interface Cable to Connect FX-WRZ7860-0 Receiver to FX-PC Series Programmable Controller
FX-ZFR1811-0	Wireless Field Bus Router
FX-ZFRRPT-0	Power Supply for Optional FX-ZFR1811-0 Wireless Field Bus Router

Technical Specifications

FX-WRZ7860-0 Receiver for One-to-One Wireless Room Sensing Systems (Part 1 of 2)

Programmable Controller Interface	Power and SA Bus Interface between FX-WRZ7860-0 Receiver and FX-PC Series Programmable Controller
Supply Voltage	Nominal 15 VDC via the SA Bus; 6.7 to 16.5 VDC Required
Current Consumption	10 mA Maximum
Addressing	DIP Switches, Field Adjustable for up to 4,096 Unique RF Addresses
Ambient Limits	**Operating:** 32 to 122°F (0 to 50°C), 5 to 95% RH, Noncondensing **Storage:** -40 to 160°F (-40 to 71°C), 5 to 90% RH, Noncondensing
RF Band	Direct-Sequence, Spread-Spectrum, 2.4 GHz ISM Bands
Transmission Power	10 mW Maximum

Facility Explorer One-to-One Wireless Room Sensing System (Continued)

FX-WRZ7860-0 Receiver for One-to-One Wireless Room Sensing Systems (Part 2 of 2)

Transmission Range	150 ft (45 m) Maximum Indoor Line of Sight; 100 ft (30 m) Practical Average Indoor
Transmissions	Every 60 Seconds (±10 Seconds)
Receiver Outputs	One RJ-12 Port for SA Communication Bus Output (Sensed Zone Temperature and Humidity, Temperature Setpoint, and Occupancy Override Data)
Temperature Sensor Accuracy	**FX-WRZ Series Wireless Room Sensors (Temperature Only Models, and Temperature and Humidity Models):** 1.0F° (0.6C°) over the Range of 55 to 85°F (13 to 29°C); 1.5F° (0.9C°) over the Range of 32 to 55°F (0 to 13°C) and 85 to 110°F (29 to 43°C)
Temperature Sensor Type	**FX-WRZ Series Wireless Room Sensors (Temperature Only Models, and Temperature and Humidity Models):** Internal 10k ohm Negative Temperature Coefficient (NTC) Thermistor
Humidity Measurement Range	**FX-WRZ Series Wireless Room Sensors (Temperature and Humidity Models):** Full Range 0 to 100% RH; Calibrated Range 10 to 90% RH at 73°F (23°C)
Humidity Sensor Accuracy	**FX-WRZ Series Wireless Room Sensors (Temperature and Humidity Models):** ±3% RH across the Range of 20% to 80% RH, ±6% RH across the Range of 10% to 20% RH and 80% to 90% RH within a Temperature Range of 55 to 85°F (13 to 29°C)
Humidity Sensor Type	**FX-WRZ Series Wireless Room Sensors (Temperature and Humidity Models):** Planar Capacitive Polymer Sensor
PIR Occupancy Sensor Motion Detector	**FX-WRZ Series Wireless Room Sensors (PIR Occupancy Sensor Models):** Minimum 94 Angular Degrees up to a Distance of 15 ft (4.6 m) Based on a Clear Line of Sight
Materials	NEMA 1 White Plastic Housing; UL94-5VB and V-0 Plenum Flammability Rated
Compliance CE	**United States:** Transmission Complies with FCC Part 15.247 Regulations for Low Power Unlicensed Transmitters Transmitter FCC Identification: TBF-MATRIXL or OEJ-WRZRADIO
	Canada: Industry Canada IC:5969A-MATRIXL or 279A-WRZRADIO
	Europe: CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/05/EC.
	Japan: Transmission Complies with Article 38-24 Paragraph 1 of the Radio Law Certification Number: ATCB012834
	Australia and New Zealand: Australia/NZ Emissions Compliant (C-Tick Mark)
Shipping Weight	0.2 lb (0.09 kg)

FX-WRZ Series Wireless Room Sensors (Part 1 of 2)

Power Requirements	3 VDC Supplied by Two 1.5 VDC AA Alkaline Batteries (Included with Sensor); Typical Battery Life: 48 Months (36 Months Minimum)
Addressing	DIP Switches; Field Adjustable MS/TP Address, Network Number, and Zone Address
Ambient Conditions	**Operating:** 32 to 122°F (0 to 50°C), 5 to 95% RH, Noncondensing **Storage:** -40 to 160°F (-40 to 71°C), 5 to 95% RH, Noncondensing
Wireless Band	Direct-Sequence, Spread-Spectrum, 2.4 GHz ISM Band
Transmission Power	10 mW Maximum
Transmission Range	100 ft (30 m) Maximum Line of Sight; 50 ft (15 m) Recommended
Transmissions	**Temperature:** Every 60 Seconds (±20 Seconds) **Humidity:** Every 3 Minutes, or 1 Minute Intervals if Temperature or Humidity Changes
Temperature System Accuracy (Temperature Only Models, and Temperature and Humidity Models)	1.0F°/0.6C° Over the Range of 55 to 85°F (13 to 29°C); 1.5F°/0.9C° Over a Range of 32 to 55°F (0 to 13°C) and 85 to 110°F (29 to 43°C)
Temperature Sensor Type (Temperature Only Models, and Temperature and Humidity Models)	Internal 10k ohm Negative Temperature Coefficient (NTC) Thermistor
Humidity Calibrated Range (Temperature and Humidity Models)	10% to 90% RH at 73°F (23°C)
Humidity Accuracy (Temperature and Humidity Models)	±3% RH across the Range of 20% to 80% RH, ±6% RH across the Range of 10% to 20% RH and 80% to 90% RH within a Temperature Range of 55 to 85°F (13 to 29°C)
PIR Occupancy Sensor Motion Detection (Models with PIR Occupancy Sensor)	Minimum 94 Angular Degrees up to a Distance of 15 ft (4.6 m) Based on a Clear Line of Sight
Materials	NEMA 1 White Plastic Housing
Mounting	Screw Mount or Double-Sided Adhesive Foam Tape Mount; Double-Sided Adhesive Foam Tape Included

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Facility Explorer One-to-One Wireless Room Sensing System (Continued)

FX-WRZ Series Wireless Room Sensors (Part 2 of 2)

Compliance CE	**United States:** Transmission Complies with FCC Part 15.247 Regulations for Low Power Unlicensed Transmitters Transmitter FCC Identification: TFB-MATRIXL or OEJ-WRZRADIO **Canada:** Industry Canada IC: 5969A-MATRIXL or 279A-WRZRADIO **Europe:** CE Mark – Johnson Controls, Inc., declares that this product is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/05/EC. **Japan:** Transmission Complies with Article 38-24 Paragraph 1 of the Radio Law Certification Number: ATCB012834 **Australia and New Zealand:** C-Tick Mark, Australia/NZ Emissions Compliant

