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WRZ-7840 One-to-One Wireless Room Temperature Sensing System

Description

The WRZ-7840 One-to-One wireless room temperature sensing system is designed to interface with supported Johnson Controls® BACnet® Master-Slave/Token-Passing (MS/TP) controllers to provide wireless temperature control of single-zone, room temperature applications. The WRZ-TTx Sensor and WRZ-7840 Receiver combination is a functional equivalent to a NS-BTP7001-0 sensor but eliminates communication wiring, which is usually placed inside the wall.

A simple One-to-One wireless sensing system consists of one WRZ-TTx Series Sensor communicating single-zone temperature data to an associated WRZ-7840 Series receiver. Up to five sensors can report to a single receiver to provide enhanced zone control.

The WRZ-7840 Series System features BACnet MS/TP communications, allowing communication with Field Equipment Controllers (FECs) or Variable Air Volume (VAV) Modular Assembly (VMA) 1600 controllers on the Sensor Actuator (SA) bus.

The WRZ-7840 Series receivers operate at 2.4 GHz and use a multiple-frequency, Direct Sequence Spread Spectrum (DSSS) technology to virtually eliminate accidental and unauthorized Radio Frequency (RF) interference with other wireless applications. The One-to-One design meets the Institute of Electrical and Electronics Engineers, Inc. (IEEE) 802.15.4 standard for low power, low duty-cycle wireless RF systems.

WRZ-7840 One-to-One Wireless Room Temperature Sensing System

Features

- Metasys® System Extended Architecture Design
- One-to-One Wireless RF Design
- Stylish, Lightweight Wireless Room Temperature Sensors with Occupancy Override Button and 60-Second Transmission Intervals
- Integral Wireless Signal Strength Testing Built into Sensors and Receivers
- Multiple Sensor Temperature Averaging and High/Low Selection
- Compact, Easily Installed WRZ-7840 Receiver
- Easy Commissioning and up to 4,096 Unique Receiver Addresses
- Optional, Battery-Powered WRZ-SST-100 Wireless Sensing System Tool
- High Resistance to RF Interference from Other Radio Devices or RF Noise Sources
- Optional MS-ZFR1811-0 Repeater extends operating range between sensor and WRZ-7840

Repair Information

If the WRZ-7840 Series One-to-One Wireless Room Temperature Sensing System component fails to operate within its specifications, replace the unit. For a replacement WRZ-7840 Receiver or WRZ-TTx Series Sensor, contact the nearest Johnson Controls® representative

Selection Charts

WRZ-7840 Series One-to-One Wireless Room Temperature Sensing System Components

Product Code Number	Product Description
WRZ-7840-0	WRZ-7840 One-to-One Wireless Receiver
WRZ-TTP0000-0	Wireless Room Temperature Sensor, Warmer/Cooler Set Point Adjustment
WRZ-TTR0000-0	Wireless Room Temperature Sensor, No Set Point Adjustment
WRZ-TTS0000-0	Wireless Room Temperature Sensor, Set Point Adjustment Scale: 12 to 28°C (55 to 85°F)

Accessories

Product Code Number	Product Description
T-4000-119	1.6 mm (1/16 in.) Allen-Head Adjustment Tool (30 per Bag)
WRZ-SST-100	Wireless Sensing System Tool Kit
CBL-NETWORK6-0	1.8 m (6 ft) SA Bus Interface Cable to Connect WRZ-7840 Receiver to VMA1600 or FEC
CBL-NETWORK25-0	7.6 m (25 ft) SA Bus Interface Cable to Connect WRZ-7840 Receiver to VMA1600 or FEC
CBL-NETWORK50-0	15.2 m (50 ft) SA Bus Interface Cable to Connect WRZ-7840 Receiver to VMA1600 or FEC
CBL-NETWORK75-0	22.9 m (75 ft) SA Bus Interface Cable to Connect WRZ-7840 Receiver to VMA1600 or FEC
CBL-NETWORK100-0	30.5 m (100 ft) SA Bus Interface Cable to Connect WRZ-7840 Receiver to VMA1600 or FEC
MS-ZFR1811-0	Repeater
MS-ZFRRPT-0	Power Supply for Optional MS-ZFR1811-0 Repeater

WRZ-7840 One-to-One Wireless Room Temperature Sensing System (Continued)

Technical Specifications

WRZ-7840 Receiver for One-to-One Wireless Room Temperature Sensing Systems

Product Code	WRZ-7840-0
Field Controller Interface	Power and SA Bus Interface between WRZ-7840 Receiver and VMA1600 or FEC
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 Addresses
Ambient Limits	**Operating:** 0 to 50°C (32 to 122°F), 5 to 95% RH, Noncondensing **Storage:** -40 to 71°C (-40 to 160°F), 5 to 90% RH, Nonconducting
RF Band	Direct-Sequence Spread-Spectrum, 2.4 GHz ISM Bands
Transmission Power	40 mW Maximum
Transmission Range	45 m (150 ft) Maximum Indoor Line of Sight; 30 m (100 ft) Practical Average Indoor
Transmissions	Every 60 Seconds (±10 Seconds)
Receiver Outputs	One RJ-12 port for SA Communication Bus Output for Zone Temperature, Set Point, and Occupancy Override Indication
Temperature System Accuracy	**WRZ-TTx Sensor:** 0.6°C (1°F) over the Range of 13 to 29°C (55 to 85°F); 0.9°C (1.5°F) over a Range of 0 to 13°C (32 to 55°F) and 29 to 43°C (85 to 110°F)
Sensor Type	**WRZ-TTx Sensor:** Internal 10k ohm Negative Temperature Coefficient (NTC) Thermistor
Materials	NEMA 1 White Plastic Housing; UL94-5VB and V-0 Plenum Flammability Rated
Mounting	Double-Sided Adhesive Foam Tape Mount or Screw Mount; Double-Sided Adhesive Foam Tape Included
Dimensions	80 x 80 x 35 mm (3-5/32 x 3-5/32 x 1-3/8 in.)
Shipping Weight	0.09 kg (0.2 lb)
Compliance CE	**United States** Transmission Complies with FCC Part 15.247 Regulations for Low Power Unlicensed Transmitters; Transmitter FCC Identification: TBF-MATRIXL **Canada** Industry Canada IC:5969A-MATRIXL **Australia and New Zealand** Australia/NZ Emissions Compliant (C-Tick Mark) **Europe:** CE Mark – EMC Directive 89/336/EEC, Radio Telecommunications Terminal Equipment Directive 99/5/EC Hereby, Johnson Controls, Inc., declares that the WRZ-7840 is in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC. This device has been tested and found to comply with the limits for a Class 1 radio equipment. This device is designed for use in all countries of the European Union and in Switzerland, Norway and Iceland.

WRZ-TTx0000 Series Wireless Room Temperature Sensors (Part 1 of 2)

Product Codes	**WRZ-TTP0000-0:** Warmer/Cooler (+/-) Set Point Adjustment **WRZ-TTR0000-0:** No Set Point Adjustment **WRZ-TTS0000-0:** Set Point Adjustment Scale: 13 to 29°C/55 to 85°F
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. **Wireless Mesh Network:** MS/TP Address, Network Number, and Zone Address **One-to-One Application:** Sensor #, Area, Transmitter ID
Ambient Conditions	**Operating:** 0 to 50°C (32 to 122°F), 5 to 95% RH, Noncondensing **Storage:** -40 to 71°C (-40 to 160°F), 5 to 95% RH, Noncondensing
RF Band	Direct-Sequence Spread-Spectrum, 2.4 GHz ISM Band
Transmission Power	10 mW Maximum
Transmission Range	**Wireless Mesh Network Application:** 30 m (100 ft) Maximum Indoor Line of Sight; 15 m (50 ft) Practical Average Indoor **One-to-One Application:** 45 m (150 ft) Maximum Indoor Line of Sight; 30 m (100 ft) Practical Average Indoor
Transmissions	Every 60 Seconds (±20 Seconds)
Temperature System Accuracy	0.6C°/1.0F° Over the Range of 13 to 29°C (55 to 85°F); 0.9C°/1.5F° Over a Range of 0 to 13°C (32 to 55°F) and 29 to 43°C (85 to 110°F)
Temperature Sensor Type	Internal 10k ohm Negative Temperature Coefficient (NTC) Thermistor
Materials	NEMA 1 White Plastic Housing
Mounting	Screw Mount or Double-Sided Adhesive Foam Tape Mount; Double-Sided Adhesive Foam Tape Included

WRZ-7840 One-to-One Wireless Room Temperature Sensing System (Continued)

WRZ-TTx0000 Series Wireless Room Temperature Sensors (Part 2 of 2)

Dimensions	120 x 80 x 38 mm (4.7 x 3.1 x 1.5 in.)
Shipping Weight	0.14 kg (0.3 lb)
Compliance CE	**United States:** Transmission Complies with FCC Part 15.247 Regulations for Low Power Unlicensed Transmitters Transmitter FCC Identification: TFB-MATRIXL **Canada:** Industry Canada IC: 5969A-MATRIXL **Europe:** CE Mark – EMC Directive 89/336/EEC, Radio Telecommunications Terminal Equipment Directive 99/5/EC Hereby, Johnson Controls, Inc., declares that the WRZ-TTx0000 is in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC. This device has been tested and found to comply with the limits for a Class 1 radio equipment. This device is designed for use in all countries of the European Union and in Switzerland, Norway and Iceland.

