

WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies Product Bulletin



Building Technologies & Solutions
www.johnsoncontrols.com
2019-02-12

LIT-12011604
Release 10.0

Contents

Description.....	3
Features.....	3
Dimensions.....	4
Ordering information.....	4
NIST Certification.....	4
Additional product information.....	5
Repair information.....	5
Selection chart.....	6
Technical specifications.....	6
North American Emissions Compliance.....	8
United States.....	8
Canada.....	8

Description

The WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies are designed to sense the temperature in either a refrigerator or freezer unit, and transmit wireless temperature data to a receiver or controller.

In a WNC1800/ZFR182x Pro Series Wireless Field Bus System (mesh network) application, the transmitter communicates with FEC16 Series, FEC26 Series, FAC26 Series, FAC36 Series, and VMA16 Series Controllers by means of the ZFR1821 or ZFR1822 Routers. In a ZFR1800 Series Wireless Field Bus System (mesh network) application, the transmitter communicates with controllers by means of the ZFR1811 or ZFR1812 Routers.

A WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly can also be used in a One-to-One application (non-mesh network) to communicate with a WRZ-7860-0 Wireless Receiver. The WRZ-7860-0 Receiver transfers data to the controller by means of the Sensor Actuator (SA) communication Bus. In a typical application, one WRZ-STRxxxx-0 Series Transmitter reports to one WRZ-7860-0 Receiver, but up to five WRZ-STRxxxx-0 Series Transmitters can be associated with a single WRZ-7860-0 Receiver.

The WRZ-STRxxxx-0 Series Transmitter can transmit sensed temperature and low battery conditions to an associated router or receiver. The WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies are designed for indoor, intra-building applications only.

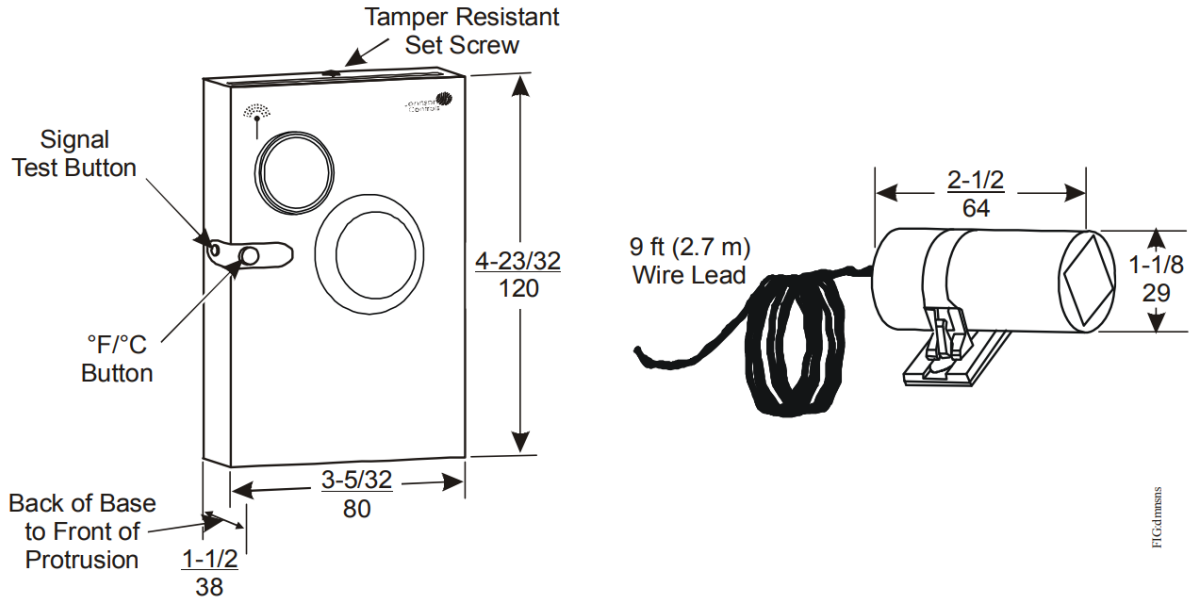
Features

- *Metasys*® system design — leverages the *Metasys* system Web-based platform to provide wireless temperature data transmission to a field device across the network
- Application mobility and flexibility — provides a wireless alternative to hard-wired counterparts, and facilitates easy initial location and relocation of the temperature transmitter and probe assembly
- One-to-One wireless non-mesh network communication — enables quick, economical, and low-maintenance installation, which reduces overall installed costs
- Wireless mesh network communication — enhances reliability through automatically forming wireless links and redundant wireless data transmission paths
- Temperature monitoring/temperature range deviation alarm system — replaces manual daily temperature monitoring with continuous electronic temperature monitoring
- High degree of refrigerator/freezer narrow range accuracy — allows the temperature transmitter and probe assembly to monitor temperature-sensitive contents within the refrigerator or freezer unit
- Liquid Crystal Display (LCD) — indicates real-time status of the environment
- Acrylic-encased temperature sensor probe — acts as a buffer to eliminate false temperature spikes when the refrigerator or freezer door is opened
- Fahrenheit/Celsius (°F/°C) button — toggles the display temperature between degrees Celsius and degrees Fahrenheit
- Temperature sensor probe assembly connects to the temperature transmitter in the field — ensures that the temperature sensor probe assembly can be easily replaced if National Institute of Standards Technology (NIST) certification is required

Dimensions

See the following figure for dimensions and physical features of the WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies.

Figure 1: WRZ-STRxxxx-0 Dimensions and Physical Features, in./mm



Ordering information

See Table 2 for temperature transmitter and probe ordering information, including various accessories available.

- **Important:** The WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies are intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the transmitter and probe assembly could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the transmitter and probe assembly.

NIST Certification

To order a temperature transmitter and probe assembly with NIST certification, use code number WRZ-STRNIST-0. To order a replacement temperature sensor probe assembly with NIST certification, use code number WRZ-PTRNIST-0. See Table 3 for more ordering information.

To receive NIST certification for an existing non-NIST certified temperature sensor probe assembly, contact the Johnson Controls® laboratory at 1-502-493-2139 or via e-mail at CG-Metrology-Louisville@jci.com.

Non-NIST certified temperature sensor probe assemblies should be sent to:

Johnson Controls Metrology Services 9410 Bunsen Parkway, Suite 100B Louisville, KY 40220

Additional product information

The following table includes Negative Temperature Coefficient (NTC) thermistor sensor temperature and resistance response characteristics. The values included in this table can be used to verify the accuracy of the temperature sensor in the field.

Table 1: Temperature vs. Resistance

Temperature, °F (°C)	Resistance, ohms
-30 (-34)	71,246
-20 (-29)	50,127
-10 (-23)	35,756
0 (-18)	25,797
10 (-12)	18,846
20 (-7)	13,924
30 (-1)	10,397
40 (4)	7,846
50 (10)	5,977
60 (16)	4,596
70 (21)	3,566
80 (27)	2,789
90 (32)	2,200
100 (38)	1,748

Repair information

If the WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly fails to operate within its specifications, replace the unit. For a replacement assembly, contact the nearest Johnson Controls® representative.

- ① **Note:** The temperature sensor probe can be ordered separately from the transmitter assembly; see Table 2 for ordering details.

The two AA alkaline batteries supplied with the WRZ-STRxxxx-0 Series Transmitter typically have a life of 5 years or more. The transmitter reports a low battery condition to the receiver or controller, which relays the low battery condition to the *Metasys* system. The low battery condition is also shown on the LCD on the face of the transmitter.

Replace the transmitter batteries with two high-quality AA alkaline batteries as necessary, ensuring that the batteries are installed in the proper polarity.

- ① **Note:** When replacing batteries, both batteries should be replaced at the same time. Batteries removed from this device must be recycled or disposed of in accordance with local, national, and regional regulations. Only certified technicians or qualified building maintenance personnel should service Johnson Controls products. Lithium batteries with a maximum cell voltage of 1.5 volts can be substituted to extend the period between battery replacement. Do not mix lithium and alkaline batteries in this device.

Selection chart

Table 2: Ordering information

Code number	Description
WRZ-STR0000-0 (Non-NIST Certified Model)	Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly: Includes one temperature transmitter assembly, one temperature sensor probe assembly (non-NIST certified model), one DIP switch overlay for a mesh network application using a ZFR181x or a ZFR182x Router, one DIP switch overlay for a non-mesh network one-to-one application using a WRZ-7860-0 Receiver, and two AA alkaline batteries
WRZ-STRNIST-0 (NIST Certified Model)	Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly: Includes one temperature transmitter assembly, one temperatures sensor probe assembly (NIST certified model), one DIP switch overlay for a mesh network application using a ZFR181x or a ZFR182x Router, one DIP switch overlay for a non-mesh network one-to-one application using a WRZ-7860-0 Receiver, and two AA alkaline batteries
WRZ-PTR0000-0 (Non-NIST Certified Model)	Temperature Sensor Probe Assembly: Includes one temperature sensor probe encased in a clear acrylic cylinder, a 9 ft (2.7 m) wire lead, one probe mounting strap, and a strip of double-sided adhesive foam tape; all factory assembled
WRZ-PTRNIST-0 (NIST Certified Model)WRZ-SST-120-0	Temperature Sensor Probe Assembly: Includes one temperatures sensor probe encased in a clear acrylic cylinder, a 9 ft (2.7 m) wire lead, one probe mounting strap, and a strip of double-sided adhesive foam tape; all factory assembled
WRZ-SST-120	Wireless Sensing System Tool: For use with a WRZ-STRxxxx-0 series transmitter, to function as a site survey tool for the WRZ Series One-to-One Wireless Room Sensing System, or for the WNC1800/ZFR182x Pro Series or ZFR1800 Series Wireless Field Bus Systems
T-4000-119	Allen-Head Adjustment Tool: 1/16 in. (1.6 mm), for the tamper-resistant set screw that secures the temperature transmitter to the mounting base; 30 Tools per bag

Technical specifications

Table 3: WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies

Power requirements	3 VDC supplied by two 1.5 VDC AA alkaline batteries (included with transmitter); typical battery life: 5 years or more
Addressing	DIP switches, field adjustable; MS/TP address, network number, and zone address

Table 3: WRZ-STRxxxx-0 Series Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assemblies

Transmitter ambient conditions	<p>Operating: 23°F to 111°F (-5°C to 44°C), 5% to 95% RH, non-condensing</p> <p>Storage: -4°F to 140°F (-20°C to 60°C), 5% to 95% RH, non-condensing</p>
Temperature sensor probe ambient conditions	<p>Operating: -40°F to 95°F (-40°C to 35°C)</p> <p>Storage: -40°F to 140°F (-40°C to 60°C), 5% to 98% RH, non-condensing</p>
RF band	Direct-sequence, spread-spectrum; 2.4 GHz ISM band
Transmission power	10 mW maximum
Transmission range	<p>Mesh network application:</p> <p>100 ft (30 m) maximum indoor line-of-sight; 50 ft (15 m) practical average indoor</p> <p>Non-mesh network, one-to-one application:</p> <p>150 ft (45 m) maximum indoor line-of-sight; 100 ft (30 m) practical average indoor</p>
Transmissions	Every 120 seconds (±20 Seconds)
Temperature system broad range accuracy	±1.8°F/±1.0°C over the range of -40°F to 95°F (-40°C to 35°C)
Refrigerator/freezer narrow range accuracy	±0.9°F/±0.5°C over the range of -9°F to 41°F (-23°C to 5°C)
Temperature sensor type	External 3k ohm negative temperature coefficient (NTC) thermistor
Materials	<p>Transmitter: NEMA 1 white plastic housing</p> <p>Temperature sensor probe: clear acrylic cylinder</p>
Mounting	<p>Transmitter: surface mounted using factory-installed, double-sided adhesive foam tape</p> <p>Temperature sensor probe: surface mounted using factory-installed probe mounting strap with double-sided adhesive foam tape installed</p>
Compliance	<p>United States: transmission complies with FCC part 15.247 regulations for low power unlicensed transmitters; transmitter FCC identification: TFB-MATRIXL or OEJ-WRZRADIO</p> <p>Canada: Industry Canada IC: 5969A-MATRIXL or 279A-WRZRADIO</p> <p>Europe: CE Mark – Johnson Controls, declares that this product is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/05/EC.</p>
Shipping weight	0.55 lb (0.25 kg)



North American Emissions Compliance

United States

Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canada

Industry Canada Statement(s)

The term **IC** before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Le terme « IC » précédant le numéro d'accréditation/inscription signifie simplement que le produit est conforme aux spécifications techniques d'Industry Canada.