

# WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly

## Product Bulletin

WRZ-STR0000-0

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The WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly is designed to sense the temperature in either a refrigerator or freezer unit, and transmit wireless temperature data to a receiver or controller.

In a ZFR1800 Series Wireless Field Bus System (mesh network) application, the transmitter communicates with FEC16 Series, FEC26 Series, and VMA16 Series Controllers by means of the ZFR1811 Router.

A WRZ-STR0000-0 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-7840 Wireless Receiver. The WRZ-7840 Receiver transfers data to the controller by means of the Sensor Actuator (SA) communication bus. In a typical application, one WRZ-STR0000-0 Transmitter reports to one WRZ-7840 Receiver, but up to five WRZ-STR0000-0 Transmitters can be associated with a single WRZ-7840 Receiver.



**Figure 1: WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly**

The WRZ-STR0000-0 Transmitter can transmit sensed temperature and low battery conditions to an associated router or receiver. The WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly is designed for indoor, intra-building applications only.

**Table 1: Features and Benefits (Part 1 of 2)**

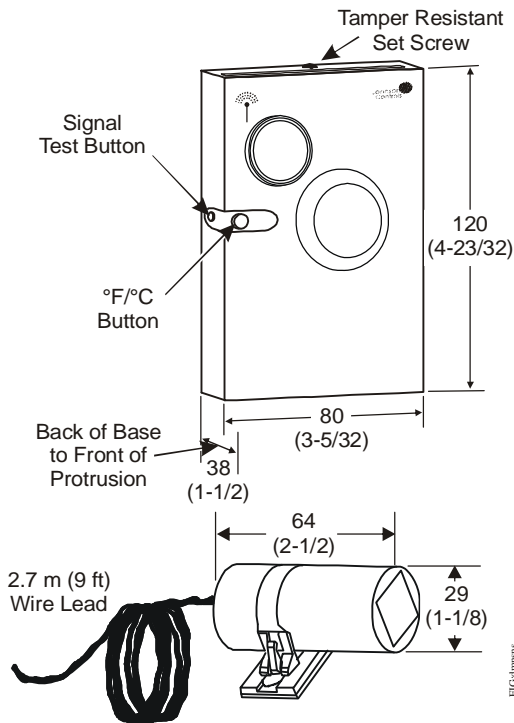
Features	Benefits
<b>Metasys® System Extended Architecture Design</b>	Leverages the Metasys system Web-based platform to provide wireless temperature data transmission to a field device across the network.
<b>Application Mobility and Flexibility</b>	Provides a wireless alternative to hard-wired counterparts, and facilitates easy initial location and relocation of the temperature transmitter and probe assembly.
<b>One-to-One Wireless Non-mesh Network Communication</b>	Enables quick, economical, and low-maintenance installation, which reduces overall installed costs.
<b>Wireless Mesh Network Communication</b>	Enhances reliability through automatically forming wireless links and redundant wireless data transmission paths.
<b>Temperature Monitoring/Temperature Range Deviation Alarm System</b>	Replaces manual daily temperature monitoring with continuous electronic temperature monitoring.
<b>High Degree of Refrigerator/Freezer Narrow Range Accuracy</b>	Allows the temperature transmitter and probe assembly to monitor temperature-sensitive contents within the refrigerator or freezer unit.
<b>Liquid Crystal Display (LCD)</b>	Indicates real-time status of the environment.

**Table 1: Features and Benefits (Part 2 of 2)**

<b>Acrylic-Encased Temperature Sensor Probe</b>	Acts as a buffer to eliminate false temperature spikes when the refrigerator or freezer door is opened.
<b>Fahrenheit/Celsius (°F/°C) Button</b>	Toggles the display temperature between degrees Celsius and degrees Fahrenheit.
<b>Temperature Sensor Probe Assembly Connects to the Temperature Transmitter in the Field</b>	Ensures that the temperature sensor probe assembly can be easily replaced if National Institute of Standards Technology (NIST) certification is required.

**WRZ-STR0000-0 Dimensions**

See Figure 2 for dimensions and physical features of the WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly.



**Figure 2: WRZ-STR0000-0 Dimensions and Physical Features, mm (in.)**

**Ordering Information**

See Table 3 for temperature transmitter and probe ordering information, including various accessories available.

**IMPORTANT:** The WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly is 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 receive NIST certification for the temperature sensor probe assembly included in the WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly, contact the Johnson Controls® laboratory at 1-502-493-2139 or via email at CG-Metrology-Louisville@jci.com.

Temperature sensor probe assemblies should be sent to:

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

## Additional Product Information

Table 2 includes Negative Temperature Coefficient (NTC) thermistor sensor temperature/resistance response characteristics. The values included in this table can be used to verify the accuracy of the temperature sensor in the field.

**Table 2: Temperature vs. Resistance**

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

**Table 3: Ordering Information**

Code Number	Description
WRZ-STR0000-0	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 ZFR1811 Router, One DIP Switch Overlay for a Non-mesh Network One-to-One Application Using a WRZ-7840 Receiver, and Two AA Alkaline Batteries
WRZ-SST-100	Wireless Sensing System Tool: For Use with a WRZ-STR0000-0 Temperature Transmitter, to Function as a Site Survey Tool for the WRZ-7840 One-to-One Room Temperature Sensing System, or for the ZFR1800 Wireless Field Bus System
WRZ-PTR0000-0	Temperature Sensor Probe Assembly: Includes One Temperature Sensor Probe Encased in a Clear Acrylic Cylinder, a 2.7 m (9 ft) Wire Lead, One Probe Mounting Strap, and a Strip of Double-Sided Adhesive Foam Tape; All Factory Assembled
T-4000-119	Allen-Head Adjustment Tool: 1.6 mm (1/16 in.), for the Tamper-Resistant Set Screw That Secures the Temperature Transmitter to the Mounting Base; 30 Tools per Bag

## Repair Information

If the WRZ-STR0000-0 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.

**Note:** The temperature sensor probe can be ordered separately from the transmitter assembly; see Table 3 for ordering details.

The two AA alkaline batteries supplied with the WRZ-STR0000-0 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.


**Note:** Lithium batteries can be substituted to extend the period between battery replacement.

## Technical Specifications

### WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly (Part 1 of 2)

<b>Power Requirements</b>	3 VDC Supplied by Two 1.5 VDC AA Alkaline Batteries (Included with Transmitter); Typical Battery Life: 5 Years or More
<b>Addressing</b>	DIP Switches, Field Adjustable; Master-Slave/Token-Passing (MS/TP) Address, Network Number, and Zone Address
<b>Transmitter Ambient Conditions</b>	<b>Operating:</b> -5 to 44°C (23 to 111°F), 5 to 95% RH, Noncondensing <b>Storage:</b> -20 to 60°C (-4 to 140°F), 5 to 95% RH, Noncondensing
<b>Temperature Sensor Probe Ambient Conditions</b>	<b>Operating:</b> -40 to 35°C (-40 to 95°F) <b>Storage:</b> -40 to 60°C (-40 to 140°F), 5 to 98% RH, Noncondensing
<b>RF Band</b>	Direct-Sequence, Spread-Spectrum; 2.4 GHz ISM Band
<b>Transmission Power</b>	10 mW Maximum
<b>Transmission Range</b>	<b>Mesh Network Application:</b> 30 m (100 ft) Maximum Indoor Line-of-Sight; 15 m (50 ft) Practical Average Indoor <b>Non-mesh Network, One-to-One Application:</b> 45 m (150 ft) Maximum Indoor Line-of-Sight; 30 m (100 ft) Practical Average Indoor
<b>Transmissions</b>	Every 120 Seconds (±20 Seconds)
<b>Temperature System Broad Range Accuracy</b>	±1.0C°/±1.8F° Over the Range of -40 to 35°C (-40 to 95°F)
<b>Refrigerator/Freezer Narrow Range Accuracy</b>	±0.5C°/±0.9F° Over the Range of -23 to 5°C (-9 to 41°F)
<b>Temperature Sensor Type</b>	External 3k ohm NTC Thermistor
<b>Temperature Sensor Thermal Characteristics</b>	See Table 2.
<b>Materials</b>	<b>Transmitter:</b> NEMA 1 White Plastic Housing <b>Temperature Sensor Probe:</b> Clear Acrylic Cylinder
<b>Mounting</b>	<b>Transmitter:</b> Surface Mounted Using Factory-Installed, Double-Sided Adhesive Foam Tape <b>Temperature Sensor Probe:</b> Surface Mounted Using Factory-Installed Probe Mounting Strap with Double-Sided Adhesive Foam Tape Installed

**WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly  
(Part 2 of 2)**

<p><b>Compliance</b></p> 	<p><b>United States:</b> Transmission Complies with FCC Part 15.247 Regulations for Low Power Unlicensed Transmitters; Transmitter FCC Identification: TFB-MATRIXL</p> <p><b>Canada:</b> Industry Canada IC: 5969A-MATRIXL</p> <p><b>Europe:</b> CE Mark – EMC Directive 2004/108/EC (Formerly 89/336/EEC), Radio Telecommunications Terminal Equipment Directive 99/5/EC</p> <p>Hereby, Johnson Controls, Inc., declares that the WRZ-STR0000-0 Wireless Refrigerator/Freezer Temperature Transmitter and Probe Assembly 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.</p>
<p><b>Shipping Weight</b></p>	<p>0.25 kg (0.55 lb)</p>

**United States Emissions Compliance**

**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.*

**Canadian Emissions Compliance**

**Industry Canada Statement**

*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.*

*The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.*



**Building Efficiency**  
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