WRZ-RMT10K-0 Wireless Remote Temperature Transmitter

Product Bulletin

WRZ-RMT10K-0, TE-6361A-1, TE-6361V-2, TE-636GV-2, TE-636S-1

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The WRZ-RMT10K-0 Wireless Remote Temperature Transmitter is designed to operate with a TE-6300 Series 10k ohm Johnson Controls® Type II Thermistor Sensor (order separately), to sense the temperature in warmer applications up to 158°F (70°C) and transmit wireless temperature data to a receiver or controller. Ideal applications include data server racks, food warming ovens, warming baths, warm food storage units, and hospital neonatal incubators.

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-RMT10K-0 Wireless Remote Temperature Transmitter can also be used in a One-to-One application (non-mesh network) to communicate with a WRZ-78x0-0 Wireless Receiver. The WRZ-78x0-0 Receiver transfers data to the controller by means of the Sensor Actuator (SA) Bus. In a typical application, one WRZ-RMT10K-0 Transmitter reports to one WRZ-78x0-0 Receiver, but up to five WRZ-RMT10K-0 Transmitters can be associated with a single WRZ-78x0-0 Receiver in averaging applications.



Figure 1: WRZ-RMT10K-0 Wireless Remote Temperature Transmitter with Johnson Controls TE-6300 Series Temperature Sensor (Order Separately)

The WRZ-RMT10K-0 Wireless Remote Temperature Transmitter can transmit sensed temperature and low battery conditions to an associated router or receiver. The WRZ-RMT10K-0 Transmitter and associated TE-6300 Series Temperature Sensor are designed for indoor, intra-building applications only.

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

Features	Benefits
Metasys® System Extended Architecture 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 the associated temperature sensor.
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 Temperature System Accuracy	Allows the temperature transmitter and the associated temperature sensor to monitor temperature-sensitive applications over a range of 32°F to 158°F (0°C to 70°C).
Liquid Crystal Display (LCD)	Indicates real-time status of the environment.

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

Features	Benefits
Fahrenheit/Celsius (°F/°C) Button	Toggles the display temperature between degrees Celsius and degrees Fahrenheit.
Temperature Sensor Connects to the Associated Temperature Transmitter in the Field	Ensures that the temperature sensor can be easily replaced if needed.

Dimensions

See Figure 2 for dimensions and physical features of the WRZ-RMT10K-0 Wireless Remote Temperature Transmitter and the associated TE-6300 Series Temperature Sensor.

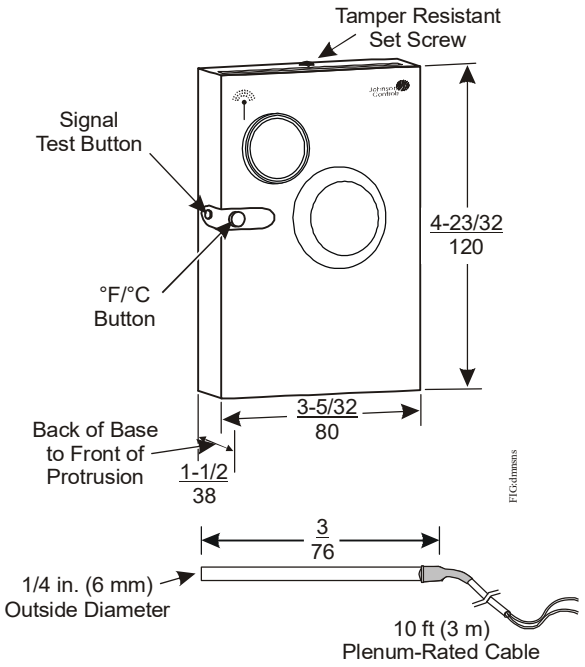


Figure 2: WRZ-RMT10K-0 and TE-6300 Dimensions and Physical Features, in./mm

Ordering Information

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

IMPORTANT: The WRZ-RMT10K-0 Wireless Remote Temperature Transmitter is intended to provide an input to equipment under normal operating conditions. Where failure or malfunction of the transmitter 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.

Table 2: Ordering Information (Part 1 of 2)

Code Number	Description
WRZ-RMT10K-0	Wireless Remote Temperature Transmitter: Includes One Temperature Transmitter Assembly (One Transmitter, One Mounting Base, and Strips of Double-Sided Adhesive Foam Tape; All Factory Assembled), One Strain Relief Bushing, 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-78x0-0 Receiver, One Installation Instructions Sheet, and Two AA Alkaline Batteries
TE-6361A-1	Johnson Controls 10k ohm Type II Thermistor Sensor; 8 in. (203 mm) Duct Probe, Adjustable Enclosure
TE-6361V-2	Johnson Controls 10k ohm Type II Thermistor Sensor; 8 in. (203 mm) Duct Probe, Flange Mount Enclosure
TE-636GV-2	Johnson Controls 10k ohm Type II Thermistor Sensor; 4 in. (102 mm) Duct Probe, Flange Mount Enclosure

Table 2: Ordering Information (Part 2 of 2)

Code Number	Description
TE-636S-1	Johnson Controls 10k ohm Type II Thermistor Sensor; Strap-Mount Probe
WRZ-SST-110	Wireless Sensing System Tool: For Use with a WRZ-RMT10K-0 Wireless Remote Temperature Transmitter, to Function as a Site Survey Tool for the WRZ Series One-to-One Wireless Room Sensing System, or for the ZFR1800 Wireless Field Bus System
MAGNET-BASE-PLW	Magnetic Backplate for Mounting the Transmitter on Metal Surfaces; 5 Magnetic Backplates per Package
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 Package

Additional Product Information

Table 3 includes Negative Temperature Coefficient (NTC) thermistor sensor temperature/resistance response characteristics for the TE-6300 Series Temperature Sensor. The values included in this table can be used to verify the accuracy of the temperature sensor in the field.

If another manufacturer's 10k ohm thermistor sensor is used with the WRZ-RMT10K-0 Wireless Remote Temperature Transmitter, the values for the temperature/resistance response characteristics may be different than those indicated in Table 3 for the Johnson Controls TE-6300 Series Temperature Sensor. This difference may cause the transmitter to read temperatures incorrectly.

Table 3: Temperature vs. Resistance (Part 1 of 2)

Temperature, °F (°C)	Resistance, ohms
-50 (-46)	489,981
-40 (-40)	366,185
-30 (-34)	233,990
-20 (-29)	165,085
-10 (-23)	117,978
0 (-18)	85,349
10 (-12)	62,464
20 (-7)	46,221
30 (-1)	34,562
40 (4)	26,103
50 (10)	19,903
60 (16)	15,313
70 (21)	11,883
80 (27)	9,298
90 (32)	7,333
100 (38)	5,827
110 (43)	4,663

Table 3: Temperature vs. Resistance (Part 2 of 2)

Temperature, °F (°C)	Resistance, ohms
120 (49)	3,757
130 (54)	3,048
140 (60)	2,488
150 (66)	2,043
160 (71)	1,687
170 (77)	1,401

Repair Information

If the WRZ-RMT10K-0 Wireless Remote Temperature Transmitter fails to operate within its specifications, replace the unit. For a replacement transmitter, contact the nearest Johnson Controls representative.

The two AA alkaline batteries supplied with the WRZ-RMT10K-0 Wireless Remote Temperature 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: 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 replacing the batteries. Do not mix lithium and alkaline batteries in this device.

Technical Specifications

WRZ-RMT10K-0 Wireless Remote Temperature Transmitter

Power Requirements		3 VDC Supplied by Two 1.5 VDC AA Alkaline Batteries (Included with Transmitter); Typical Battery Life: 5 Years or More; 7 Years Using Lithium Batteries
Addressing		DIP Switches (Field Adjustable): MS/TP Address, Network Number, and Zone Address
Transmitter Ambient Conditions		**Operating:** 23°F to 111°F (-5°C to 44°C), 5% RH to 95% RH, Noncondensing **Storage:** -4°F to 140°F (-20°C to 60°C), 5% RH to 95% RH, Noncondensing
RF Band		Direct-Sequence, Spread-Spectrum; 2.4 GHz ISM Band
Transmission Power		10 mW Maximum
Transmission Range		**Mesh Network Application:** 100 ft (30 m) Maximum Indoor Line of Sight; 50 ft (15 m) Practical Average Indoor **Non-mesh Network, One-to-One Application:** 150 ft (45 m) Maximum Indoor Line of Sight; 100 ft (30 m) Practical Average Indoor
Transmissions		Every 120 Seconds (±20 Seconds)
Temperature System Accuracy		±1.8F°/±1.0C° Over the Range of 32°F to 158°F (0°C to 70°C)
Materials		NEMA 1 White Plastic Housing
Mounting		Surface Mounted Using Factory-Installed, Double-Sided Adhesive Foam Tape
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 declares that this product is in compliance with the essential requirements and other relevant provisions of the RED, EMC, LVD, and RoHS Directives.
Shipping Weight		0.55 lb (0.25 kg)

TE-6300 Series Temperature Sensors

Sensor Type	10k ohm Johnson Controls Type II Thermistor Sensor
Sensor Thermal Characteristics	See Table 3
Sensor Temperature Coefficient	Nonlinear 10k ohm NTC Thermistor
Electrical Connections	22 AWG (0.6 mm Diameter) x 10 ft (3 m) Long Plenum-Rated Cable (White Leads)
Probe Materials	Stainless Steel
Mounting	Mount within 10 ft (3 m) of the WRZ-RMT10K-0 Wireless Remote Temperature Transmitter
Operating Temperature Limits	**Cable:** -50°F to 140°F (-46°C to 60°C)
	Probe: -50°F to 220°F (-46°C to 104°C)
Shipping Weight	0.2 lb (0.09 kg)

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 shall not be liable for damages resulting from misapplication or misuse of its products.

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