24-10563-55, Rev. C
(barcode for factory use only)

WRZ-SST-120 Wireless Sensing System Tool

Installation Instructions

WRZ-SST-120

Part No. 24-10563-55, Rev. C
Issued March 2017

Refer to the QuickLIT Web site for the most up-to-date version of this document.

Applications

The WRZ-SST-120 Wireless Sensing System Tool is a lightweight, portable, wireless receiver designed to receive wireless Radio Frequency (RF) data transmissions from Johnson Controls® WRZ Series Wireless Room Sensors in One-to-One sensing system site survey applications. The WRZ-SST-120 Tool can also serve as an RF signal tester or site survey tool prior to installing a ZFR1810 or ZFR1820 Pro Series Wireless Field Bus System.

Use the WRZ-SST-120 Tool prior to installation, to verify the optimum locations for WRZ Series Sensors and the WRZ-7860-0 Receiver in One-to-One wireless room sensing systems; or for Johnson Controls ZFR18xx Routers (ZFR or ZFR Pro Series Coordinators, Routers, Repeaters), and WRZ Series Sensors in wireless field bus applications.

North American Emissions Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

RF Transmitters: 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.

Johnson Controls

Canada

This Class (A) digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Classe (A) respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

RF Transmitters: Industry Canada Statements

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

This device has been designed to operate with an antenna having a maximum gain of 2 dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the Equivalent Isotropically Radiated Power (EIRP) is not more than that required for successful communication.

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

Cet appareil a été conçu pour fonctionner avec une antenne d'un gain maximum de 2 dBi. En application des réglementations d'Industry Canada, l'utilisation d'une antenne de gain supérieur est strictement interdite. L'impédance d'antenne requise est de 50 ohms.

Pour réduire les interférences radio potentielles avec les dispositifs d'autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon à ce que la Puissance Isotrope Rayonnée Équivalente (PIRE) ne soit pas supérieure à la puissance nécessaire pour une bonne communication.

Installation

Transport the WRZ-SST-120 Wireless Sensing System Tool in the original container to minimize vibration and shock damage to the receiver.

Verify that all the parts shipped with the receiver:

- one WRZ-7860-0 Receiver with two magnets attached
- one battery pack with two magnets attached
- two AA alkaline batteries
- one installation instructions sheet

Do not drop the receiver or subject it to physical shock.

Detailed Procedure

IMPORTANT: If there are other wireless mesh networks or One-to-One wireless room sensing systems in the area, ensure that the **PAN OFFSET** address of the WRZ-7860-0 Receiver and WRZ Series Sensor (set by the **TRANSMITTER ID** and **AREA** DIP Switches) is different from the **PAN OFFSET** address of those wireless mesh networks or One-to-One wireless room sensing systems.

Note: Check that the power switches on the WRZ-7860-0 Receiver and WRZ Series Sensor are set to **OFF** before proceeding.

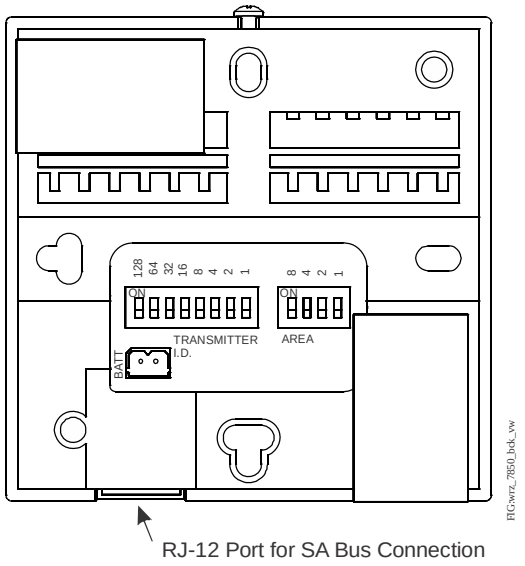

Figure 1: TRANSMITTER ID and AREA DP Switch Blocks on a WRZ-7860-0 Receiver

1. Set the **TRANSMITTER ID** and **AREA** DIP switches on the WRZ-7860-0 Receiver and the WRZ Series Sensor to the same address. Refer to the *WRZ Series One-to-One Wireless Room Sensing System Technical Bulletin (LIT-12011641)* for more details.
2. Install the batteries into the battery pack.
3. Connect the battery pack wire harness to the two-pin connector located under the **TRANSMITTER ID** DIP switches on the back of the WRZ-7860-0 Receiver.

Note: Connecting the battery pack to the receiver transforms the WRZ-7860-0 Receiver into the WRZ-SST-120 Tool.

4. Turn the WRZ-SST-120 battery pack power switch to **ON**.
5. Turn the WRZ Sensor power switch to **ON**.
6. For a One-to-One wireless room sensing system, place the WRZ-SST-120 Tool in the area where the WRZ-7860-0 Receiver would be located, and place the WRZ Series Sensor in the area where you intend to mount the sensor.

Notes:

- If a ZFR or ZFR Pro Series Router is used as a Repeater in the final installation to extend the operating range, place the WRZ-SST-120 Tool in the location where the Repeater is to be located. Use the WRZ Series Sensor to verify the intended sensor location, then use the WRZ Series Sensor to stimulate and verify the intended WRZ-7860-0 Receiver location.
- **A ZFR182x Pro Wireless Field Bus Router cannot be used as a Repeater in a WRZ-7860 application.**

  For a ZFR or ZFR Pro Series Wireless Field Bus System, place the WRZ Series Sensor in the desired location for a ZFR or ZFR Pro Router, and place the WRZ-SST-120 Tool in the desired location for a Router or Coordinator.

7. Turn on the power switch of the test WRZ Series Sensor and allow it to establish communication with the WRZ-SST-120 Tool. When communication is established, the RF signal strength Light-Emitting Diode (LED) on the WRZ-SST-120 Tool blinks.

   Five seconds after the power is applied, the red LED on the WRZ Series Sensor flashes to indicate the firmware revision. For example, firmware revision 3 is indicated by the LED flashing three times during the startup process.

   If communication is not established within 15 seconds, press the manual occupancy override button on the WRZ Series Sensor to force another communication attempt.

8. Once the WRZ Series Sensor establishes communication with the WRZ-SST-120 Tool, press the manual occupancy override button for 5 seconds and release to force the sensor into Rapid Transmit Mode (RTM).

9. Hold the WRZ-SST-120 Tool in the desired location and record the number of times the RF signal strength LED blinks over the course of 10 seconds.

Table 1: Wireless RF Signal Strength

Number of LED Blinks	RF Signal Strength
3	Excellent
2	Good
1	Weak
0	None

   If the RF signal strength is less than Good, move the location of either device until an Excellent or Good RF signal strength is indicated.

   Move on to the next location, and repeat Steps 1 through 8 as necessary.

10. When testing is finished, turn off the battery switch on the WRZ-SST-120 Tool and turn off the power switch on the test WRZ Series Sensor.

Operation

Wireless Signal Strength

The RF signal strength LED indicates the strength of the RF wireless signal between the sensor and its associated sensing system receiver, expressed as Excellent, Good, or Weak. The WRZ-SST-120 Tool has an RF signal strength LED that blinks off one, two, or three times for every RF transmission to indicate the RF signal strength between the sensor and the tool, or the router/coordinator and the tool. See Table 1.

Rapid Transmit Mode (RTM) and RF Signal Strength LEDs

Normally, a WRZ sensor transmits every 60 or 120 seconds; however, pressing and holding the manual occupancy override button on the WRZ Series Sensor for 5 seconds and then releasing it forces the sensor into RTM. In RTM, a WRZ Series Sensor sends an RF data transmission once every 10 seconds. The sensor remains in RTM for up to a total of 30 RF transmissions. After each RF transmission, the RF signal strength LED of the sensor flashes (LED off to on) to indicate the RF signal strength between the sensor and WRZ-SST-120 Tool. The WRZ-SST-120 Tool blinks (LED on to off) to indicate the wireless RF signal strength.

Troubleshooting

See Table 2 for a list of documents containing additional information on products and systems related to the WRZ-SST-120 Wireless Sensing System Tool.

Table 2: Related Documentation

For Information On	Refer to Document	Document Number
Locating, Mounting, and Wiring WRZ Series Sensors	*WRZ Series Wireless Room Sensors Installation Instructions*	*Part No. 24-10332-2*
Locating, Mounting, and Wiring the WRZ-7860-0 Receiver	*WRZ-7860-0 Receiver for One-to-One Wireless Room Sensing Systems Installation Instructions*	*Part No. 24-10563-47*
Applications and Features and Benefits of the WRZ Series Sensors	*WRZ Series Wireless Room Sensors Product Bulletin*	*LIT-12011653*
Applications and Features and Benefits of the WRZ-7860-0 Receiver	*WRZ-7860-0 Receiver for One-to-One Wireless Room Sensing Systems Product Bulletin*	*LIT-12011640*
Locating, Mounting, and Wiring ZFR1811 Routers	*ZFR1811 Wireless Field Bus Router Installation Instructions*	*Part No. 24-10325-10*
Locating, Mounting, and Wiring ZFR1810 Coordinators	*ZFR1810 Wireless Field Bus Coordinator Installation Instructions*	*Part No. 24-10325-2*
Applications and Features and Benefits of the ZFR1800 Series Wireless Field Bus System	*ZFR1800 Series Wireless Field Bus System Product Bulletin*	*LIT-12011336*
Locating, Mounting, and Wiring ZFR Pro Routers	*ZFR1821/ZFR1822 Pro Wireless Router Installation Instructions*	*Part No. 24-10325-126*
Locating, Mounting, and Wiring ZFR Pro Coordinators	*ZFR1820/ZFR1823 Pro Wireless Field Bus Coordinator Installation Instructions*	*Part No. 24-10325-96*
Locating, Mounting, and Wiring Wireless Network Coordinator Gateways	*WNC1800 Wireless Network Coordinator Gateway Installation Instructions*	*Part No. 24-10737-91*
Locating and Estimating the Required Number of Devices for a Wireless System	*WNC1800/ZFR182x Pro Series Wireless Field Bus System Technical Bulletin*	*LIT-12012356*
	ZFR1800 Series Wireless Field Bus System Technical Bulletin	*LIT-12011295*
	WRZ Series One-to-One Wireless Room Sensing System Technical Bulletin	*LIT-12011641*

Repair Information

If the WRZ-SST-120 Wireless Sensing System Tool fails to operate within its specifications, replace the unit. For a replacement WRZ-SST-120 Tool, contact the nearest Johnson Controls representative.

Two AA alkaline batteries are supplied with the WRZ-SST-120 Wireless Sensing System Tool. Replace the batteries with high-quality AA alkaline batteries as necessary, ensuring that the batteries are installed in the proper polarity. Both batteries should be replaced at the same time.

Note: 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.

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