

Wireless Sensor Quick Start Guide

including Wi-TS and Wi-THS products



Thank you for purchasing a Falcon wireless sensor, intended for use with the FDS-Wi. This guide describes installation and troubleshooting methods for wireless sensors available from RLE Technologies.

If you need further assistance, please contact RLE Technologies via our website - rletech.com or call us at 800.518.1519.

Falcon

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RLE Technologies

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Mount the Sensor

418MHz sensors can transmit 100 feet in open air with limited obstructions. Wireless sensors should be mounted off the floor. While the electronics are coated to provide a moisture barrier against condensation, the sensor is not waterproof and submersion in water is not recommended. To prevent transmission interference, make sure the side of the sensor with the white RLE product label faces away from any metal surfaces.

Mount the sensor with 0.5 inch (1.27cm) wide double-sided adhesive tape or adhesive-backed magnetic tape. The magnetic tape will not disturb the electronics, and works well if the sensor is mounted on a metallic surface.

When placed correctly, the tape allows the sensor's label to remain visible. The serial number on this label is unique to each sensor, and you will need to refer to this number throughout the life span of the sensor. If tape is placed over the label, the paper label will tear and the serial number will be unreadable.



Serial Number

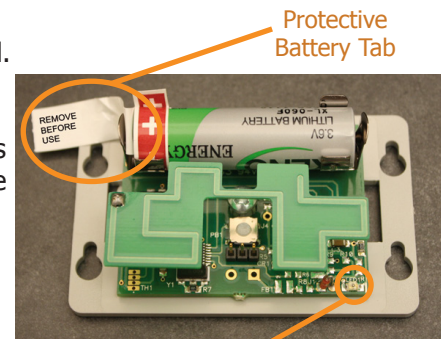
Mounting holes can be found on the sides of the enclosure, if you wish to mount it with screws, nails, or other fasteners.

Battery

Each sensor is equipped with a 3.6V lithium battery, which should be replaced as needed. The average battery life is 2 years, once the protective battery tab has been removed. Schedule battery replacement to avoid a loss of communications. Sensors will not operate with an alkaline battery - make sure the replacement is a 3.6V lithium cell.

The sensor is shipped with a battery pull tab in place, which turns the device off. Squeeze the shorter sides of the lid and remove the sensor's cover. To activate the sensor, remove the protective tab to engage the battery. Turn off the sensor by re-inserting the tab or removing the battery. Any time the sensor is shipped, it should either be turned off or placed in a shielded container to prevent interference that might cause shipping problems.

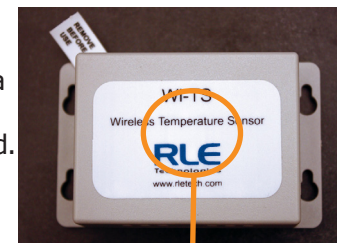
The Heartbeat LED flashes once every ten seconds, and lets a user know the device is functional.



Heartbeat
LED

Installation Mode Switch

The sensor has an installation mode switch - a push button located under the label in the center of the enclosure lid. When pressed, the sensor transmits a data packet with a special mark in its ID field. This indicates which sensor is in service or being installed. The data is processed by the FDS-Wi's Automatic Discovery feature. For more information regarding the FDS-Wi and wireless sensor integration, refer to the FDS-Wi User Guide.



Push
Button

The push button can act as the sensor's reset switch. It can be pushed after the battery has been removed and reinstalled, or if the sensor acts erratically. Push the button to revive the sensor and return it to normal operation.

Troubleshooting

The transmission range of a wireless sensor depends on the distance between the sensor and the FDS-Wi, and the number of obstacles between the two. The more obstructions between the devices, the weaker the signal becomes.

Do not install a wireless sensor inside a solid metal cabinet. This can interfere with its transmission.

Battery Issues

When the protective tab is pulled to activate the battery, the metal terminal clip on the PC board can bend slightly - not enough to see, but enough to cause

intermittent connection with the battery. If this happens, the sensor will either operate erratically or not work at all. To fix this problem:

1. Remove the battery.
2. Gently squeeze the battery clips toward each other, bending them slightly.
3. Insert the battery.
4. Replace the cover. Press the button in the center of the sensor to reset it.

When you replace the battery, replace it with a 3.6V lithium battery, not a standard alkaline AA cell. Also make sure you replace it with the terminals facing the correct direction. The sensor will not function with an alkaline cell or if the battery is inserted backwards.

Sensors Are Not Automatically Discovered by the FDS-Wi

If an installed sensor is not detected by the FDS-Wi, it is either too far away from the FDS-Wi, or there is an obstruction in its path. To determine the source of the problem, remove the sensor from its installed location and place it near the FDS-Wi. If it's then discovered by the FDS-Wi:

- It's desired location may be too far away. Move the sensor away from the FDS-Wi in small increments. This will help you determine the distance threshold of the sensor.
- An obstruction is blocking the signal. Either move the sensor, or install a repeater to relay the signal.
- If it's a single sensor application, installing a 900MHz sensor may be more cost-effective than a repeater.

If the sensor is still not discovered by the FDS-Wi:

- Verify the sensor's serial number. Make sure you're looking for the correct sensor at that position.
- Remove the sensor's cover and make sure the battery pull tab has been completely removed.
- Check to see that the heartbeat LED is blinking, once every 10 seconds. You'll find the red LED in the bottom right corner of the circuit board.
- If the red LED is not blinking, ensure there is not a gap between the battery clips and the side of the battery. Remove the battery, gently squeeze the clips in, and replace the battery.
- Check the battery's voltage. If the battery is reading a low voltage (lower than 3.4VDC), replace the battery with a 3.6V lithium AA battery.

"Ghost" Sensors

This issue may occur when wireless sensors are used in conjunction with an FDS-Wi. When you installed your sensors, the automatic Sensor Discovery feature on the FDS-Wi was enabled. Initially everything configured correctly, but when you check the FDS-Wi several days later, it reports far more sensors than you have installed, and some of the reported data is very old.

When you configured your system, you left the Sensor Discovery feature on the FDS-Wi enabled. The sensors sometimes transmit messages with garbled data packets, and the FDS-Wi has interpreted the garbled data as new sensors. The "new" sensors have been added to the interface.

To avoid this problem, you must disable the Sensor Discovery feature in the FDS-Wi once the initial configuration is complete and the FDS-Wi has discovered all the sensors.

To fix this issue once it's occurred:

1. Turn OFF the Sensor discovery feature in the FDS-Wi.

The screenshot shows the 'Configuration' page for the FDS-Wi, with the 'Sensors' tab selected. Under the 'Wireless' section, the 'Sensor Discovery' checkbox is checked and circled in orange. Other options include 'W418 Receiver' and 'W900 Receiver', both of which are also checked.

2. Use the FDS-Wi interface to delete the "ghost" sensors. Click the Sensor Summary link at the top of the page. You'll see a list of all the sensors the FDS-Wi is monitoring.
3. Click on the number of the sensor you wish to delete. You'll be taken to the configuration page for that sensor.
4. Delete the information in the Sensor Type ID field, the Description field, and the Serial Number field. Click the Submit Changes button.

The screenshot shows the 'Configuration' page for the FDS-Wi, with the 'Sensors' tab selected. The 'Submit Changes' button is circled in orange. Below it is a table of sensor configurations.

Field	Value	Modbus Register	BACnet Instance
Type (Model)	Temp_Humid		
Sensor Type ID	49	40001 (uint16)	
Description	418MHz Temp/Humidity		
Serial Number	B01451CC00000000	40003 (uint16 x4)	
Offline Delay	10 (Minutes)	48001 (uint16)	

5. Repeat the process for each sensor you need to delete.
6. Once the "ghost" sensors are all deleted, there may be gaps in your list of sensors - if you needed to delete the sensors in spots 4, 7, and 9, these sensor numbers are now blank. You can renumber the existing sensors to fill in these gaps.
7. To renumber your sensors, return to the Sensor Summary page. Click the number of the sensor you wish to renumber.
8. Scroll to the bottom of the page, and type the new number in the Move sensor position to: box. Click the Submit Changes button. You'll be returned to the Sensor Summary page, and the sensor will appear in its new location in the list. Repeat this process for each sensor you wish to renumber.