



## WATTS IS-FZ Freeze Sensor Connection Kit Installation Guide

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#### WARNING

Read this Manual BEFORE using this equipment. Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment. Keep this Manual for future reference.

You are required to consult the local building and plumbing codes prior to installation. If the information in this manual is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.

Freeze sensor solely provides alerts about a possible freeze event and cannot prevent a freeze event from occurring. User action is required to prevent freeze conditions from causing product and/or property damage.

Use smart and connected sensor technology with valve installations to monitor temperature and alert facility personnel when freeze conditions can cause damage to equipment. The Freeze Sensor Connection Kit includes two temperature sensors, allowing the user to choose which is more suitable for installation. One sensor can be mounted to a valve assembly; the other installed outdoors as a standalone unit.

When the kit is installed with either sensor, the sensor is activated and wired to a monitoring system. As temperature nears and reaches the freezing point, the monitoring system relays a signal to a connected building or irrigation management system, allowing freeze alerts to be distributed according to the BMS or IMS application. When the monitoring system is Wi-Fi enabled, notifications can be issued through the Smart Freeze Alert cloud service.

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## NOTICE

Use of the freeze sensor does not replace the need to comply with all required instructions, codes, and regulations related to installation, operation, and maintenance of this product, including the need to provide protection against a freeze event.

Watts is not responsible for the failure of alerts due to connectivity issues, power outages, or improper installation.

## Kit Components

The connection kit for installing and activating the freeze sensor includes the items shown below. If any item is missing, speak with your account representative about ordering code 88009515 (Watts) or 88009516 (FEBCO).

### Freeze sensor in mounting clip



### Standalone outdoor sensor



**DC 24 V power adapter**



**Wire nuts**



**Activation module**



## Quick Start Guide



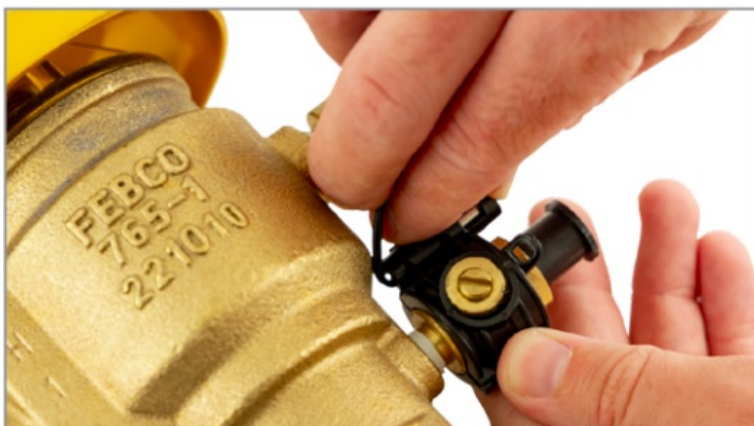
## Requirements

- Small slotted screwdriver
- Wire stripper
- Two (2) custom lengths of 2-conductor cable (twisted pair preferred):
  - One length to connect the freeze sensor to the activation module
  - The other length to connect the activation module to the building or irrigation management system
- Tie, to hold the sensor cable to the valve
- AC 120 V, 60 Hz, GFI-protected electrical outlet (for kit power adapter), or DC 24 V power source
- To set up notifications through the Smart Freeze Alert cloud service:
  - Wi-Fi connection
  - Web browse

## Setting Up the Valve

The freeze sensor shown here is installed on a FEBCO 765 PVB. The installation steps are the same for any Watts or FEBCO valve that has a freeze sensor.

1. For retrofit installation only. Snap the mounting clip with freeze sensor over one of the test cocks.



2. Remove the insulation from the freeze sensor leads.
3. Use the wire stripper to cut ½" insulation off both ends of the 2-conductor cable connecting the sensor to the activation module.
4. Connect the freeze sensor leads to one end of the cable using the weather-proof wire nuts provided.

5. Use the tie to strap the first segment of the cable to the valve.



### Using the Standalone Outdoor Sensor

The standalone outdoor sensor can be installed instead of the valve-mounted sensor. For more information on installation, refer to tekmar Outdoor Sensor 070 at [watts.com](https://www.watts.com).



### Wiring the Activation Module

The following steps apply to both the valve-mounted sensor and the standalone outdoor sensor

1. Grab the finger recesses on the top and bottom of the activation module and pull off the cover.
2. Connect the positive wire of the power adapter (black with white stripes) to terminal 1 and the ground wire to terminal 2.
3. Connect one wire of the sensor cable to terminal 3 and the other wire to terminal 4.
4. Use the wire stripper to cut ½" insulation off both ends of the system cable connecting the activation module to the building or irrigation management system.
5. Connect one wire of the system cable to COM terminal 6 and the other wire to either NO terminal 5 or NC terminal 7.
6. Follow the manufacturer's instructions to connect the other end of the cable to the building or irrigation management system.
7. Put the module cover back on the unit and plug the power adapter into a AC 120 V, 60 Hz, GFI-protected electrical outlet or connect it to a DC 24 V power source.
8. Mount the module in an unobstructed location for the best Wi-Fi signal.



## 24 VDC INPUT

Connect the positive wire (black with white stripes) of the power adapter to terminal 1 and the ground wire to terminal 2.

## SENSOR INPUT

Connect one wire of the sensor cable to terminal 3 and the other wire to terminal 4.

## OUTPUT RELAY

Connect one wire of the third-party BMS or IMS input cable to COM terminal 6 and the other wire to either NO terminal 5 or NC terminal 7.

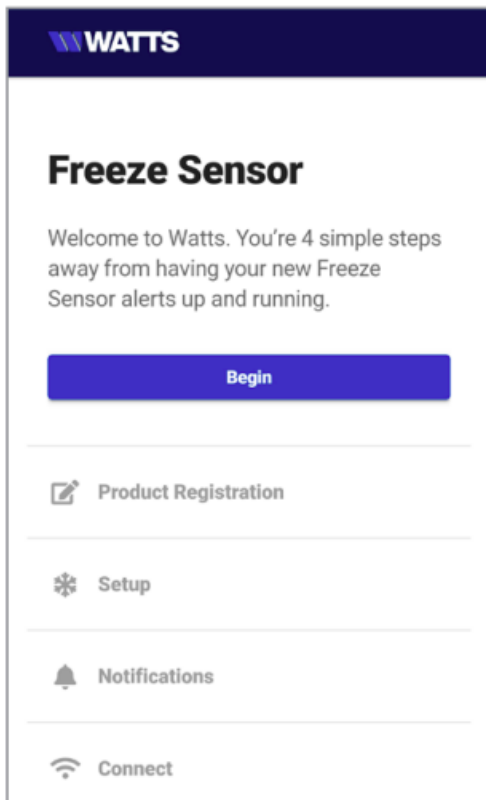
## Setting Up the Alert System on a Wi-Fi Network

Hardware installation must be completed before product registration and Wi-Fi setup. Ensure that electrical power and Wi-Fi are available. The activation module does not need to be Wi-Fi enabled to work with a building or irrigation management system. Enable Wi-Fi to send email alerts independently of a third-party controller.

## Initiating the Process

1. After the activation module is plugged in, wait until the Wi-Fi blue LED starts to blink.
2. Use a mobile phone or computer to scan for new Wi-Fi networks, then do the following:

- Choose FreezeMonitorSetup-xxxxx. (The variable is an alphanumeric string unique to the device.)
  - Enter password freezemonitor.
3. If the Watts webpage does not open automatically, launch a web browser and enter <http://10.10.0.1>, or scan the QR code below.
  4. Review the privacy policy scrolling to the end then tap Agree and Continue.
  5. Review the terms of use scrolling to the end then tap Agree and Continue.
  6. When the setup menu is displayed, tap Begin to complete the 4-step process.



## Completing the Setup

**Step 1** Product Registration. Complete the required fields (marked with \*) to register the product then tap Next.

- Enter first name.
- Enter last name.
- Enter street address.
- Enter city or town.
- Choose state from the pull-down list.
- Enter zip code.

**Product Registration** \* Required

Country  
United States

First Name \*  
John

Last Name \*  
Doe

Address \*  
123 Main St

Apartment, Suite, Etc.

City \*  
Boston

State \*  
Massachusetts

Zip/Postal code \*  
01117

Next

**Step 2 Setup.** Complete the required fields to set up the valve assembly then tap Next.

- Enter a nickname for the assembly.
- Choose the assembly model from the pull-down list.
- Choose the assembly size from the pull-down list.

**Product Registration** ✓

**Setup** \* Required

Device Nickname \*  
Captain

765 PVB  
800 PVB  
007 Double Check  
850 Double Check  
Other

**Product Registration** ✓

**Setup** \* Required

Device Nickname \*  
Captain

Device Model \*  
765 PVB


Device Size \*  
1/2" - 2"


Next

**Step 3 Notifications.** Enter contact information for real-time notifications then tap Next.


- Enter email address (required).
- Enter mobile phone number (optional).




 Product Registration




---

 Setup



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 Notifications

\* Required

Email \*

johndoe@municipality.com

Phone Number

Next

**Step 4** Connect. Link to the Wi-Fi network desired for the connection then tap Next.

- Choose the network from the pull-down list.
- Enter password.

If the network is not listed, input the local network to be used.

- Choose Other Network from the pull-down list.
- Enter the network name.
- Enter password.

**NOTE:** If your desired network is not visible, or if you are having difficulty connecting to it, contact your network administrator. High security networks may require additional permissions.

Product Registration ✓

Setup ✓

Notifications ✓

**Connect** \* Required

Wi-Fi Network \*  
Other Network

Network Name \*  
Facility101

Password \*  
\*\*\*\*\*

Next

**One of two outcomes is displayed:**

- Setup Complete. Confirms that the freeze sensor activation module using the Wi-Fi function is successfully registered with and connected to the cloud service. Notifications will be sent to the email address entered and to the mobile phone number if entered.
- Could Not Connect. Indicates that the attempt to connect to the cloud service failed. Tap OK. Try to connect again after making sure all wiring and cables are properly attached, the Wi-Fi function on the activation module is enabled, the module is in range for wireless connectivity, and the local network logon credentials are correct. If the problem continues, submit a request for assistance at [watts.com/support](https://watts.com/support) or call 1-[978-689-6066](tel:978-689-6066).

**Testing the Connection**

Press the multifunction button on the module for at least 15 seconds to send the message. The Low Temperature alert is the test message.

**How the Alert System Works**

The freeze sensor measures temperature when energized by the freeze sensor activation module. The relay is activated at 37°F and stays on below 32°F.

The activation module can be connected to a building management system, irrigation management system, or Wi-Fi network. When connected to Wi-Fi, the system can be configured to send alerts by email and text message.

Press the multifunction button for the minimum number of seconds indicated to activate a function.

Call customer service if you need assistance with technical details.

FUNCTION	PRESS (IN SECONDS)	NOTE
Messages OFF	1	Silences messaging. This function does not toggle. A change in conditions (such as a drop in temperature) or a change to the Wi-Fi status resets this function on Messages ON.
Wi-Fi ON/OFF	3	Toggles the function ON or OFF.
Reset	10	Erases all temporary data.
Test	15	Sends the Low Temperature alert during testing.

Messaging is aligned with measured temperature To silence messaging, press the multifunction button between 1 and 3 seconds. The Messaging ON function is restored by a change in condition (such as an increase or decrease in temperature) or in the Wi-Fi status, as well as a reset or power cycle. (For more information, see “Messaging.”)

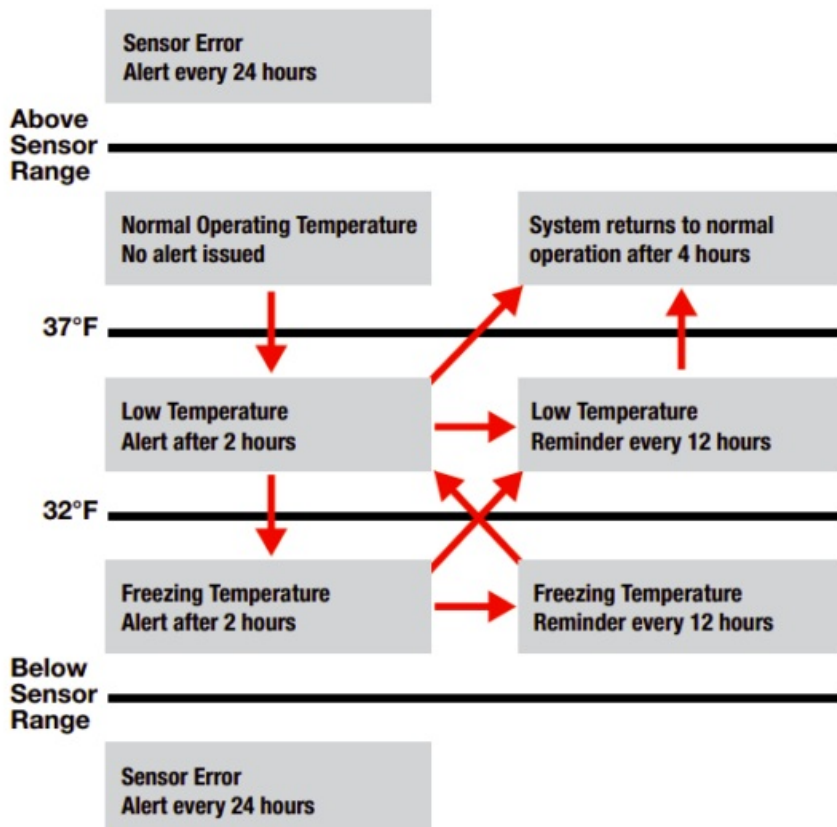
The system is not measuring temperature correctly and requires attention. Alert every 24 hours.

In normal operating mode, temperature is measured above 37°F. No alert issued.

Temperature is measured below 37°F. Low Temperature alert after 2 hours. Reminder every 12 hours. Normal operation resumes when temperature is measured above 37°F.

Temperature is measured below 32°F. Freezing Temperature alert after 2 hours. Reminder every 12 hours. Low Temperature alert and reminder are issued accordingly when temperature is measured above 32°F.

The system is not measuring temperature correctly and requires attention. Alert every 24 hours.



## Messaging

This table includes full explanation of all messaging when the alert system is connected to a Wi-Fi network.

MESSAGE	NOTE
Device Registered (Wi-Fi enabled activation module)	Indicates the activation module with Wi-Fi activated is successfully registered with and connected to the cloud service. Alerts are sent to the contact entries entered during the setup process: email address (required) and mobile phone number (optional).
Sensor Error	Indicates the freeze sensor may be faulty, measuring temperature out of range, or improperly wired to the activation module. An alert is sent once every 24 hours. This error message is also sent if there are issues with the initial and subsequent hardware installation.
Low Temperature Alert	Indicates the current temperature is near the freezing point. An alert is sent after 2 hours when temperature is measured between 32°F and 37°F. Afterward, a reminder is issued every 12 hours if temperature is measured in the same range. When temperature increases above 37°F, the system returns to normal operation after 4 hours. No alerts are issued. This alert is also sent as a test message.
Low Temperature Reminder	Indicates the current temperature is near the freezing point. This alert is sent every 12 hours when temperature is measured between 32°F and 37°F. When temperature increases above 37°F, the system returns to normal operation after 4 hours. No alerts are issued.
Freezing Temperature Alert	Indicates the current temperature is below the freezing point. An alert is sent after 2 hours when temperature is measured below 32°F. Afterward, a reminder is issued every 12 hours if temperature is measured in the same range. When temperature increases above 32°F, the Low Temperature reminder is sent every 12 hours when temperature is measured between 32°F and 37°F.
Freezing Temperature Reminder	Indicates the current temperature is below the freezing point. This reminder is sent every 12 hours when temperature is measured below 32°F. When temperature increases above 32°F, the Low Temperature alert is sent after 2 hours when temperature is measured between 32°F and 37°F.
Device Lost Connectivity to Cloud Service	<p>Indicates no connection between the Wi-Fi enabled module and the cloud service. Alerts are sent accordingly. After 1 hour, the disconnected device can reestablish connectivity to the cloud service and resume alerts.</p> <p>After 24 hours, the disconnected device can reestablish connectivity to the cloud service and resume alerts. If connection is not made by the date specified, the device is unregistered from the cloud service.</p> <p>After 5 days, the disconnected device can reestablish connectivity to the cloud service and resume alerts. If connection is not made by the date specified, the device is unregistered from the cloud service.</p> <p>After 30 days, the disconnected device is unregistered from the cloud service. Alerts are no longer issued.</p>
Device Reestablished Connectivity to Cloud Service	Indicates the Wi-Fi enabled module has been reconnected to the cloud service.

Device Unregistered	Indicates no connection between the Wi-Fi enabled module and the cloud service. Alerts are no longer issued. The module must be reset and reregistered to send alerts. If the module is reregistered and reconnected to the cloud service, no notifications regarding connection or disconnection are generated and sent for 24 hours, starting from the time the reconnection occurred.
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**LED Reference**

LED STATUS	GREEN	BLUE	RED
Power OFF	OFF	OFF	OFF
LED function verification		ON 1 s	ON 1 s
Power ON	ON		
Access Point mode		Blink 4 Hz	
Client connected (Access Point mode)		Blink 2 Hz	
Client disconnected (Access Point mode)		Blink 4 Hz	
Wi-Fi disconnected (Station mode)		Blink 2 Hz	
Wi-Fi connected (Station mode)		Blink 1 Hz	
IoT Hub disconnected (Station mode)		Blink 1 Hz	
IoT Hub connected (Station mode)		ON	
Wi-Fi disabled		OFF	
Low temperature			Blink 1 Hz
Freezing temperature			Blink 2 Hz
Temperature sensor error			Blink 4 Hz
After pressing the multifunction button for more than 1 s but less than 3 s with alert conditions (Disable repeat alert)			Solid ON if IoT H ub connected
After pressing the multifunction button for more than 3 s but less than 10 s (Wi-Fi ON/OFF toggle)		Blink 8 Hz	
After pressing the multifunction button for more than 10 s but less than 15 s (Factory reset)			Blink 8 Hz
After pressing the multifunction button for more than 15 s (Installer Test mode)	Blink 8 Hz		
Credential missing (Factory calibration required)	Blink 2 Hz	Blink 2 Hz	Blink 2 Hz
Communication error with sensor controller			Blink 6 Hz
Factory Calibration mode	ON	ON	ON
End Factory Calibration mode (PASS)	ON	OFF	ON

## Radio Frequency Safety

## FCC Compliance Statement

This device complies with Part 15 of the FCC Rules.

**Operation is subject to the following two conditions:**

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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. However, there is no guarantee that interference will not occur during a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

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

**ISED Compliance Statement**

This device complies with the Industry Canada license-exempt Radio Standards Specification. Operation is subject to the following two conditions.

- This device may not cause interferences; and
- This device must accept any interference, including interference that may cause undesired operation of the device.

Limited Warranty: Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.\

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Latin America: T: (52) 55-4122-0138 • [Watts.com](http://Watts.com)



## Documents / Resources

	<p><a href="#">WATTS IS-FZ Freeze Sensor Connection Kit</a> [pdf] Installation Guide IS-FZ Freeze Sensor Connection Kit, IS-FZ, Freeze Sensor Connection Kit, Sensor Connection Kit, Connection Kit, Kit</p>
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## References

- [Watts | Plumbing, Heating and Water Quality Solutions](#)
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- [Our Customer Support Team is Ready to Help | Watts](#)
- [User Manual](#)

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