

## Installation, Operation and Maintenance

# Wireless Mesh Outdoor Sensor 043

The tekmar Wireless Mesh Outdoor Sensor 043 provides outdoor temperature measurement for mesh compatible boiler controls without exterior wiring. The Wireless Mesh Outdoor Sensor 043 provides maximum accuracy supporting outdoor reset giving ultimate hydronic heating comfort.

It is compatible with the following products:

- Smart Boiler Control 294
- Smart Steam Control 289
- Mesh Network Extender 041



works with | nexa

### ⚠ WARNING



**Please read carefully before proceeding with installation. Your failure to follow any attached instructions or operating parameters may lead to the product's failure.**



**Keep this Manual for future reference.**

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## Important Safety Information

It is your responsibility to ensure that this sensor is safely installed according to all applicable codes and standards.

tekmar® is not responsible for damages resulting from improper installation and/or maintenance.



This is a safety-alert symbol. The safety alert symbol is shown alone or used with a signal word (DANGER, WARNING, or CAUTION), a pictorial and/or a safety message to identify hazards. When you see this symbol alone or with a signal word on your equipment or in this manual, be alert to the potential for death or serious personal injury.

### **⚠ WARNING**

- It is the installer's responsibility to ensure that this sensor is safely installed according to all applicable codes and standards.

### **NOTICE**

- Do not attempt to service the sensor. There are no user serviceable parts inside the sensor. Attempting to service the sensor voids the warranty.



This pictorial alerts you to electricity, electrocution, and shock hazards.

### **⚠ WARNING**

This symbol identifies hazards which, if not avoided, could result in death or serious injury.

### **⚠ CAUTION**

This symbol identifies hazards which, if not avoided, could result in minor or moderate injury.

### **NOTICE**

This symbol identifies practices, actions, or failure to act which could result in property damage or damage to the equipment.

# Installation

## Check the Contents

Check the contents of this package. If any of the contents listed are missing or damaged, please refer to the Limited Warranty and Product Return Procedure on the back of this brochure and contact your wholesaler or tekmar® sales representative for assistance.

Type 043 includes:

- 1x Screw/Anchor Mounting Kit
- 2x AA Lithium Batteries

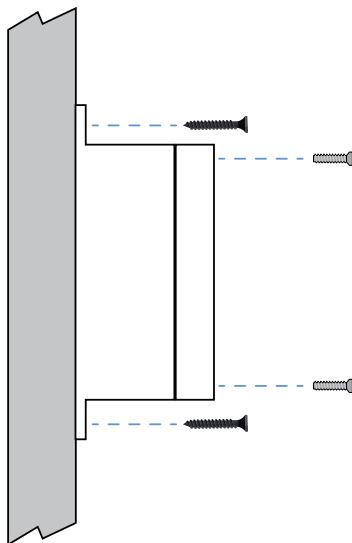
## Preparation

### Tools Required

- Phillips Screwdriver

## Mounting

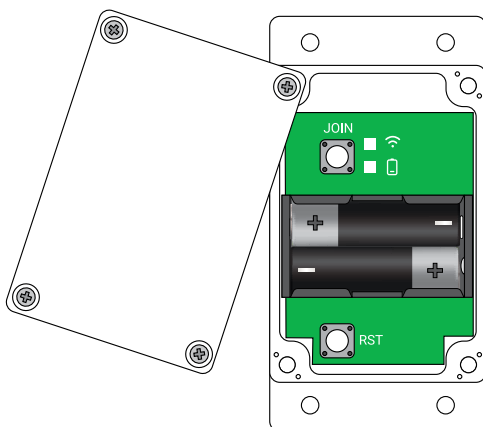
- Install it on a north-facing outside wall, away from direct sunlight.
- To prevent heat from the wall affecting readings, you may need to add insulation behind the sensor.
- Keep it away from heat sources like vents or open windows.
- Mount it above ground level to avoid damage or tampering.
- Don't place it on metal or other conductive surfaces.



## Commissioning

An Internet connection is required to commission the sensors to your system control.

- Open the Nexa app.
- Click on the equipment tab and find your System Control. If your device is not registered, follow the directions in the control's IOM to register. You may scan the QR Code to start the registration process.
- Click on "Connected Devices"
- Click on "+ Add"
- Scan the QR code on your device. Add in a name for the device and select a location for the device.
- Press the join button in Nexa.
- When prompted press the "join button" on the device. The device has 2 minutes to join the network.
- You will receive a message the device has joined the mesh network



### **NOTICE**

Please confirm your boiler control is compatible with the wireless sensors. On the boiler control "About" menu, check that there is a Thread Version 1.0.0 or later.



Products with a date code Mar 2026 and later will be compatible.

## Load Factory Defaults

To reset the network to try to join again you must press the RST button. Press and hold the button for 20 seconds.

## LED Operation

### LED Lights

Wi-Fi	Description	Available Colors
 Wi-Fi	Wireless Indicates the sensor's wireless connection status	Green (successfully connected) Orange (attempting to join) Red (disconnected)
 Battery	Battery Power Indicates	Red

### Inserting Batteries

When the batteries are installed, the wireless orange LED and battery red LED flash together for 1 second.

### Joining a Wireless Mesh Network

When the Join button is pressed and released, the sensor flashes the wireless orange LED for up to 2 minutes while attempting to join the wireless mesh network.

If the sensor successfully joins the wireless mesh network, the wireless green LED flashes once.

After 2 minutes, if the sensor is not able to join the wireless mesh network, the wireless red LED flashes once.

### Restart

Press and release the Reset button to restart the sensor. The WiFi LED will flash red, then green, then the wireless LED turns orange together with the battery LED turning red.

### Factory Reset

Press and hold the reset button for 20 seconds. The wireless red LED flashes, followed by both the wireless orange LED and the battery red LED together.

# Troubleshooting

## Signal Strength

On The Nexa Platform you can view all the devices. Each device will show a signal strength.

BOILERS & PUMPS (6)		SENSORS (6)		EXTENDERS (5)			
Name	Location	Type	Last Reading Value	Status	Signal Strength	Battery Level	
<a href="#">Apartment 1B</a>	<a href="#">Main Floor</a>	Temperature Se	68.1°F	Operational	Excellent	92%	...
<a href="#">Apartment 2A</a>	<a href="#">2nd Floor</a>	Temperature Se	70.3°F	Operational	Excellent	91%	...
<a href="#">Apartment 3C</a>	<a href="#">3rd Floor</a>	Temperature Se	67.7°F	Operational	Excellent	92%	...
<a href="#">Apartment 4B</a>	<a href="#">4th Floor</a>	Temperature Se	70.0°F	Operational	Excellent	95%	...
<a href="#">Apartment 5O</a>	<a href="#">5th Floor</a>	Temperature Se	68.4°F	Operational	Excellent	88%	...
<a href="#">Outdoor Sensor</a>	<a href="#">Outside</a>	Temperature Se	33.2°F	Operational	Excellent	91%	...

You can also press and release the Join button to observe the wireless sensor status. The LED will flash 10 times with the color indicating the signal strength.

Signal Strength	Color
Excellent	Green
Fair	Orange
Poor	Red
Disconnected	Red (on for 2 seconds then fast blinking)

If you cannot connect the sensor you may need to add additional tekmar Mesh Network Extender 041s to increase the range of your mesh network. Scan the QR code to view more information on the Commissioning and Installation Guide for how to build the network.



## Beacon Operation

The Nexa app includes a beacon feature to help locate the sensor name on the app with the installed sensor. On the app, go to Connected Devices > Sensors and press Beacon. The corresponding sensor will flash the wireless green LED followed by the wireless orange LED for 2 minutes.

## Maintenance

### Replacement Batteries

Battery status can be viewed on the Connected Devices>Sensor tab of your Boiler Control equipment page on Nexa.

For best performance use AA lithium batteries.

### Secure Disposal

When permanently removing the sensor from a building, with batteries installed, press and hold the reset button for at least 20 seconds. This factory resets the sensor and permanently deletes access to the wireless mesh network. The sensor can then be safely recycled.

### Technical Data

Call customer service if you need assistance with technical details.

CHARACTERISTIC	VALUE
Literature	IOM-T-043, ES-T-043, Mesh-T-Guide
Standards	FCC, IC, THREAD Certified Product
Enclosure	NEMA 4X
Dimensions	5 <sup>3</sup> / <sub>16</sub> " H x 2 <sup>3</sup> / <sub>4</sub> " W x 2" D (132 mm x 70 mm x 50 mm)
Operating Range	-40°F to 140°F (-40°C to 60°C)
Battery	2x Lithium AA
Packaged Weight	0.5 lbs (230 g)

# Radio Frequency Statement

## FCC Supplier's Declaration of Conformity

tekmar Model No. 1183-01

Watts Water Technologies, Inc.  
815 Chestnut Street  
North Andover, MA  
01845  
1-978-688-1811

### FCC Statements:

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 instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in 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 not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### ISED Statements:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### Radiofrequency Exposure Statement:

To ensure compliance with FCC and ISED RF exposure requirements this device must be installed to provide a minimum of 20cm between the device and people.

Pour garantir la conformité aux exigences d'exposition RF de la FCC et d'ISED Canada, cet appareil doit être installé de manière à laisser un minimum de 20 cm entre l'appareil et les personnes.





# Limited Warranty and Product Return Procedure

**Limited Warranty** *The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same. The online warranty for this product is located on Watts website (<https://www.watts.com/resources/warranty-information>) and in the event that the terms or conditions of this manual conflict with the online warranty, the terms and conditions of the online warranty shall control.*

**The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.**

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion either (a) the cost of parts and labor provided by tekmar to repair defects in materials and workmanship of the defective product; or (b) to the exchange of the defective product for a warranty replacement product; or (c) to the granting of credit limited to the original cost of the defective product. Such repair, exchange, or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort, or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental, punitive, or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions and/or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, and ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

**Product Warranty Return Procedure** All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.



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All specifications are subject to change without notice

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[tekmarControls.com](http://tekmarControls.com)

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