Manuals+ — User Manuals Simplified.

MONNIT MNS2-9-W2-TS-HT-L03 Remote Monitoring for Business User Guide

Contents

![MONNIT logo]

MONNIT MNS2-9-W2-TS-HT-L03 Remote Monitoring for Business

ABOUT THE WIRELESS G-FORCE SNAPSHOT SENSOR

The ALTA Wireless Accelerometer – G-Force Snapshot Sensor is a digital, low-power, low-profile, capacitive sensor that is able to measure acceleration on three axes to determine inclination.

- Takes 3-axis g-force measurements
- 4096 count/g sensitivity
- The ALTA Wireless Accelerometers – G-Force Snapshot Sensor Accelerometer activates at a set time interval (defined by user) and measures g-force along X, Y and Z axes. Primary use is as an inclinometer or tilt sensor. Example: X: 0.001 Y: 0.031 Z: 1.01

ALTA WIRELESS G-FORCE SNAPSHOT SENSOR FEATURES

- Wireless range of 1,200+ feet through 12+ walls *
- Frequency-Hopping Spread Spectrum (FHSS)
- Interference immunity
- Power management for longer battery life **
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- Onboard data memory stores up to hundreds of readings per sensor:
- 10-minute heartbeats = 22 days
- 2-hour heartbeats = 266 days
- Over-the-air updates (future proof)
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email
- Actual range may vary depending on environment.
- " Battery life is determined by sensor reporting frequency and other variables. Other power options are also available.

EXAMPLE APPLICATIONS

- Inclination & vibration testing
- Orientation sensing
- Smart machines, smart structures & smart materials
- Additional applications

ORDER OF OPERATIONS

It is important to understand the order of operations for activating your sensor. If performed out of sequence, your sensor may have trouble communicating with iMonnit. Please perform the steps below in the order indicated to make sure you are performing your set-up correctly.

1. Create iMonnit Account (If new user).
2. Register all sensors and gateways to a network in iMonnit. Sensors can only communicate with gateways on the same iMonnit network.
3. Connect/power on gateway and wait till it checks into iMonnit.
4. Power on sensor and verify it checks into iMonnit. We recommend powering the sensor on near the gateway then moving to the installation location, checking signal strength along the way.
5. Configure sensor for use {This can be done at any point after step 2)
6. Install sensor in final location.

   Note:

   - For information on setting up iMonnit and the gateway refer to the iMonnit User Guide and the gateways user guide.
   - Device specific setup is covered in more detail in the following sections.

SETUP AND INSTALLATION

If this is your first time using the iMonnit online portal, you will need to create a new account. If you have already created an account, start by logging in. For instructions on how to register and setup your iMonnit account, please consult the iMonnit User Guide.

ADD DEVICE

1. **Add the sensor on iMonnit.**

   Add the sensor to your account by choosing Sensors in the main menu. Navigate to the Add Sensor button.
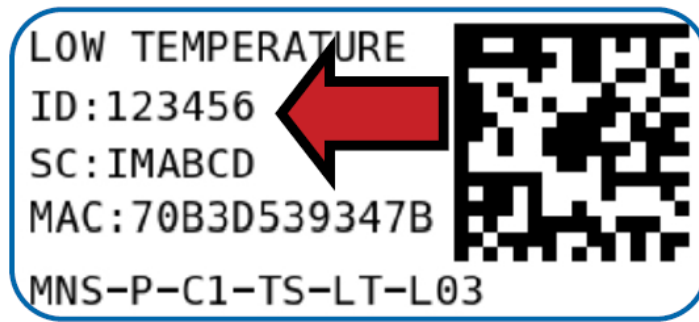
   Desktop

   MOBILE

2. **Find the device ID.**

   The Device ID (ID) and Security Code (SC) are necessary to add a sensor. These can both be located on the label on the side of your device.

3. **Adding your device.**

   You will need to enter the Device ID and the Security Code from your Sensor in the corresponding text boxes. Use the camera on your smartphone to scan the QR code on your device. If you do not have a camera on your phone, or the system is not accepting the QR code, you may enter the Device ID and Security Code manually.
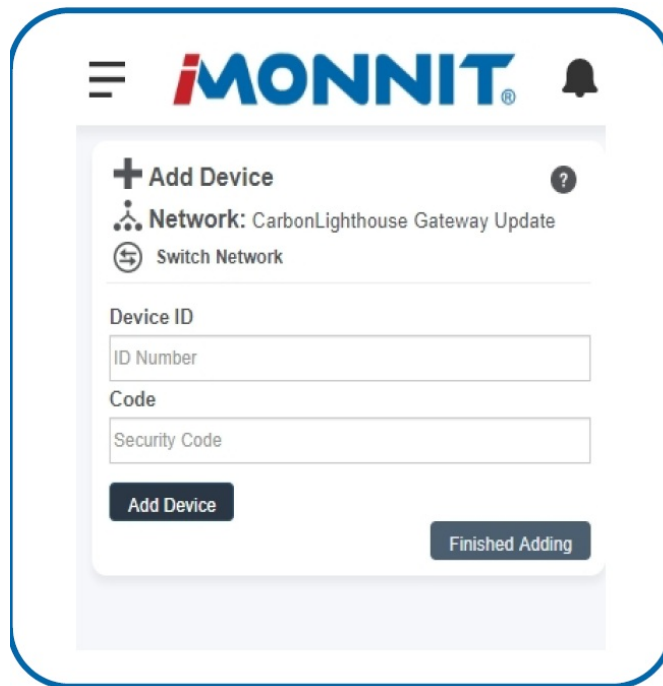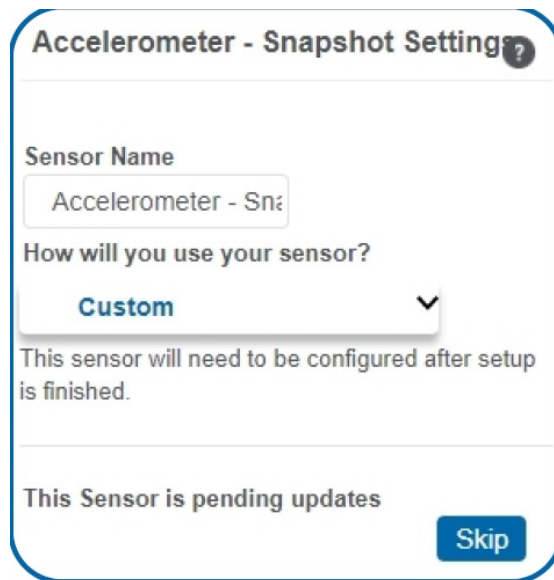

   - The Device ID is a unique number located on each device label.
   - Next, you'll be asked to enter the Security Code from your device. A security code consists of letters and must be entered in upper case (no numbers). It can also be found on the barcode label of your device. When completed, select the Add Device button.

SETUP

Select your use case.

- Unlike most sensors, choosing a use case in Step 2 of adding this sensor does not give you the option to customize your settings.
- These will need to be adjusted in the settings tab for your device.
- Select the Skip button when completed.

Accelerometer - Snapshot Settings ?

Sensor Name

Accelerometer - Sna

How will you use your sensor?

Custom ⌄

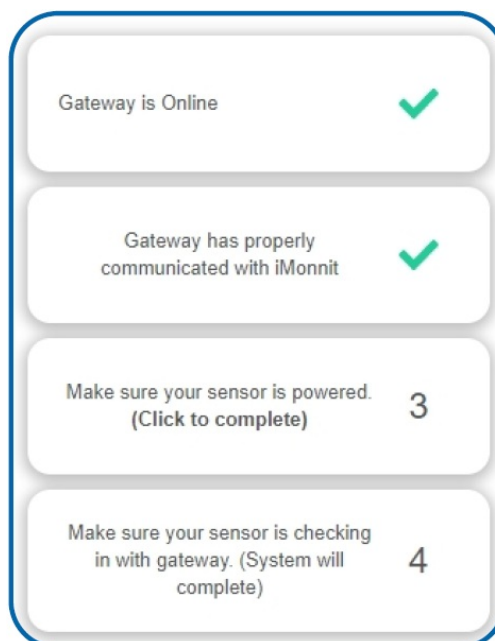This sensor will need to be configured after setup is finished.

This Sensor is pending updates

Skip

VALIDATION

Check your signal.

- The validation checklist will help you ensure you r sensor is communicating with the gateway properly and you have a strong signal.
- Checkpoint 4 will only complete when your sensor achieves a solid connection to the gateway. Once you insert the batteries (or flip the switch on an
  industrial sensor) the sensor will communicate with the gateway every 30 seconds for the first few minutes.
- Select the Save button when completed.

Gateway is Online ✔

Gateway has properly communicated with iMonnit ✔

Make sure your sensor is powered. (Click to complete) 3

Make sure your sensor is checking in with gateway. (System will complete) 4

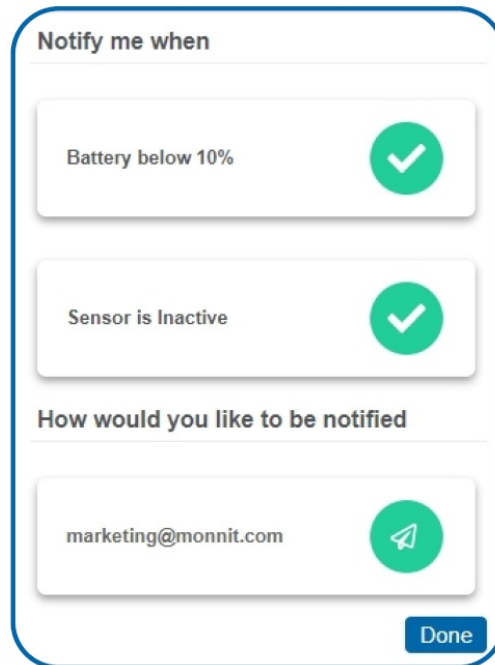**ACTIONS**

Choose your actions.

- Actions are the alerts that will be sent to your phone or email in the event of an emergency.
- Low battery life and device inactivity are two of the most common actions to have enabled on your device. for

how to set actions for your sensor.

- Select the Done button when completed.

SETTING UP YOUR G-FORCE SNAPSHOT SENSOR

When you are finished adding the sensor to your account, the next step is to insert the battery. The type of battery you use will depend on the category of your sensor. ALTA Wireless G-Force Snapshot Sensors will either be powered by commercial coin cell, AA, or an industrial battery.

INSTALLING BATTERIES

ALTA commercial sensors are powered by AA or CR2032 coin cell batteries. Industrial sensors need a 3.6V Lithium battery supplied from Monnit or another industrial battery supplier. Monnit encourages customers to recycle all old batteries.
Coin Cell

- The lifespan of a standard CR2032 coin cell battery in an ALTA G-Force Snapshot Sensor is up to 2 years.

- Install a coin cell battery by first taking the sensor and pinching the sides of the enclosure.
- Gently pull up the enclosure, separating the sensor from its base. Then slide a new CR2032 coin cell battery with the positive side facing toward the base.
- Press the enclosure back to together; you'll hear a small click.
- Lastly, open iMonnit select Sensors from the navigation menu. Verify that iMonnit is showing the sensor has a full battery level.
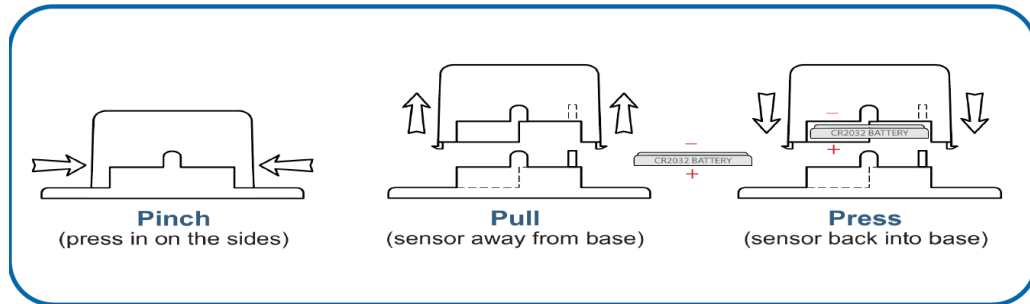
AA Batteries

- The standard version of this sensor is powered by two replaceable 1.5 V AA sized batteries (included with purchase). The typical battery life is up to 10 years.
- This sensor is also available with a line power option.
- The line powered version of this sensor has a barrel power connector allowing it to be powered by a standard 3.0-3.6 V power supply.
- The line powered version also uses two standard 1.5 V AA batteries as backup for uninterrupted operation in the event of line power outage.

- Power options must be selected at time of purchase, as the internal hardware of the sensor must be changed to support the selected power requirements.
- Place batteries in the device by first taking the sensor and sliding the battery door open. Insert fresh AA batteries in the carriage, then shut the battery door.
- Complete the process by opening up iMonnit and selecting Sensors from the main navigation menu. Verify that iMonnit is showing the sensor has a full battery level.
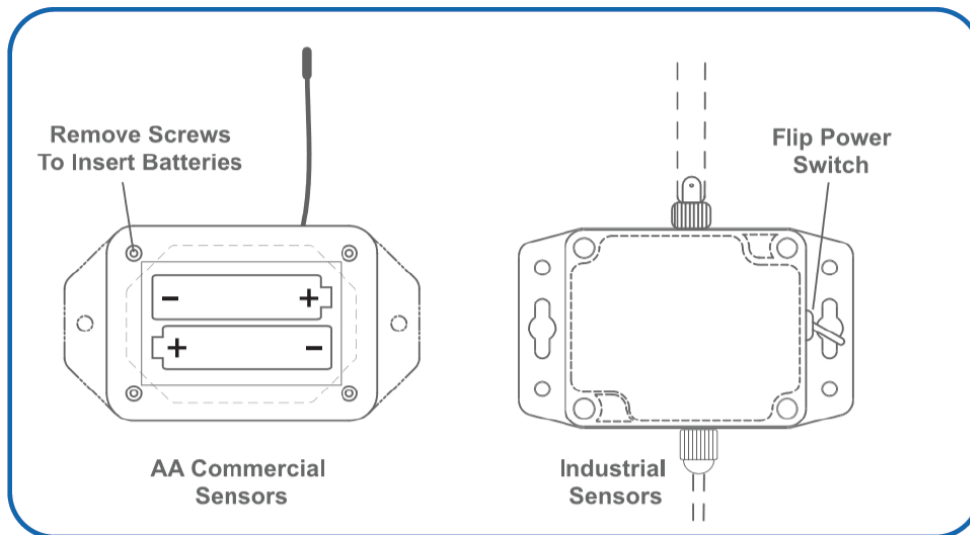
Industrial Batteries

- 3.6V Lithium batteries for the Industrial Wireless G-Force Snapshot Sensor is supplied by Mon nit. The AL TA battery life for the Industrial battery is up to 7 years.
- Industrial sensors come shipped with a 3.6V Lithium battery already installed. They do not need to be taken apart for battery installation and are not rechargeable.
- In order for the sensor to function properly, you will need to attach the included antenna. Simply screw the antenna onto the barrel connector on the top of the device.
- Make sure to snug the antenna connection, but do not over tighten. When placing the sensor, make sure to mount the sensor with the antenna oriented straight up (vertical) to ensure the best wireless radio signal.

- Since the electronics are sealed within the sensor housing, we have added an "On/Off' switch to the unit for your convenience. If you are not using the sensor, simply leave the button in the off position to preserve battery life. If the sensor needs to be reset for any reason, you can simply cycle the power by turning the switch to the "Off' position and waiting 30 seconds before powering back on.

MOUNTING THE SENSOR

Monnit wireless G-Force Snapshot sensors can be mounted using screws, double-sided tape, and even glue.

Make sure you have a strong signal to iMonnit and the gateway before installing the sensor so you can make the necessary adjustments.
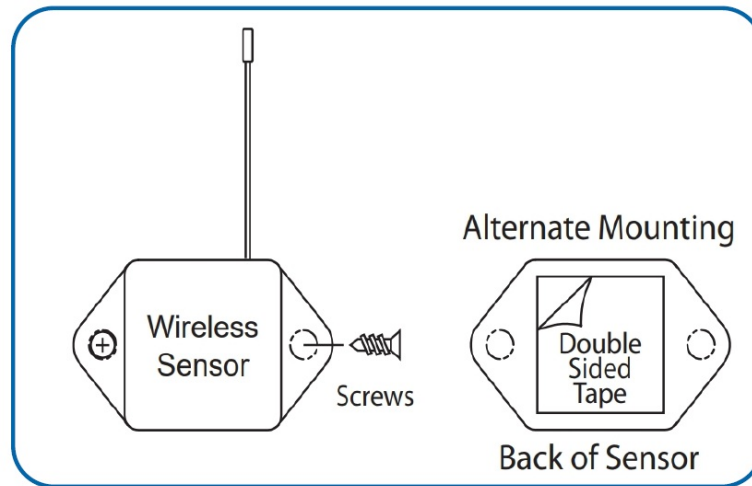
ANTENNA ORIENTATION

In order to get the best performance out of your ALTA Wireless Sensors, it is important to note proper antenna orientation and sensor positioning. Antennas should all be oriented in the same direction, pointing vertically from the sensor. If the sensor is mounted flat on its back on a horizontal surface, you should bend the antenna as close to the sensor housing as possible giving you the most amount of antenna pointing vertical. You should make the antenna wire as straight as possible, avoiding any kinks and curving of the wire. Sensors must be at least 3 ft. away from other sensors and the wireless gateway to function.
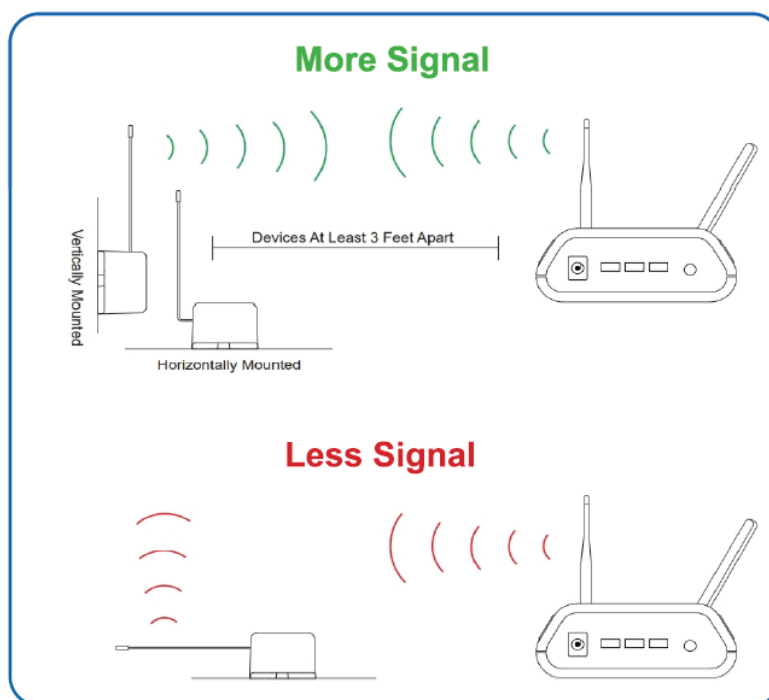
SENSOR OVERVIEW IN iMonnit

Select Sensors from the main navigation menu on iMonnit to access the sensor overview page and begin making adjustments to your G-Force Snapshot Sensor .

MENU SYSTEM

- A. **Details** – Displays a graph of recent sensor data
- B. **History** – List of all past heartbeats and readings
- C. **Events** – List of all events attached to this sensor

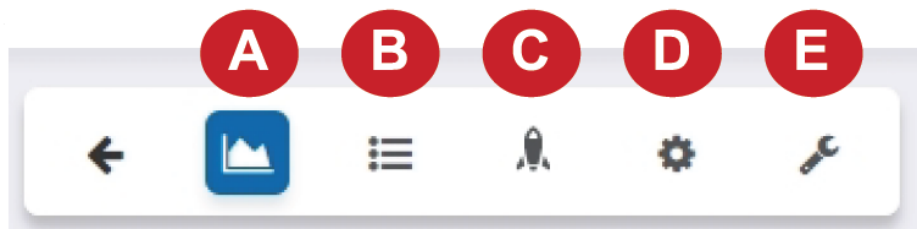- D. **Settings** – Editable levels for your sensor
- E **Calibrate** – Set your sensor to read more accurately

Directly under the tab bar is an overview of your sensor. This allows you to see the signal strength and the battery level of the selected sensor. A colored dot in the left corner of the sensor icon denotes its status.

- **Green** indicates the sensor is checking in and within user-defined safe parameters.
- **Red** indicates the sensor has met or exceeded a user-defined threshold or triggered event.
- **Gray** indicates that no sensor readings are being recorded, rendering the sensor inactive.
- **Yellow** indicates that the sensor reading is out of date, due to perhaps a missed heartbeat check-in.

Details View
The Details View will be the first page you see upon selecting which sensor you would like to modify.

- A. The sensor overview section will be above every page. This will consistently display the present reading, signal strength, battery level, and status.
- B. The Recent Readings section below the chart shows your most recent data received by the sensor.
- C. This graph charts how the sensor fluctuates throughout a set date range. To change the date range displayed in the graph, navigate up to the top of the Readings Chart section on the right-hand corner to change the from and/or to date.
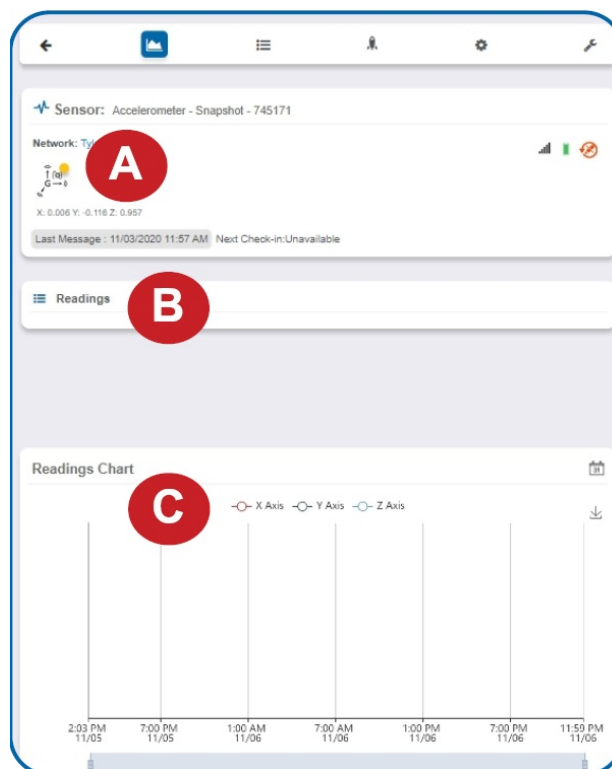
Readings View
Selecting the Readings Tab within the tab bar allows you to view the sensor's data history as time stamped data.

- On the far right of the Sensor History Data is a cloud icon. (Q) Selecting this icon will export an Excel file for your sensor into your download folder.

Note: Make sure you have the date range for the data you need input in the "From" and "To" text boxes. This will be the previous day by default. Only the first 2,500 entries in the selected date range will be exported.
The data file will have the following fields:

- **Message ID:** Unique identifier of the message in our database.
- **Sensor ID:** If multiple sensors are exported, you can distinguish between the sensors using this number – even if the names are the same.
- **Sensor Name:** The name you have given the sensor.
- **Date:** The date the message was transmitted from the sensor.
- **Value:** Data presented with transformations applied, but without additional labels.
- **Formatted Value:** Data transformed and presented as it is shown in the monitoring portal.
- **Raw Data:** Raw data as it is stored from the sensor.
- **Sensor State:** Binary field represented as an integer containing information about the state of the sensor when the message was transmitted.
- **Alert Sent:** Boolean indicating if this reading triggered a notification to be sent from the system.

Sensor State

- The value presented here is generated from a single byte of stored data.
- A byte consists of 8 bits of data that we read as Boolean (True (1) / False (0)) fields.
- When broken into individual bits, the State byte contains the following information: aaaabcde
- **STS**: This value is specific to the sensor profile and is often used to indicate error states and other sensor conditions.
- **UNUSED**: This sensor does not use these bits.
- **AWARE**: Sensors become aware when critical sensor specific conditions are met. Going aware can cause the sensor to trigger and report before the heartbeat and cause the gateway to forward the data to the server immediately resulting in near immediate transmission of the data.
- **TEST**: This bit is active when the sensor is first powered on or reset and remains active for the first 9 messages when using default configurations.
- **STS Specific Codes:**
    - 0 = No problems, sensor is functioning normally.
    - 1 = Open circuit detected in lead.
    - 2 = Short circuit detected in lead.
    - 3 = Range error. Temperature is reading outside of -40 F and 257 F (-40 C and 125 C).
- If the user has calibrated the sensor, the Calibrate Active field is set to False (0) and the sensor is operating inside the Min and Max Thresholds, the bits look like 00000000, this is represented as 0.
- If the sensor is using factory calibrations and it is outside the threshold, the bit values are 00010010 and are represented as 18(16+2 because both the bit in the 16 value is set and the bit in the 2 value is set).

Settings View
To edit the operational settings for a sensor, choose the "Sensor" option in the main navigation menu then select the "Settings" tab to access the configuration page.

- A. Sensor Name is the unique name you give the sensor to easily identify it in a list and in any notifications.
- B. Heartbeat Interval is when the G-Force Snapshot sensor wakes up and delivers its current XYZ axis readings.
- C. Synchronize is a setting that in small sensor networks synchronizes communication. The default setting OFF allows the sensors to randomize their communications therefore maximizing communication robustness. Setting this will synchronize the communication of the sensors.
- D. Failed transmissions before link mode is the number of transmissions the sensor sends without response from a gateway before it goes to battery saving link mode. In link mode, the sensor will scan for a new gateway and if not found will enter battery saving sleep mode for up to 60 minutes before trying to scan again. Lower numbers will allow sensors to find new gateways with fewer missed readings. Higher numbers will enable the sensor to remain with its current gateway in a noisy RF environment better (Zero will cause the sensor to never join another gateway to find a new gateway, the battery will have to be cycled out of the sensor.)
- The default heartbeat interval is 120 minutes or two hours. It is recommended that you do not lower your heartbeat level too much because it will drain the battery.
- Finish by selecting the Save button.

Note: Be sure to select the Save button anytime you make a change to any of the sensor parameters. All changes made to the sensor settings will be downloaded to the sensor on the next sensor heartbeat (check-in). Once a change has been made and saved, you will not be able to edit that sensor's configuration again until it has downloaded the new setting.

Calibrate View

- If a sensor type has readings that need to be reset, the "Calibrate" tab will be available for selection in the sensor tab bar.
- To calibrate a sensor, ensure that the environment of the sensor and other calibration devices are stable.
- Enter the actual (accurate) reading from the calibration device into the text field. If you need to change the unit of measurement you can do that here.
- Press Calibrate.

Calibrate Sensor

Temperature

Observed Sensor Reading: (From sensor)

[22.1] °C

Actual reading is

[22.1] °C

Calibrate Default
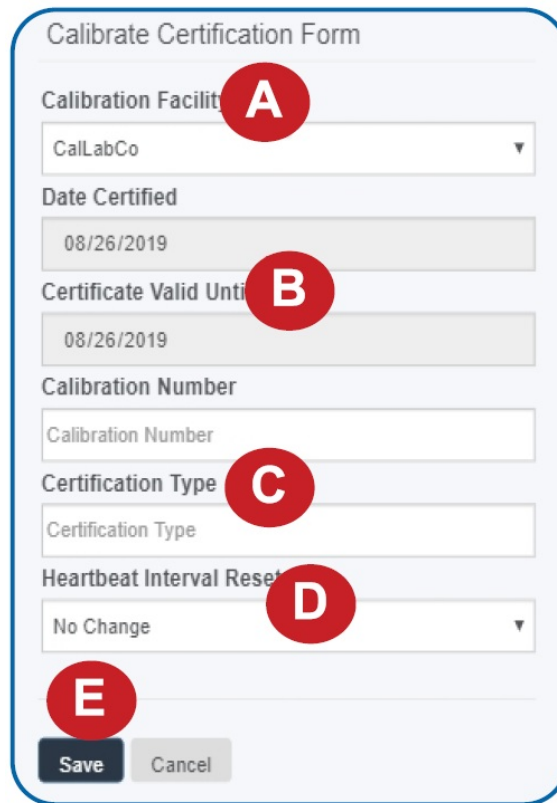
Create Calibration Certificate

- To ensure that the calibration command is received prior to the sensors next check-in, press the control button on the back of the gateway, once, to force communication (Cellular and Ethernet gateways).
- After pressing the "Calibrate" button and choosing the gateway button, the server will send the command to calibrate the specified sensor to the gateway. When the sensor checks-in, it will send the pre-calibration reading to the gateway, then receive the calibration command and update it's configuration. When the process is completed, it will send a "Calibration Successful" message. The server will display the sensor's last pre-calibrated reading for this check-in, then all future readings from the sensor will be based on the new calibration setting.
- It is important to note that after calibrating the sensor, the sensor reading returned to the server is based on pre-calibration settings. The new calibration settings will take effect on the next sensor heartbeat.

Note: If you would like to send the changes to the sensor right away, please remove the battery(s) for a full 60 seconds, then re-insert the battery(s). This forces the communication from the sensor to the gateway and this the message to make a change from the gateway back to the sensor. (If the sensors are industrial sensors, turn the sensor off for a full minute, rather than removing the battery).

Creating a Calibration Certificate

Creating a sensor calibration certificate will mask the " calibration tab from those who should not have permissions to adjust these settings. Permissions for self-certifying a calibration must be enabled in user permissions.
Directly below the calibrate button is the selection to "Create Calibration Certificate.

- A. The Calibration Facility Field will be filled. Select the dropdown menu to change your facility.
- B. The "Certificate Valid Until" field must be set one day after the date contained in the "Date Certified" field.
- C. "Calibration Number" and "Calibration Type" are unique values to your certificate.
- D. If necessary, you can reset the heartbeat interval here to 10 minutes, 60 minutes, or 120 minutes. By default, this will be set to no change.

Calibrate Certification Form

Calibration Facility **A**

CalLabCo ▼

Date Certified

08/26/2019

Certificate Valid Until **B**
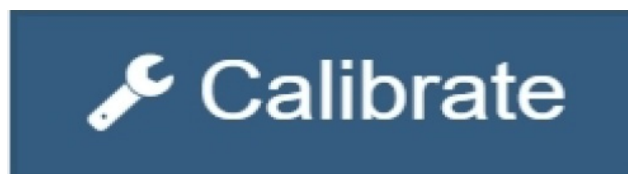
08/26/2019

Calibration Number

Calibration Number

Certification Type **C**

Certification Type

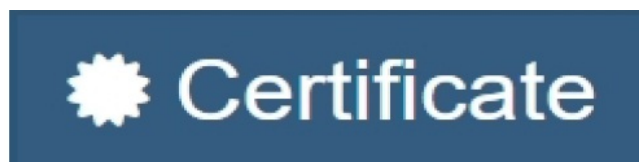Heartbeat Interval Reset **D**

No Change ▼

E

Save   Cancel

- E. Choose the "Save" button before moving on. When the new certificate is accepted, the Calibration tab will change to a Certificate tab.
  - **Before**

  - **After**

- You will still be able to edit the certificate by choosing the Certificate Tab and navigating down to "Edit Calibration Certificate."
- The tab will revert back to "Calibrate" after the period for the certificate ends.

ACTIONS OVERVIEW

Device notifications can be created, deleted, and edited by selecting the Actions Tab in the tab bar.
You can toggle the Action Trigger on or off by selecting the switch under Current Action Triggers.
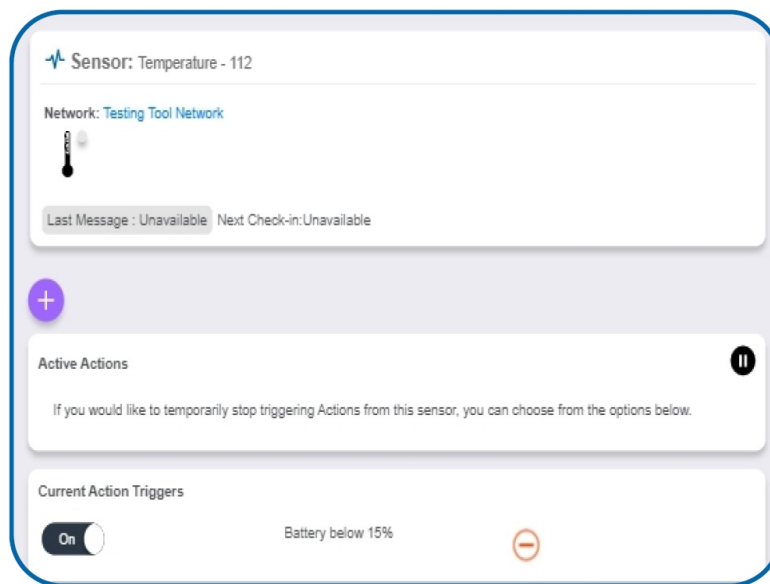
CREATING AN ACTION

- Actions are triggers or alarms set to notify you when a sensor reading identifies that immediate attention is needed. Types of actions include sensor readings, device inactivity, and scheduled data. Any one of these can be set to send a notification or trigger an action in the system.
  Choose Actions in the main navigation menu.
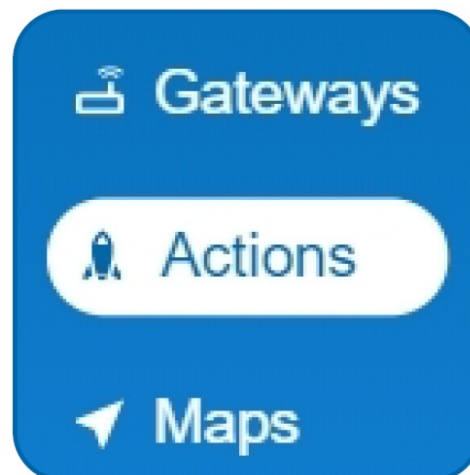
- A list of previously created actions will display on the screen. From here, you have the ability to filter, refresh, and add new actions to the list.

Note: If this is your first time adding an action, the screen will be blank.
From the Actions page, tap Add Action in the left hand corner.
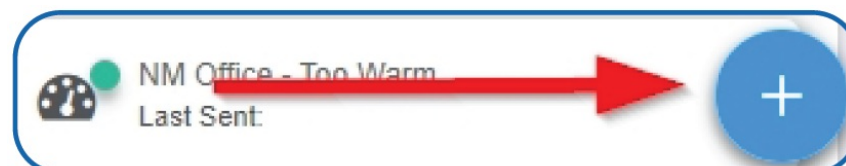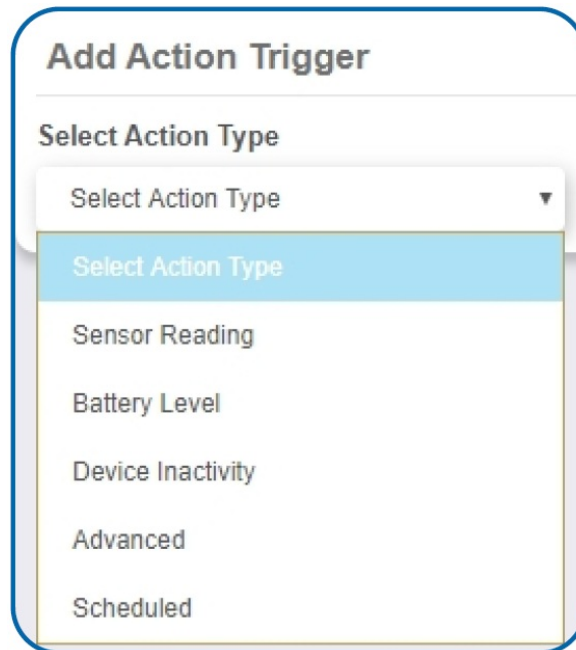

1. **What triggers your action?**
   The drop-down menu will have the following options for Action Types :
     - Sensor Reading: Set actions based on activity or reading.
     - Device Inactivity: Actions when the device doesn't communicate for an extended period of time.
     - Advanced: Actions based on advanced rules, such as comparing past data points with current

ones.

- ○ Scheduled: These actions are performed at a time set basis.

Add Action Trigger

Select Action Type

| Select Action Type ▼ |
| --- |
| Select Action Type |
| Sensor Reading |
| Battery Level |
| Device Inactivity |
| Advanced |
| Scheduled |

- Select Sensor Reading from the drop-down menu.
- A second drop-down menu will appear. From here, you will be able to see a list of the different type of sensors registered to your account. Choose Accelerometer – Snapshot in the drop-down menu.
- Choose whether you want to be alerted to a threshold breach on a Max, X Val, Y Val, or Z Val data recording.
- Next, you will be asked to input the trigger settings. You have the option of setting this trigger to detect greater than or less than a desired value.

Action Trigger Settings

Action Trigger Conditions
Notify when reading is

Greater Than ▼
Greater Than
Less Than

_____ %

Save 💾

2. **Actions**

- Press the Add Action button under the information header, available action types will then be presented in a select list.
- Notification Action: Specify account users to receive notification when this event triggers.
- System Action: Assign actions for the system to process when this event triggers.
- Choose Notification Action from the notification list.
  - ○ A. Input the subject for the notification.
  - ○ B. Customize the message body for the notification.
  - ○ C. Recipient list identifies who will receive the notification.
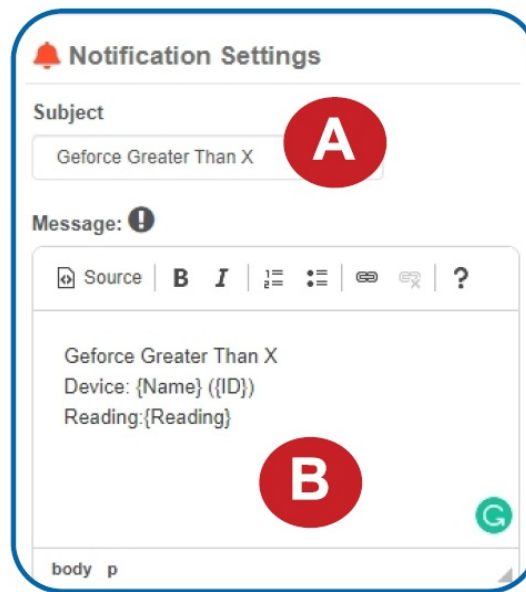
- Select the icon next to a user to specify how they will be notified.
- Choose if you want notifications sent immediately, when triggered, or if you want a delay before sending and press Set.
- A green icon indicates that the users that will receive the notifications.
- If a delay has been selected, the delay time will display beside the icon.

SECURITY

Data security and integrity is paramount at Mon nit. Each layer of the system is secured using encryption and protocols designed to protect customer data and information. The system consists of sensor(s), gateway(s), and iMonnit software. One or more sensors communicate with iMonnit software through a gateway.

SENSOR TO GATEWAY

Sensor and gateway radio modules are purpose built devices with proprietary unreadable firmware, which means the sensor cannot be physically hacked or re-purposed for malicious purposes. This adds a strong level of inherent security even before considering encryption. Data transmission between the sensor and gateway are secured using Encrypt-RF Security (Diffie-Hellman Key Exchange+ AES-128 CBC for sensor data messages). Beyond the encryption, data transmissions are also structurally verified and CRC checked before they are passed up to iMonnit or down to the sensor, this ensures the integrity of the data itself.

GATEWAY TO IMONNIT

Data transmissions between the gateway and iMonnit software are secured using 256-bit, bank level encryption.

iMONNIT

Access is granted through the iMonnit user interface, or an Application
Programming Interface (API} safeguarded by 256-bit Transport Layer Security (TLS 1.2) encryption. TLS is a blanket of protection to encrypt all data exchanged between iMonnit and you. The same encryption is available to you whether you are a Basic or Premiere user of iMonnit. You can rest assured that your data is safe with iMonnit.

SENSOR PRINTS

Sensor prints utilize a shared key between the software and the sensor to ensure that once the data comes to iMonnit it is guaranteed to be from the device identified by the sensor print. If this feature is purchased for the device (via iMonnit software) the devices data becomes impossible to spoof by any malicious device.

SUPPORT

For technical support and troubleshooting tips please visit our support library online at **monnit.com/support/**. If you are unable to solve your issue using our online support, email Monnit support at **support@monnit.com** with your contact information and a description of the problem, and a support representative will call you within one business day. For error reporting, please email a full description of the error to **support@monnit.com**.

WARRANTY INFORMATION

- Monnit warrants that Monnit-branded products (Products) will be free from defects in materials and workmanship for a period of one (1) year from the date of delivery with respect to hardware and will materially conform to their published specifications for a period of one (1) year with respect to software. Monnit may resell sensors manufactured by other entities and are subject to their individual warranties; Monnit will not enhance or extend those warranties. Monnit does not warrant that the software or any portion thereof is error free. Monnit will have no warranty obligation with respect to Products subjected to abuse, misuse, negligence or accident. If any software or firmware incorporated in any Product fails to conform to the warranty set forth in this Section, Monnit shall provide a bug fix or software patch correcting such non-conformance within a reasonable period after Monnit receives from Customer
  - notice of such non-conformance, and
  - sufficient information regarding such non-conformance so as to permit Monnit to create such bug fix or software patch.

If any hardware component of any Product fails to conform to the warranty in this Section, Monnit shall, at its option, refund the purchase price less any discounts, or repair or replace nonconforming Products with conforming Products or Products having substantially identical form, fit, and function and deliver the repaired or replacement Product to a carrier for land shipment to customer within a reasonable period after Monnit receives from Customer (i) notice of such non-conformance, and (ii) the non-conforming Product provided; however, if, in its opinion, Monnit cannot repair or replace on commercially reasonable terms it may choose to refund the purchase price. Repair parts and replacement Products may be reconditioned or new. All replacement Products and parts become the property of Monnit. Repaired or replacement Products shall be subject to the warranty, if any remains, originally applicable to the product repaired or replaced. Customer must obtain from Mon nit a Return Material Authorization Number (RMA) prior to returning any Products to Monnit. Products returned under this Warranty must be unmodified. Customer may return all Products for repair or replacement due to defects in original materials and workmanship if Monnit is notified within one year of customer's receipt of the product. Monnit reserves the right to repair or replace Products at its own and complete discretion. Customer must obtain from Monnit a Return Material Authorization Number (RMA) prior to returning any Products to Monnit. Products returned under this Warranty must be unmodified and in original packaging. Monnit reserves the right to refuse warranty repairs or replacements for any Products that are damaged or not in original form. For Products outside the one year warranty period repair services are available at Monnit at standard labor rates for a period of one year from the Customer's original date of receipt.

- As a condition to Monnit's obligations under the immediately preceding paragraphs, Customer shall return Products to be examined and replaced to Monnit's facilities, in shipping cartons which clearly display a valid RMA number provided by Monnit. Customer acknowledges that replacement Products may be repaired, refurbished or tested and found to be complying. Customer shall bear the risk of loss for such return shipment and shall bear all shipping costs. Monnit shall deliver replacements for Products determined by Monnit to be properly returned, shall bear the risk of loss and such costs of shipment of repaired Products or replacements, and shall credit Customer's reasonable costs of shipping such returned Products against future purchases.
- Monnit's sole obligation under the warranty described or set forth here shall be to repair or replace non-

conforming products as set forth in the immediately preceding paragraph, or to refund the documented purchase price for non-conforming Products to Customer. Monnit's warranty obligations shall run solely to Customer, and Monnit shall have no obligation to customers of Customer or other users of the Products.

Limitation of Warranty and Remedies.
THE WARRANTY SET FORTH HEREIN IS THE ONLY WARRANTY APPLICABLE TO PRODUCTS PURCHASED BY CUSTOMER. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. MONNIT'S LIABILITY WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, IN NEGLIGENCE OR OTHERWISE SHALL NOT EXCEED THE PURCHASE PRICE PAID BY CUSTOMER FOR THE PRODUCT. UNDER NO CIRCUMSTANCES SHALL MONNIT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES. THE PRICE STATED FOR THE PRODUCTS IS A CONSIDERATION IN LIMITING MONNIT'S LIABILITY. NO ACTION, REGARDLESS OF FORM, ARISING OUT OF THIS AGREEMENT MAY BE BROUGHT BY CUSTOMER MORE THAN ONE YEAR AFTER THE CAUSE OF ACTION HAS ACCRUED. IN ADDITION TO THE WARRANTIES DISCLAIMED ABOVE, MONNIT SPECIFICALLY DISCLAIMS ANY AND ALL LIABILITY AND WARRANTIES, IMPLIED OR EXPRESSED, FOR USES REQUIRING FAIL-SAFE PERFORMANCE IN WHICH FAILURE OF A PRODUCT COULD LEAD TO DEATH, SERIOUS PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE SUCH AS, BUT NOT LIMITED TO, LIFE SUPPORT OR MEDICAL DEVICES OR NUCLEAR APPLICATIONS. PRODUCTS ARE NOT DESIGNED FOR AND SHOULD NOT BE USED IN ANY OF THESE APPLICATIONS.

CERTIFICATIONS

United States FCC
This equipment has been tested and found to comply with the limits for a Class B digital devices, 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 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 of 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.

Warning:
Changes or modifications not expressly approved by Monnit could void the user's authority to operate the equipment. RF Exposure WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, the antenna used for this transmitter must not be co-located in conjunction with any antenna or transmitter.

Monnit and ALTA Wireless Sensors:
This equipment complies with the radiation exposure limits prescribed for an uncontrolled environment for fixed and mobile use conditions. This equipment should be installed and operated with a minimum distance of 23 cm between the radiator and the body of the user or nearby persons.

- All ALTA Wireless Sensors Contain FCC ID: ZTL-G2SC1. Approved Antennas
- ALTA devices have been designed to operate with an approved antenna listed below, and having a maximum gain of 14 dBi. Antennas having a gain greater than 14 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

- Xianzi XQZ-900E (5 dBi Dipole Omnidirectional)
- HyperLink HG908U-PRO (8 dBi Fiberglass Omnidirectional)
- HyperLink HG8909P (9 dBd Flat Panel Antenna)
- HyperLink HG914YE-NF (14 dBd Yagi)
- Specialized Manufacturing MC-ANT-20/4.0C (1 dBi 4″ whip)

SAFETY RECOMMENDATIONS READ CAREFULLY

Be sure the use of this product is allowed in the country and in the environment required. The use of this product may be dangerous and has to be avoided in the following
areas:

- Where it can interfere with other electronic devices in environments such as hospitals airports, aircrafts, etc.
- Where there is risk of explosion such as gasoline stations, oil refineries, etc.

It is responsibility of the user to enforce the country regulation and the specific environment regulation. Do not disassemble the product; any mark of tampering will compromise the warranty validity. We recommend following the instructions of this user guide for correct setup and use of the product. Please handle the product with care, avoiding any dropping and contact with the internal circuit board as electrostatic discharges may damage the product itself. The same precautions should be taken if manually inserting a SIM card, checking carefully the instruction for its use. Do not insert or remove the SIM when the product is in power saving mode. Every device has to be equipped with a proper antenna with specific characteristics. The antenna has to be installed with care in order to avoid any interference with other electronic devices and has to guarantee a minimum distance from the body (23 cm). In case this requirement cannot be satisfied, the system integrator has to assess the final product against the SAR regulation. The European Community provides some Directives for the electronic equipment's introduced on the market. All the relevant information's is available on the European Community website:
http://ec.europa.eu/enterprise/sectors/rtteldocuments/
Additional Information and Support
For additional information or more detailed instructions on how to use your Monnit Wireless Sensors or the iMonnit Online System, please visit us on the web at **monnit.com**

Monnit Corporation
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Salt Lake City, UT 84115
01-561-5555
www.monnit.com

Documents / Resources

	MONNIT MNS2-9-W2-TS-HT-L03 Remote Monitoring for Business [pdf] User Guide MNS2-9-W2-TS-HT-L03, Remote Monitoring for Business

References

- ⟳ **Remote Monitoring Solutions with Wireless Sensors for IoT**

Manuals+,