

ALTA® 900 MHZ WATER DETECTION DISC USER MANUAL

ALTA By MONNIT

Remote Monitoring for Business



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CAUTION SYMBOL EXPLANATION

The following caution symbol appears on the product. This symbol indicates caution and a potential risk of danger. Carefully read the warning attached with each symbol.

I. ABOUT THE ALTA WATER DETECTION DISC

GENERAL DESCRIPTION

The ALTA® Wireless Water Detection Disc detects the presence or non-presence of water. Convenient, water-tight-disc design allows the sensor to be placed anywhere needed whether dry or wet. Note that water levels must be ~ 1.8 mm deep to trigger detection.

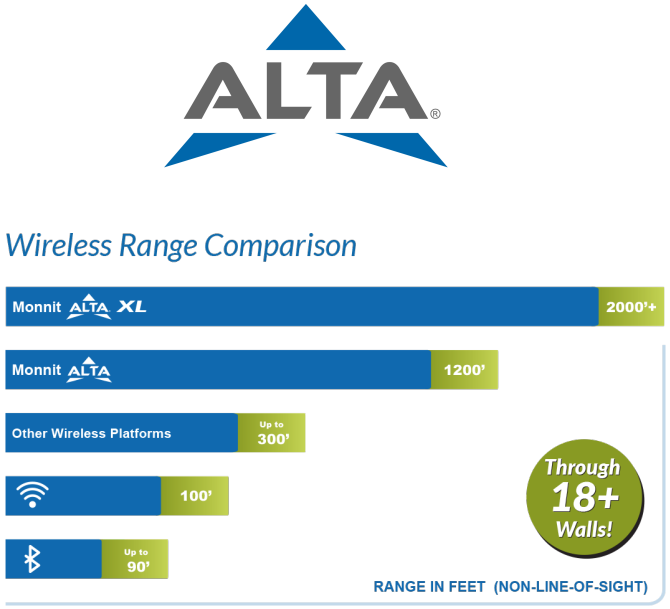
The ALTA Water Detection Disc detects when water is present by completing the circuit between the two probe points on the bottom of the sensor. When water is present, the sensor will immediately turn on the radio and transmit the data to the wireless gateway and the iMonnit® Online Sensor Monitoring and Notification System, allowing you to immediately receive an SMS text, push notification, call, or email alert. The sensor can be configured to detect both the presence and non-presence. of water.

Features of Monnit ALTA Sensors

- Wireless range of 2,000+ feet through 18+ walls[1]
- Frequency-Hopping Spread Spectrum (FHSS)
- Best-in-class interference immunity
- Best-in-class power management for longer battery life[2]
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + Advanced Encryption Standard (AES)-128 Cipher Block Chaining (CBC) for sensor data messages)
- Sensor logs 2000 to 4000 readings if the gateway connection is lost (non-volatile flash, persists through power cycling):
  - 10-minute Heartbeats = ~ 22 days
  - 2-hour Heartbeats = ~ 266 days
- Automatic over-the-air updates to sensor firmware (future-proof)
- Free iMonnit Basic Online Wireless Sensor Monitoring and Notification System to configure sensors, view data, and send alerts via SMS text, email, and voice call

1 Actual range may vary depending on the environment and gateway.

2 Battery life is determined by the sensor reporting frequency and other variables. Other power options are also available.



EXAMPLE APPLICATIONS

- Water heater tank leak monitoring
- Plumbing leak detection
- Data center subfloor water detection
- Water intrusion/flood detection.
- Crawlspace water intrusion monitoring
- Reservoir/tank
- Level monitoring

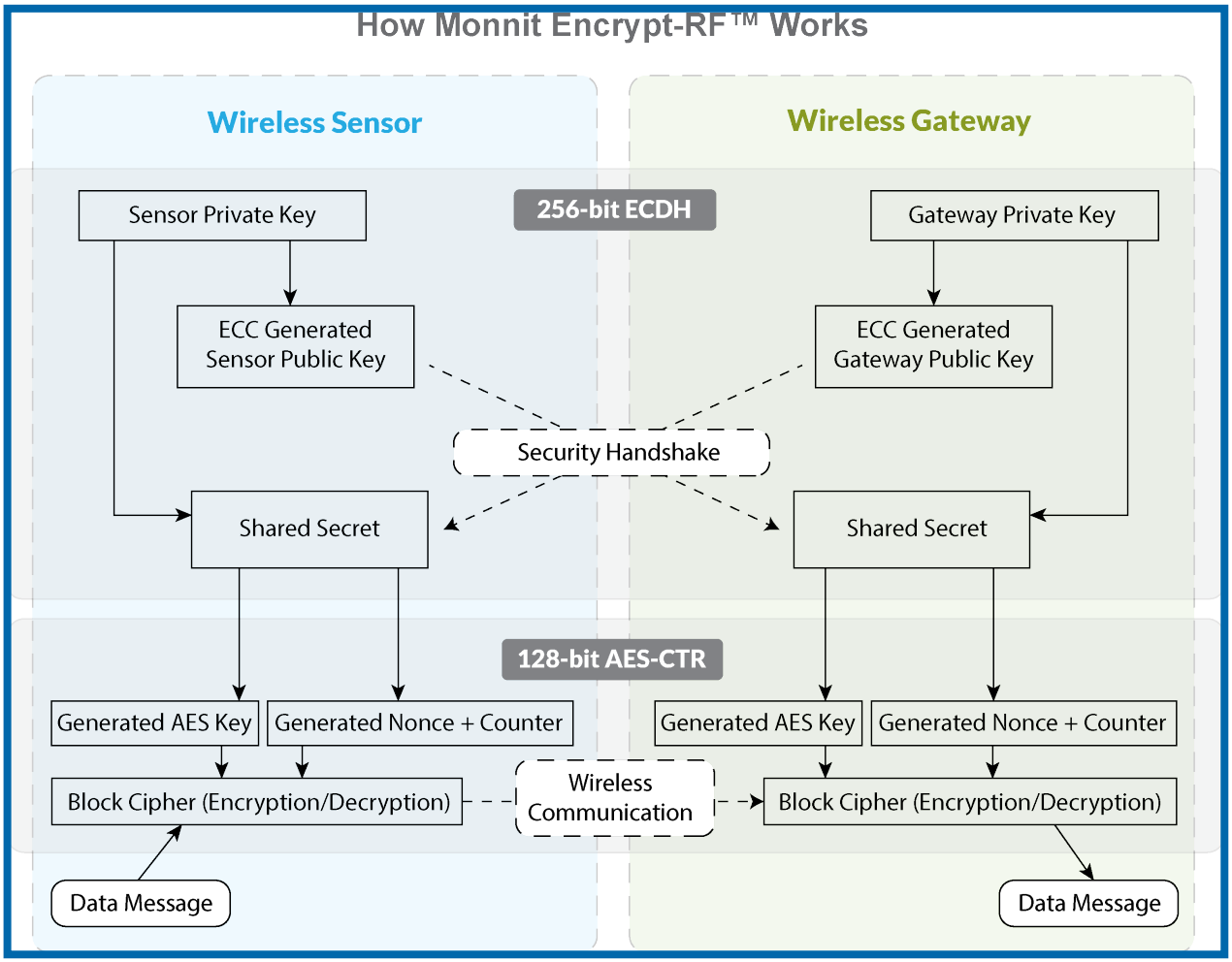
II. SENSOR SECURITY

The ALTA Water Detection Disc is designed and built to securely manage data from sensors monitoring your environment and equipment. Hacking from botnets are in the headlines, Monnit has taken extreme measures to ensure your data security is handled with the utmost care and attention to detail. The same methods utilized by financial institutions to transmit data are also used in Monnit security infrastructure. Security features of the gateway include tamper proof network interfaces, data encryption, and bank-grade security.

Monnit's proprietary sensor protocol uses low transmit power and specialized radio equipment to transmit application data. Wireless devices listening on open communication protocols cannot eavesdrop on sensors. Packet level encryption and verification is key to ensuring traffic isn't altered between sensors and gateways. Paired with a best-in-class range and power consumption protocol, all data is transmitted securely from your devices. Thereby ensuring a smooth, worry-free, experience.

DISC COMMUNICATION SECURITY

The sensor and gateway generate a secure, wireless tunnel , **Encrypt-RF™,** between the two devices using ECDH-256 (Elliptic Curve Diffie-Hellman) public key exchange to generate a unique symmetric key between each pair of devices. Sensors and gateways use this link-specific key to process packet level data with hardware-accelerated, 128-bit AES (Advanced Encryption Standard) encryption, which minimizes power consumption to provide the industry's best battery life. Thanks to this combination, Monnit proudly offers robust bank-grade security at every level.



DATA SECURITY ON THE GATEWAY

The ALTA and ALTA XL® Gateways are designed to prevent prying eyes from accessing the data that is stored on the sensors. Gateways do not run on an off-the-shelf, multi-function OS (operating system). Instead, they run a purpose-specific, real-time, embedded state machine that cannot be hacked to run malicious processes. There are also no active interface listeners that can be used to gain access to the device over the network. The fortified gateway secures your data from attackers and secures the gateway from becoming a relay for malicious programs.

iMONNIT SECURITY

iMonnit is the online software and central hub for configuring your device settings. All data is secured on dedicated servers operating Microsoft SQL Server. 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 that encrypts all data exchanged between iMonnit and you. The same encryption is available to you whether you are a basic user or a premiere user of iMonnit. You can rest assured that your data is safe with iMonnit.

For more information on Ethernet Gateway Security, visit
https://monnit.blob.core.windows.net/site/documents/other/ethernet-gateway-security-brief.pdf

OPTIONAL DATA AUTHENTICATION

SensorPrints™ is the industry's only end-to-end Internet of Things (IoT) data authentication platform for low-power wireless sensors. SensorPrints authenticates data by issuing a unique fingerprint for each device within the IoT. Data is secured from the point of generation to the point of consumption. Easy to install and use, SensorPrints is the definitive IoT security solution for any enterprise.

SensorPrints authenticates data at both the point of generation and consumption, creating trust between the sensor and server levels. Implementing 256-bit SHA 3 authentication, SensorPrints creates a fingerprint for a Monnit Wireless Sensor that contains an authenticated sensor message. When data is transmitted from the sensor, it is accompanied by a generated authentication token. Upon receipt by the application, the token is evaluated via a cryptographic hash function against a unique per-sensor secret key. This step provides unprecedented full-coverage security for any Monnit user wishing to secure their IoT devices and data.

Click here for more information on SensorPrints.

III. ORDER OF OPERATIONS FOR ACTIVATION

It is important to understand the order of operations for activating your ALTA Water Detection Disc. If done out of order, your sensor may have trouble communicating with iMonnit. Please consult the steps below to make sure you are performing your setup correctly.

SETUP STEPS

1. Set up the Monnit Software of your choice. (Create an account if this the first time.)

a. iMonnit Premiere
b. iMonnit Enterprise
c. iMonnit Express
d. iMonnit Mine

Please refer to the appropriate software documentation for more information.

2. Register your gateway on iMonnit, or other software, then power it up.

Your gateway must be registered first to verify communication between the device and iMonnit. Any sensors or meters you wish to add onto your network must come after the gateway.

Please refer to the gateway's user guide for more information relating to gateway setup procedures.

3. Register your ALTA Water Detection Disc Sensor in iMonnit, power it up, and verify it checks into the gateway and software.

After you've registered your gateway, it's time to add your sensor to the iMonnit account.

Please refer to the ALTA Quick Start Guide for additional information about sensor configuration.

4. Place the Water Detection Disc in a location to detect water.

Place your sensor in the spot where water detection functionality is desired. Make sure you have the correct antenna orientation to receive a strong signal.

Each of these steps are covered in more detail in the following sections.

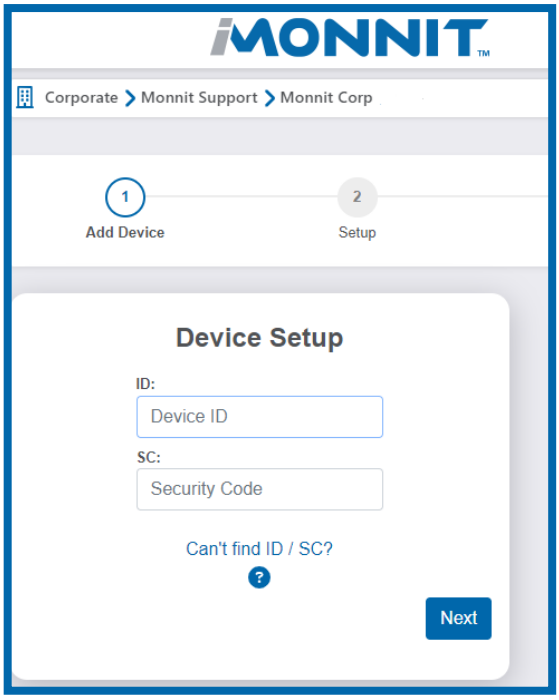
Note: ALTA Sensors will perform a handshake when powered up during which the sensor will send 10 transmissions 30 seconds apart before engaging the configured interval or Heartbeat.

IV. REGISTRATION

If this is your first time using iMonnit, 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 for an iMonnit account, please consult the iMonnit User Guide viewable at monnit.com/support/documentation.

REGISTERING AN ALTA WATER DETECTION DISC

You will need to enter the Device ID and the Security Code from your sensor in the corresponding text boxes of the user interface of iMonnit Platform, or other Monnit Software, as shown below.



- The Device ID ("ID: 12345" in the example below) is a unique number located on each device label.



- Next, you'll be asked to enter the Security Code ("SC: IMAAAA" in the example above) that is also located on your device. A security code will be all letters and must be entered in upper case, no numbers. It can also be found scanning the QR code on the right side of the label.

When completed, select the Next button. For a more detailed, step-by-step account of how to add a device, please visit the Monnit knowledge base article: ***How to Add Devices in iMonnit***, online.

When you have installed the iMonnit Mobile App on your smartphone, you can also use the camera on your smartphone to scan the QR codes on your sensor and gateway. For detailed instructions on how to install the iMonnit Mobile App, please visit the Monnit knowledge base article: ***How to Install the iMonnit Mobile App***.

DISC PLACEMENT

Place each Water Detection Disc within 1,200 feet of an ALTA Gateway or 2,000 feet of an ALTA XL Gateway. Water Detection Discs should be installed to avoid transmissions through a lot of metal or concrete and repositioned to avoid such obstacles if radio communication is spotty. A Water Detection Disc should also be placed at least one foot from the gateway and other sensors.

ALTA Water Detection Discs should NOT be placed where they can be exposed to volatile or flammable gas. A Water Detection Disc should be deployed where it will be protected from operating temperatures outside those disclosed in the data sheet. The sensors aren't recommended for use in fridges and freezers, even though they may be deployed in a refrigerator or freezer. However, the wireless range of the sensor will be significantly reduced.

Since the electronics are sealed within the sensor housing, the On/Off/Status button is there for your convenience. If you aren't using the sensor, leave the button in the Off position to preserve battery life.

Water Detection Discs are designed for wet environments and environments with fluctuating or excessive humidity. However, they are not designed to be exposed to corrosive or deoxidizing gas or vapor (e.g., chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, nitric oxide gas, etc.). The sensors also should not be placed in: places with salt water, oils, chemical liquids, or organic solvents; low- or high-pressure environments; areas with powerful vibrations; or in other places where similar hazards exist.

Water Detection Discs are weather-tight, may be deployed both outdoors and indoors. The enclosure protects against falling dirt, wind-blown dust, rain, sleet, snow, splashing water, and hose-directed water. The sensor also remains undamaged by ice formation.



WARNING: In placing the Water Detection Disc Sensor be aware that it has a mechanical impact rating of IK06, meaning that the housing protects the sensor from a mechanical impact of one Joule. This is roughly equivalent to dropping a solid metal sphere weighing 500 grams from 20 centimeters onto the respective housing.

Water Detection Discs aren't rated for greater mechanical impact based on a documented Risk Analysis performed by Monnit. Therefore, the IK06 rating is justified because the sensors should be:

- **Installed in locations that unauthorized persons or the general public cannot easily access**
- **Accessed during normal use for occasional operations such as adjustment, programming, or maintenance**

We recommend adhering to these stipulations because using the sensors in a manner inconsistent with the above may impair their IK06 protection.

CLEANING

When needed, clean the sensor with a damp, but not dripping-wet, cloth where it's installed. Do not use cleaners or chemicals.

V. USING THE ALTA WATER DETECTION DISC

BUTTON AND LED BEHAVIOR

The ALTA Water Detection Disc Sensor has a button on the top that is used to control the behavior of the disc. This button can be used to turn the sensor on, turn it off, and manually have the sensor take and report a measurement.

Turning the Sensor ON

Press and hold the button until the LED turns GREEN. When the Device first turns on, the LED will flash GREEN four times and then remain GREEN for one second. If the Water Detection Disc Sensor is able to successfully connect to a gateway, the LED will flash green two times. If the sensor is unable to connect to a gateway within 25 seconds, the LED will flash RED two times.

Sending a Data Message

Press and hold the button until the LED turns GREEN. Once the LED is GREEN, release the button. The sensor will then detect the presence or absence of water and send a data message to the gateway. If no connection to the gateway has been made, when the button is pressed, the LED will first flash RED for 125 ms and then turn green. If the button is released while the LED remains GREEN, the sensor will then try and connect to a gateway and send a data message.

Turning the Disc OFF

Press and hold the button for 5 seconds until the LED flashes RED four times and then remains RED. Once the LED turns RED the device will power off as soon as the button is released.

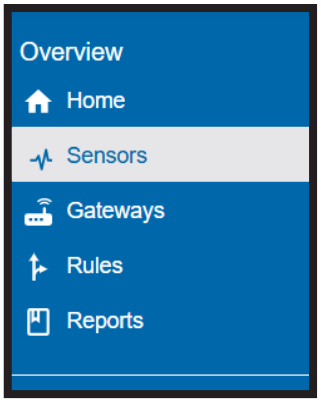
CHARGING BEHAVIOR

The Water Detect Disc Sensor contains a rechargeable battery. This battery can be recharged through the USB-C port on top of the device. The sensor has a 3.0-to-5.5 VDC input voltage operating range. When power is detected, the device will automatically begin charging the battery. The LED behavior depends on the battery's charge.

BATTERY CHARGING LED BEHAVIOR	
Battery Percentage	**LED Behavior**
0-75%	LED will continually flash RED for 2 seconds and off for 2 seconds
76 - 90%	LED will continually flash RED for 1 second and off for 1 second
91-99%	LED will continually flash RED for 500 ms and off for 500 milliseconds
100%	LED will stay a solid GREEN as long as power is detected

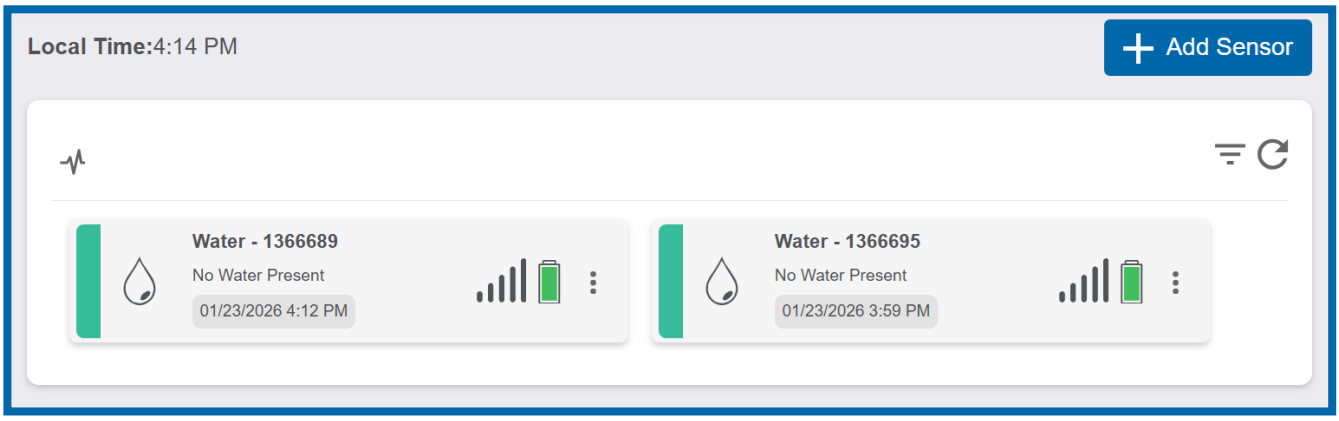
VI. SENSOR OVERVIEW

Select **Sensors** from the **Main Navigation Menu**, in blue on the left of the screen, on the iMonnit land page to access the sensor overview page and begin making adjustments to your Water Detection Disc .



Sensor View

The **Sensors View** will be the first page you see upon selecting the **Sensors** option from the **Main Navigation Menu**. The **Sensors View** presents a push-button HTML card for each sensor on your network, as shown in the example of the **Sensors View** below. An option to add an additional sensor is also provided in the upper right portion of the screen.



After selecting the sensor whose information you wish to view and clicking on the corresponding push-button card, the landing page for that sensor will display. At the top of the landing page, an **Tab Bar** will appear, as depicted below. The landing page will also present information about the sensor in the **Details View** format. To view additional information and to configure the sensor, you may select any of the other following view options discussed below from the **Tab Bar**. You can also return to the **Sensors View** from the **Tab Bar**.

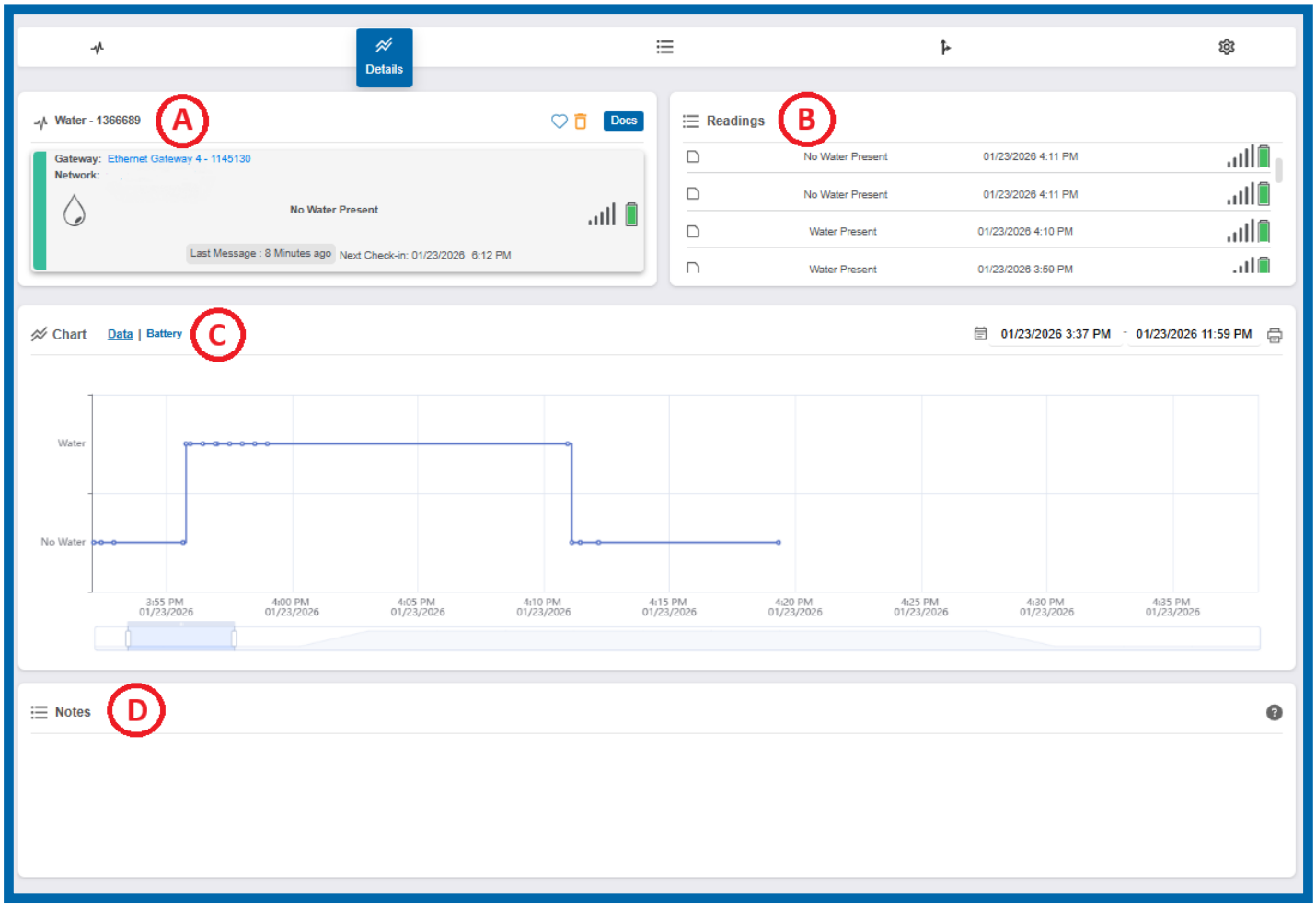


TAB BAR MENU SYSTEM

- **Sensors View** - Displays push-button cards for each sensor on the network.
- **Details View** - Displays a graph of recent sensor data.
- **History View** - List of all past heartbeats and readings.
- **Events View** - List of all events attached to this sensor.
- **Settings View** -Editable levels for your sensor.

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 consistently display the sensor's push-button card, which presents gateway and network identification, current reading, signal strength, battery level, status, and last check-in time information.

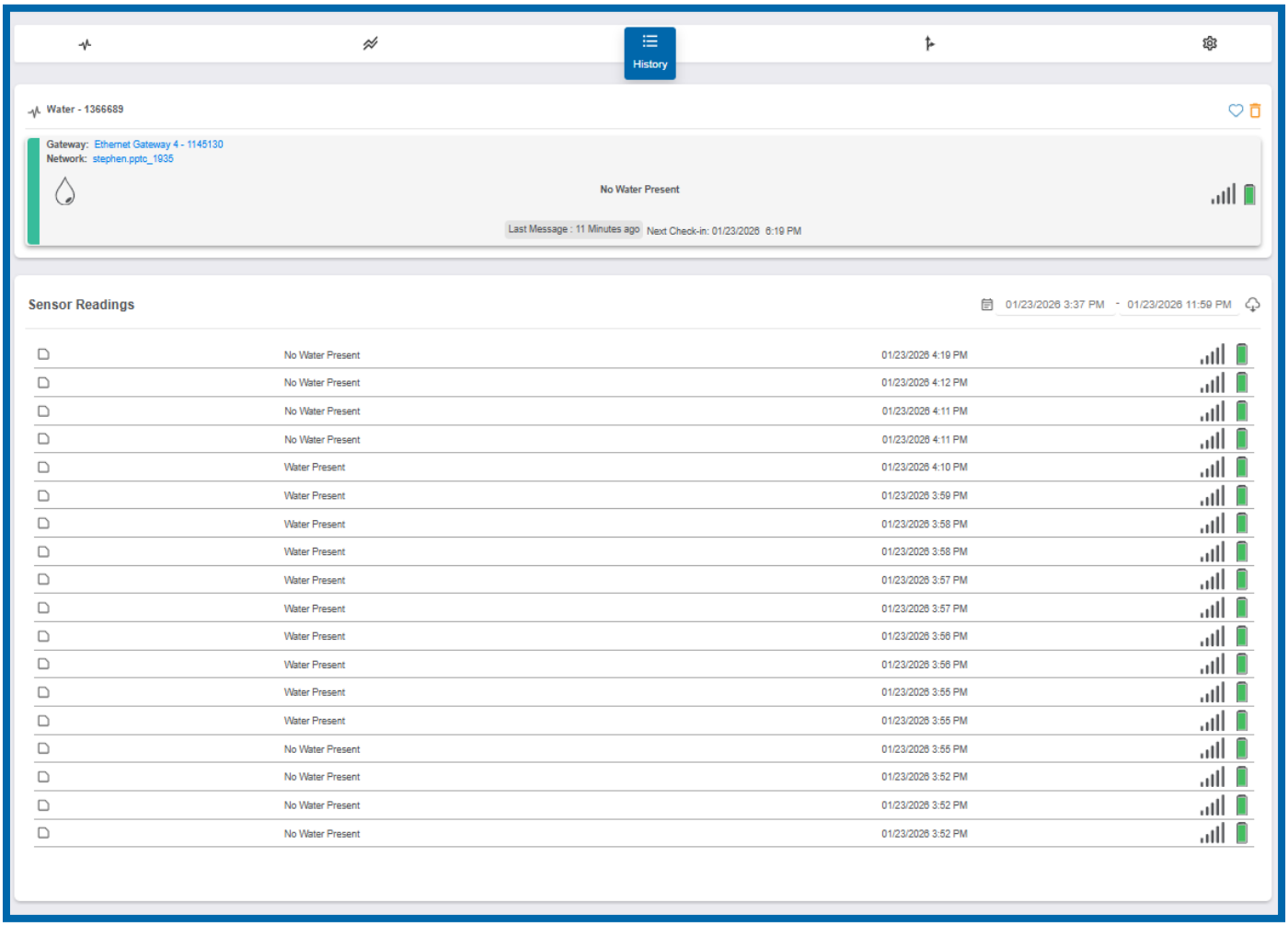
B. This **Chart** section plots readings as to the presence or absence of water detection with respect to time over an adjustable time range.

C. The **Readings** section below lists the previous readings as to the presence or absence of water detection with their time stamps and the corresponding signal strength and battery levels at the times of the readings in a scrollable window.

D. The **Notes** sections also provides a window through which to view user notes on individual readings. Noted on individual readings can be created by visit the **Readings View** and selecting a chosen reading to which you wish to append a comment.

History View

Selecting the "**History**" 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.  Selecting this icon will export an excel file for your sensor into your download folder.

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:

- **MessageID**: Unique identifier of the message in our database.
- **SensorID**: If multiple sensors are exported you can distinguish which reading was from which using this number even if the names for some reason 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.

- **Battery: Estimated life remaining of the battery.**
- **Raw Data: Raw data as it is stored from the sensor.**
- **Sensor State**: Binary field represented as an integer containing information about the state or the sensor when the message was transmitted. (See “Sensor State Explained” below).
- **Gateway ID**: The Identifier of the gateway that relayed the data from the sensor.
- **Alert Sent**: Boolean indicating if this reading triggered a notification to be sent from the system.
- **Signal Strength**: Strength of communication signal between the sensor and the gateway, shown as percentage value.
- **Voltage**: Actual voltage measured at the sensor battery used to calculate battery percent-age, similar to Received Signal you can use one or the other or both if they help you.

Note on Sensor State: The value presented here is generated from a single byte of stored data. A byte consists of eight bits of data that we read as Boolean (True (1)/False (0)) fields.

Using a temperature sensor as an example: If the sensor is using factory calibrations, the Calibrate Active field is set as True (1) so the bit values are 00010000 and it is represented as 16.

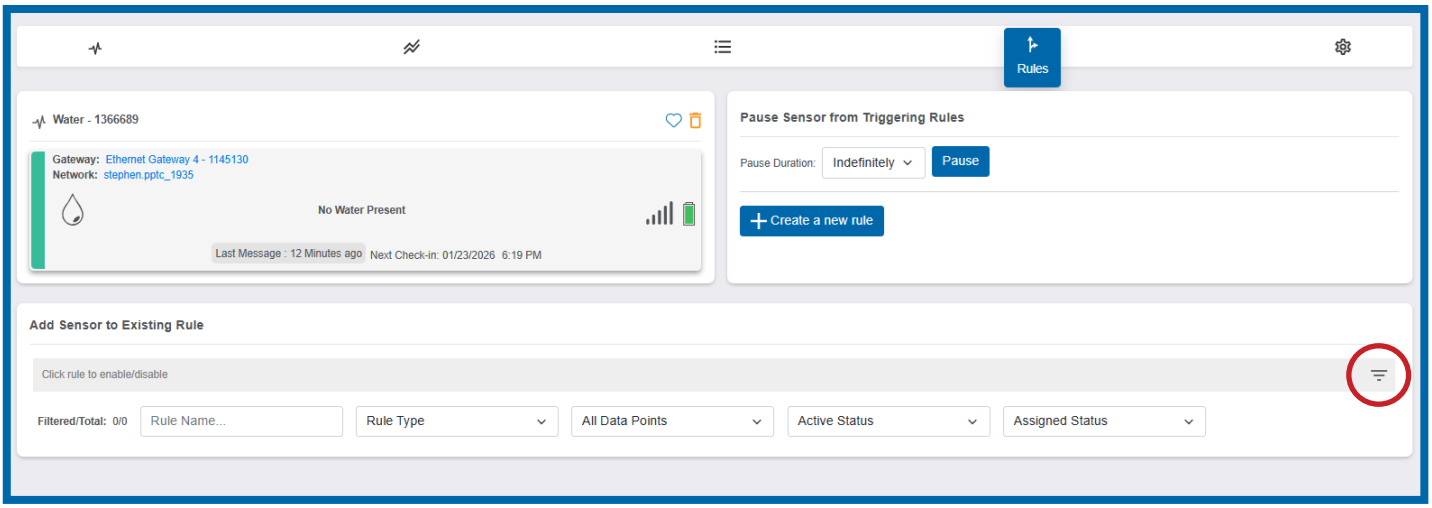
If the sensor is outside the Min or Max threshold, the Aware State is set as True (1) so the bit values are 00000010 and it is represented as 2.

If the sensor has just been powered on or reset for any reason, the Test bit is set as True (1) so the bit values are 00000001 and it is represented as 1.

If the user has calibrated the sensor, this field, the Calibrate Active field, is set as False AND the sensor is operating inside the Min and Max Thresholds, the bits look like 00000000 this is represented as 0.

Rules View

Device notifications can be created, deleted, and edited by selecting the **Rules** tab in the menu **Tab Bar**.



Rules in iMonnit are the foundation of alerts and device interactions that put your sensor data to use. They notify you of sensor readings, device inactivity, and battery level and interact with Local Alerts, Control Units, and Thermostats. Rules allow you to engage schedules and logic through a robust feature set.

To access explanatory articles available on Monnit.com about:

- Creating and Modifying Rules
- Interacting with Rules
- Rule Features
- System Actions and Advanced Rules Features
- Trouble Shooting Help
- Related Articles

Click on this link to the "How to Use Rules in iMonnit" directory.

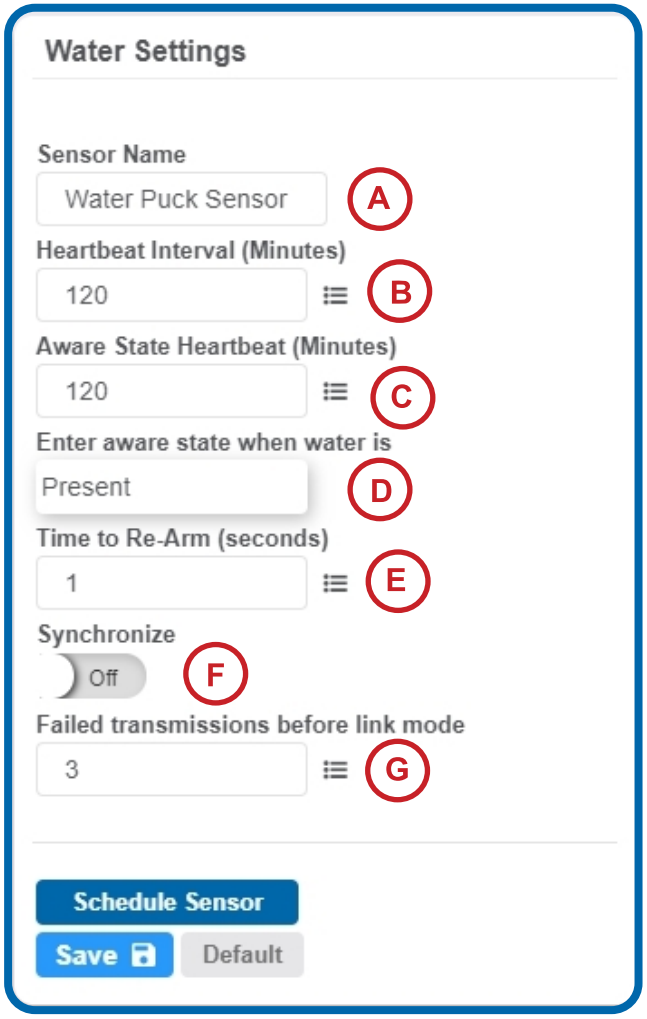
To create a rule, click on the blue **Create a new rule** button.



To add an existing rule to sensor click on the menu icon  in the lower right of the screen, as circled in red above.

Settings View

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



A. Sensor Name is a unique name you give the sensor to easily identify it in a list and in any notifications.

B. Heartbeat Interval is how often the sensor communicates with the gateway if no activity is recorded.

C. Aware State Heartbeat is how often the sensor communicates with the gateway while in an Aware State.

D. Enter aware state when water is field allows you to set whether you want to be alerted when water is either Present, Absent, or when there is a State Change.

E. Time to Re-Arm is the time in seconds after a triggering event that the sensor will wait before re-arming itself.

F. In small sensor networks (less than seven sensors), the sensors can be set to **Synchronize** their communications. The default setting "Off" allows the sensors to randomize their communications, therefore maximizing communication robustness. Setting this setting to "On" will synchronize the communication of the sensors.

G. Failed transmissions before link mode is the number of transmissions the sensor sends without a 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, it will enter battery-saving sleep mode for up to 60 minutes before trying to scan again. A lower number 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. (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.)

Finish by selecting the **Save** button.

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.

VII. SUPPORT

For technical support and troubleshooting tips, please visit our support library 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. 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

(a) 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 the Products arrive at the Customer's shipping address 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. Monnit shall provide the fix or patch after Monnit receives from the Customer (i) notice of such non-conformance, and (ii) 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. Monnit will then deliver the repaired or replacement Product to a carrier for land shipment to the Customer within a reasonable period after Monnit receives from the 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. The Customer must obtain from Monnit a Return Material Authorization (RMA) number prior to returning any Products to Monnit.

Products returned under this Warranty must be unmodified.

The 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 the Customer's receipt of the Product. Monnit reserves the right to repair or replace Products at its own and complete discretion. 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.

(b) 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. The Customer acknowledges that replacement Products may be repaired, refurbished or tested, and found to be complying. The 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 a Customer's reasonable costs of shipping such returned Products against future purchases.

(c) 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 the Customer. Monnit's Warranty obligations shall run solely to a Customer, and Monnit shall have no obligation to the customers of a 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 THE 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 A 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 A 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

Operating Conditions Statement per 47 C.F.R. § 15.19(a)(3)

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.

Class B (Residential) Device Statement per C.F.R. § 15.105

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.

Canada ISED

Operating Conditions Statement per Radio Standards Specification RSS-247, Issue 4

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.

RF Exposure for FCC/ISED

WARNING: *To satisfy FCC/ISED exposure requirements for mobile transmitting devices, a separation distance of* ***20cm*** *or more should be maintained between the antenna of this device and persons during device operations. To ensure compliance, operation at closer than this distance is not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.*

USER SAFETY REQUIREMENTS

READ CAREFULLY

WARNING: It is the responsibility of the user to enforce the country regulation and the specific environment regulation.

WARNING: 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.
- Wherethere is risk of explosion such as gasoline stations, oil refineries, etc.

WARNING: This product is not certified for use in hazardous locations (HAZLOC) where there is a risk of explosions.

WARNING: IF THE SENSOR IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED. *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.*

WARNING: The device has a mechanical stress rating of **IK06**, meaning its housing and/or its readings could be compromised by an impact with greater energy than one Joule.

Justification of a mechanical impact rating less than five Joules exists by: (1) a documented Risk Analysis performed and maintained by Monnit; (2) installation of the sensor in locations that cannot easily be touched by unauthorized persons or the general public; (3) the equipment being only accessible in normal use for occasional operations such as adjustment, programming, or maintenance.

WARNING: **DO NOT** rely solely on the sensor system to prevent: (1) one or more fatalities; (2) disabling injury or illness; (3) chemical release with acute or public health impact; (4) chemical release with temporary environmental or public health impact; (5) system or facility loss; and/or, (6) major subsystem loss.

Monnit Corporation
3400 South West Temple • Salt Lake City, UT 84115 • 801-561-5555
www.monnit.com

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