ALTA® Site Survey Tool
USER GUIDE

Remote Monitoring for Business

1

Download on the App Store

Download on Google play

Use the the appropriate image above to download the iMonnit app.

Alternatively, search for iMonnit in Google Play or the Apple Store.

2

Scan QR Code

Device ID

Code

Add Device

Follow the in-app instructions to add devices to your account.

When prompted, you may customize the desired **Reliability Settings**.

3

FIND GATEWAY ON / OFF

Power the ALTA® Site Survey Tool by pressing the **Find Gateway** button for three seconds.

The tool will search for the nearest authorized gateway, connect to it, and display the gateway's ID.

4

SIGNAL TEST

Press the **Signal Test** button to scan the RF environment and measure TRUESIGNAL™.

iMonnit is the easiest way to view your sensor data and customize the Site Survey Tool's settings in the app or at *imonnit.com*.

Continue reading for more product specifications and detailed instructions. For additional documentation, how-to guides, and video demonstrations using Monnit wireless products and software, please visit our support page at *monnit.com/support/*.
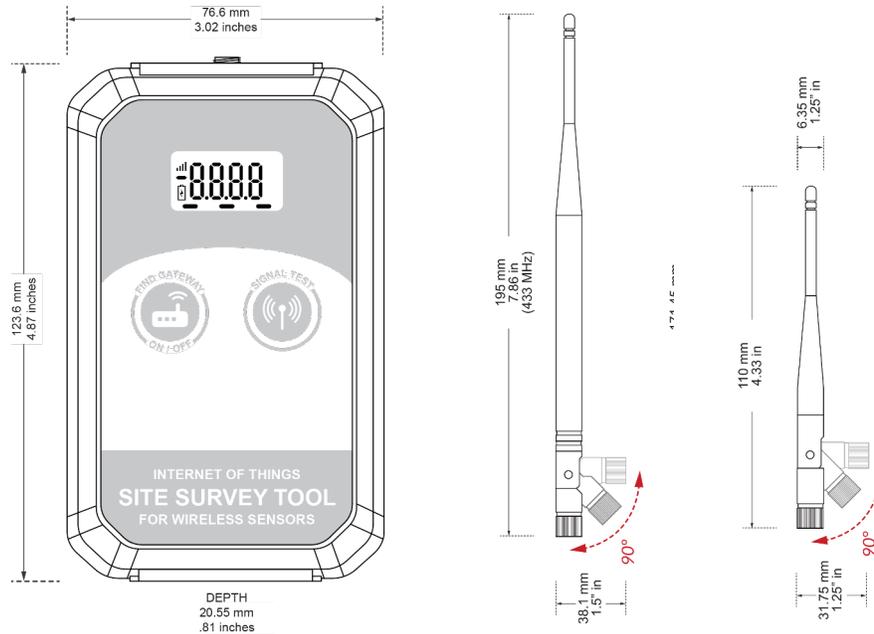
The *larger* articulated antenna is a dipole configuration and emulates the behavior of our industrial sensors with their external antenna. If you plan to buy and install **ALTA industrial sensors**, connect the dipole antenna to the ALTA Site Survey Tool.

The *smaller* antenna is a monopole configuration and emulates our commercial sensor with the wire antennas found on the **ALTA compact coin cell and enterprise (AA battery) sensors**. Please connect this antenna if you plan to deploy any of the ALTA commercial sensors.

ALTA Site Survey Tool Technical Specifications

Power pack	Two replaceable AAA alkaline batteries
Supply voltage	2.0 - 3.8 VDC | Low battery displays if voltage < 2.6 VDC
Current consumption	0.8 µA (sleep mode), 0.7 µA (RTC sleep), 170 µA (MCU idle), 2.5 mA (MCU active), 7.61 mA (radio RX mode), 22.6 mA (radio TX mode)
Battery life	200 hours of active testing
Operating temperature range	-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 85°C (-40°F to 185°F) using lithium
Operating humidity range	5 to 85% RH (non-condensing)
Altitude range (non-pressurized environments)	Operating: -15.2 to 1,982 m (-50 to 6,500 ft) Storage: -15.2 to 3,048 m (-50 to 10,000 ft)
Wireless protocol	ALTA Proprietary Frequency-Hopping Spread Spectrum (FHSS)
Wireless transmission power	50 mW (900MHz), 25 mW (868 MHz), 10 mW (433 MHz)
Wireless antenna type	1/2-wave dipole with RP-SMA connector
Wireless range	1,200+ ft non-line-of-sight (365+ m)*
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Enclosure	IP-67 enclosure, 76.6 x 123.6 x 20 mm (3.0 x 4.9 x 0.79 inch)
Weight	5.5 oz (155 g)

Certifications	900 MHz product:
	  FCC ID: **ZTL-G2SC1**; IC: **9794A-G2SC1**.
	868 and 433 MHz products:
	  ETSI EN 300 220 V3.2.1 (2018-06); **ETSI EN 301 489-3** V2.2.0. (2021-11)
	All products tested and comply with:

*Actual range may vary depending on the environment.

TABLE OF CONTENTS

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 SITE SURVEY TOOL

GENERAL DESCRIPTION

The ALTA® Site Survey Tool helps you plan the placement of ALTA Wireless Sensors by measuring the strength and quality of the radio frequency (RF) signal from an ALTA Gateway. With the Site Survey Tool in hand, you can assess every square foot of your facility or site for the ideal locations to install your sensors. After a quick signal test, the tool's LCD reports the average TRUESIGNAL™ and Pass, Poor, or Fail based on your preferred signal reliability setting. The TRUESIGNAL is calculated from the wireless signal strength and the amount of wireless interference measured at the test location. This data will help you optimize data communications throughout your Internet of Things (IoT) network.

The iMonnit dashboards also present the data points related to your testing. You can configure the tool's customizable test settings and review an advanced reading log online at iMonnit.com. Choose your signal reliability settings—Mission-Critical, Strong, or Functional—according to your environment, use case, and how frequently and reliably your sensors need to send data. (See signal reliability settings explanations below.)

II. UNDERSTANDING YOUR DATA

HISTORICAL DATA AVAILABLE IN iMONNIT

On activation of the Site Survey Tool, or when the **FIND Gateway** button is pressed, the tool will start searching for the nearest authorized gateway. After connecting to a gateway, the Gateway ID will scroll across the screen and iMonnit will record this event in the data history.

Connected to Gateway, ID: ########

(Data reported in iMonnit)

On completion of a Signal Test, the device displays **Pass, Poor, or Fail**, and then displays the **Average TRUESIGNAL** percentage. Additionally, in iMonnit, the same results are recorded in the data history.

Pass 73%

(Data reported in iMonnit)

If the tool is configured in iMonnit to **Show Advanced Data**, then additional data points become available for viewing:
- **Average Signal Margin** (in decibels)
- **Signal Quality** presents the number of packets sent and received.

Pass 100% (93dB), Packets Sent: 22 Received: 22
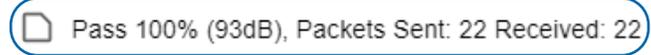
(Data reported in iMonnit)

*How many packets and results are averaged per Signal Test depends on configurations. See the iMonnit **Settings View** for more information.

WHAT IS TRUESIGNAL™?

TRUESIGNAL is a simple scale created by Monnit to express the amount of usable signal at a test location, as calculated from the measured wireless signal strength and background interference. The result is expressed in percent and is directly correlated to your selected **Reliability Setting,** with Pass corresponding to the percentages in green, Poor to the percentages in yellow, and Fail to the percentages in red for the various reliability settings depicted below.

MISSION-CRITICAL RELIABILITY

0%   60%   100%

Optimizes deliverability over range.

STRONG RELIABILITY

0%   40%   100%

Balances deliverability and range.

FUNCTIONAL RELIABILITY

0%   20%   100%

Optimizes range over deliverability.[1]

1. Changes in the environment may affect the timeliness of data delivery when the TRUESIGNAL™ is below 20%

III. USING THE SITE SURVEY TOOL

ADD THE DEVICE TO iMONNIT

In the **Networks** screen, click the **Add Device to Network** button and follow the instructions to add devices to your account. When prompted to choose how you will use your sensor, select the desired **Reliability Settings** for auto configuration. The options are **Mission-Critical, Strong** (default)**,** and **Functional** reliability.

Auto configuration will set up your Site Survey Tool with the following defaults:

- Signal Test Duration of 10 seconds
- Auto Shutoff Time of 5 minutes
- Do not show full data

More information on these settings can be found in the iMonnit **Settings View** section (page 6).
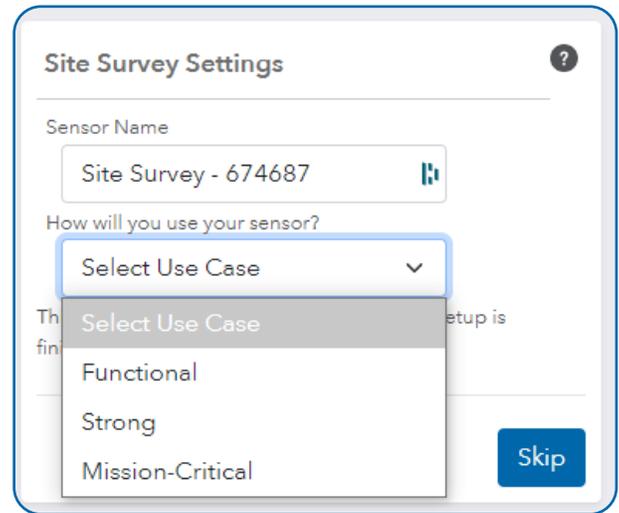
INSTALLING/REPLACING BATTERIES

The tool is powered by two replaceable AAA-sized batteries (preinstalled at the time of purchase). The typical battery life is rated for 200 hours of activity. To replace batteries in the device, start by removing the four screws, then remove the battery door. Next, insert fresh AAA batteries in the carriage. Then, replace the battery door and screws.
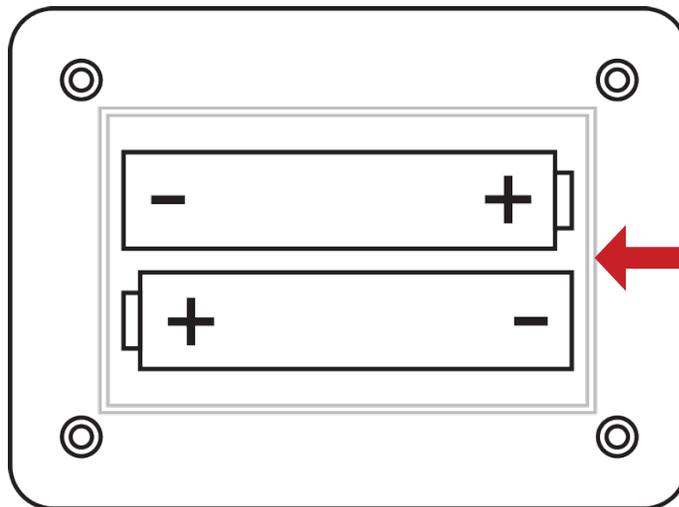
NOTE: There is a gasket that sits in the groves around the battery coffin. This gasket must be put back before reattaching the lid.

Important: The battery door must be correctly re-installed to ensure the device remains waterproof.

Complete the process by opening up iMonnit and selecting **Sensors** from the main navigation menu. Next, verify that iMonnit shows the Site Survey Tool has a full-battery level.

NOTE: When the Site Survey Tool is low on battery, the battery symbol will be displayed on the screen.

WARNING: ONLY install new alkaline batteries from the same manufacturer.

BUTTON FUNCTIONS:

ON / OFF: Press and hold for three seconds to turn the device on or off.

FIND GATEWAY: A short press after the device is on shows the connected gateway on the LCD.
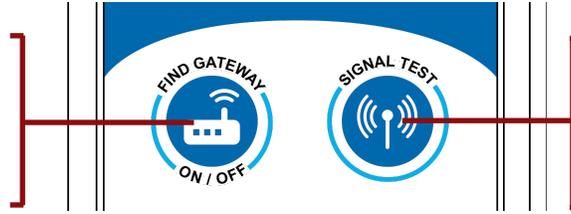
SIGNAL TEST:
After the tool connects to a gateway and displays **rdy**, press the **Signal Test** button to begin the TRUESIGNAL assessment.

> **Any button press overrides what the device is doing. All readings are stored in iMonnit.**

USING YOUR ALTA SITE SURVEY TOOL:

Press and hold the **Find Gateway** button for three seconds to power the device:

    a.   The LCD will flash and the device starts searching for the nearest authorized gateway.
    b.   After connecting, the **Gateway ID** scrolls across the screen twice.
    c.   The screen will show **rdy**, indicating the tool is waiting for the next button press.

If the Gateway ID on the LCD is not the gateway you want to connect to:

    a.   Move closer to the desired gateway.
    b.   Confirm the gateway is on the same network in your account.
    c.   Press the **Utility** button on your gateway to confirm the gateway has downloaded the latest wireless sensor list.
    d.   Press the **Find Gateway** button to start searching for the nearest authorized gateway.

After connecting, the **Gateway ID** scrolls across the screen twice. The screen will show **rdy**, indicating the tool is waiting for the next button press.

NOTE: If your ALTA Gateway setting **On Aware Messages** is set to **Wait for the Heartbeat**, you need to switch or toggle the setting to **Trigger Heartbeat**. This will ensure the Site Survey Tool can send the data immediately to iMonnit through the gateway.

Press the **Signal Test** button to begin scanning the RF environment and measure the TRUESIGNAL™.

    a.   The screen starts flashing the TRUESIGNAL measured.
        i.   The result will be a number if the scan was successful
        ii.   The result will be a dash "-" if the scan wasn't successful
    b.   When the test is complete, the device displays **Pass**, **Poor**, or **Fail**, and then displays the average TRUESIGNAL percentage.
    c.   These results will show twice before the screen displays **rdy.**
    d.   The device is now ready for the next signal test.

> **All data is logged by the tool until the data is successfully delivered to the gateway.**

WHAT TO DO WHEN EXPERIENCING A HIGH NUMBER OF TESTING FAILURES:

While surveying your area, there can be times when the tool will experience poor signal quality even when the TRUESIGNAL is considered passing. This can be caused by deliberate or random noise sources. In this situation, please do the following.

1.   Retest to confirm your results. More data is always better.
2.   Move closer to your gateway and retest. If the signal quality improves, continue testing and moving to identify poor signal locations.
3.   If the signal quality does not improve, identify and turn off extra ALTA Sensors in your area. ALTA devices that are frequently communicating may unintentionally cause the tool to report communication failures.

IV. SENSOR OVERVIEW IN iMONNIT

Select **Sensors** from the main navigation menu in iMonnit. Then select the **Site Survey Tool** to access the **Sensor Overview** page and configure the tool's settings.

MENU SYSTEM
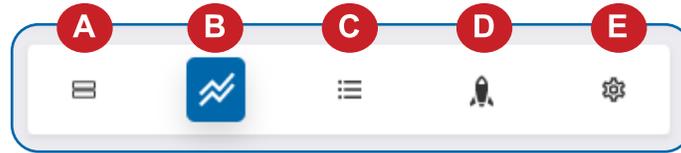
A. Sensors—See a list of all sensors and other devices on your network.
B. Details—View a dashboard of device KPIs, readings, charts, and notes.
C. Readings—Get a listing of recent device readings or messages.
D. Actions—Review specific device Actions. (Not applicable to the Site Survey Tool)
E. Settings—Configure reliability and other key settings for the tool.

Directly under the top horizontal tabbed menu bar is an overview of the Site Survey Tool. You can see the signal strength and the battery level of the selected device. A colored dot in the left corner of the device icon denotes its status.

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

DETAILS VIEW
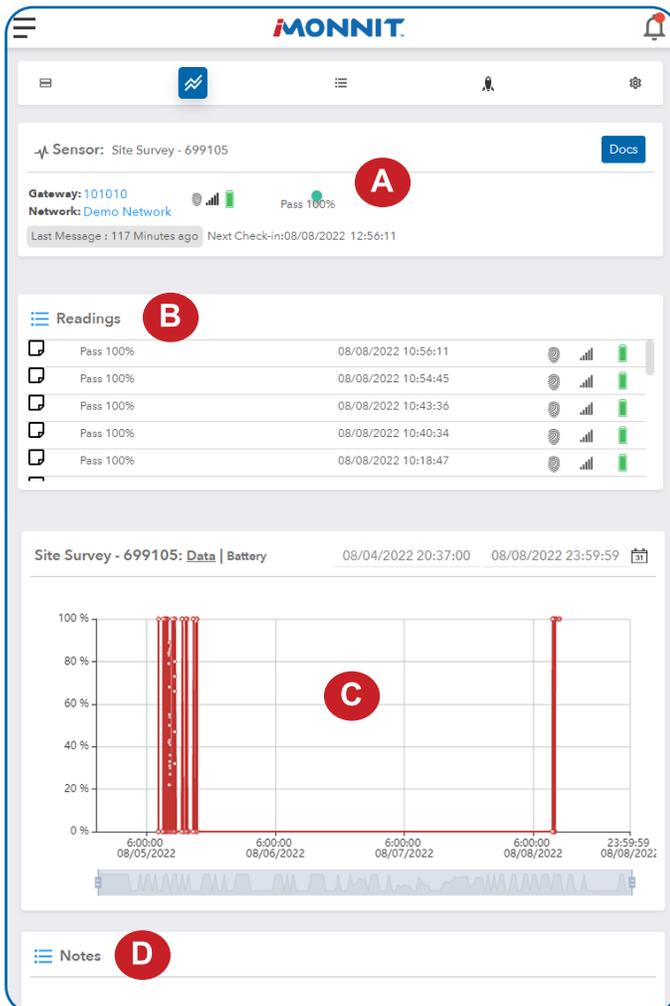
The **Details View** will be the first page you see upon selecting the sensor or device you want to modify.

A. The **Sensor Overview** section is at the top of every page. This will consistently display the present reading, signal strength, battery level, and status of the device.

B. The **Readings** section shows the most recent data received by the sensor or tool.

C. This graph charts any changes 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 date range.

D. The **Notes** section is available to add comments, or observations about a specific data point.

READINGS VIEW

Select the **Readings** tab within the top horizontal menu bar to view the Site Survey Tool'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 of the tool's data into your downloads folder.

> **Note: Make sure you have the date range correct 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 the database.

- **Sensor ID:** If data from multiple sensors is exported, you can distinguish between the sensors using this number — even if the names are the same.

- **Sensor Name:** The name you gave the sensor or device.

- **Date:** The date the message was transmitted from the sensor or tool.

- **Value:** Data presented with transformations applied, but without additional labels.

- **Formatted Value:** Data transformed and presented as it is shown in iMonnit.

- **Raw Data:** Raw data as it is stored from the sensor or device.

- **Sensor State:** Binary field represented as an integer containing information about the state of the sensor or tool when the message was transmitted. (See *Sensor State* explained below.)

- **Alert Sent:** Boolean indicating if this reading triggered a notification sent from the system.

- **Signal Strength:** Strength of communication signal between the sensor or tool and the gateway, shown as percentage value.

- **Voltage:** Actual voltage measured at the sensor or device battery used to calculate battery percentage, similar to Received Signal. You can use one or the other or both if they help you.

SENSOR STATE

This value is an integer encoded with various forms of information. For the Site Survey Tool, there are only two reported states:
- When this device connects to a gateway, the **Sensor State** has the value of 18.
- Otherwise, the **Sensor State** will have the value of 2, indicating the message was delivered with urgent delivery.

SETTINGS VIEW

To edit the operational settings for the Site Survey Tool, choose the **Sensor** option in the main navigation menu, and then select the **Settings** tab to access the configuration page.

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

B. The **Signal Test Duration** is a value in seconds that determines the duration of a signal test. The duration is based on the time you press the **Signal Test** button to the end of test and the result shows on the LCD and reports to the gateway. This also controls the number of intermediate results averaged over the course of the test.

C. **Signal Reliability Level** allows you to select the PASS/POOR threshold point.

- **Mission-Critical**–*Optimizes* deliverability *over range*.
- **Strong**–Balances deliverability and range.
- **Functional**–Optimizes range over deliverability.

D. **Auto Shutoff Time** is a value in minutes that determines how long the device will stay on after the last button press or signal test completion. After this time, the device will shut down to save battery life.

E. **Show Full Data Value** Default: **OFF**, only shows the basic data. If set to **ON,** additional advanced data will be shown:

- **Average Signal Margin** (in decibels)
- **Signal Quality** presents the number of packets sent and received.

Finish by selecting the **Save** button.

Site Survey Settings ❓

Sensor Name

| Site Survey - 674687 | ⚡ | **A** |

Signal Test Duration

| 10 Seconds ⌄ | **B** |

Signal Reliability Level ❓

| Strong ⌄ | **C** |

Auto Shutoff Time

| 5 Minutes ⌄ | **D** |

Show Full Data Value

Off ⬤ On **E**

Schedule Sensor

Default Save

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

V. MONNIT DATA SECURITY

The ALTA Site Survey Tool is designed and built to securely manage data. Monnit works to ensure your data security is handled with the utmost care. The same methods used by financial institutions to transmit data are also used in Monnit's security infrastructure. Security features from sensors to gateways include tamper-proof network interfaces, data encryption, and bank-grade security.

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

SENSOR COMMUNICATION SECURITY

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

How Monnit Encrypt-RF™ Works

Wireless Sensor — Wireless Gateway

Sensor Private Key — 256-bit ECDH — Gateway Private Key
ECC Generated Sensor Public Key — Security Handshake — ECC Generated Gateway Public Key
Shared Secret — Shared Secret

128-bit AES-CTR

Generated AES Key | Generated Nonce + Counter — Generated AES Key | Generated Nonce + Counter
Block Cipher Encryption — Wireless Communication — Block Cipher Decryption
Data Message — Data Message

DATA SECURITY ON THE GATEWAY

ALTA Gateways are designed to prevent prying eyes from accessing the data that is stored on the sensors and the gateway. Gateways do not run on an off-the-shelf, multi-function operating system. Instead, they run on a purpose-specific, real-time, and 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. Our fortified gateways secure your data from attackers and secures the gateway from becoming a relay for malicious programs.

Click here for more information on gateway security.

iMONNIT SECURITY

The iMonnit system 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 that requires Two-Factor Authentication (2FA), 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 an iMonnit Basic or Premiere user. You can rest assured that your data is safe with iMonnit.

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 an ALTA 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 cryptographic hash function against a unique per sensor secret key. This step provides an unprecedented level of full-coverage security for any Monnit user wishing to secure their IoT devices and data.

Click here for more information on SensorPrints.
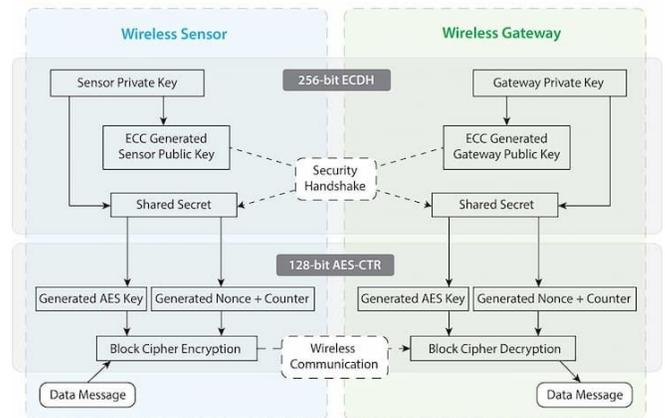
VI. SUPPORT

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, 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.

VII. WARRANTY INFORMATION

(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 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. This correction will be completed 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 and deliver the repaired or replacement Product to a carrier for land shipment to customer within a reasonable period. This will take place 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 Merchandise 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 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 RMA number 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 1-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, the 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. Please visit Monnit.com/policy/returns/ for Monnit's return policy and instructions.

(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 the Customer, and Monnit shall have no obligation to customers of the 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.

VIII. CERTIFICATIONS

United States FCC

This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to 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. These limits are designed to provide reasonable protection against harmful interference. 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 the one 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 ALTA Wireless Sensors, Wireless Sensor Adapters, and Ethernet Gateways:

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 20 cm between the radiator and the body of the user or nearby persons.

All ALTA Wireless Sensors and Gateways Contain FCC ID: ZTL-G2SC1.

Approved Antennas

ALTA devices have been designed to operate with the approved antenna types 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)*

Canada (IC)

English

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the Equivalent Isotropically Radiated Power (E.I.R.P.) is not more than that necessary for successful communication.

The radio transmitters (IC: 9794A-G2SC1, IC: 10224A-2020BG95M6) have been approved by Industry Canada to operate with the antenna types listed on previous page with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

French

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la Puissance Isotrope Rayonnée Èquivalente (P.I.R.È) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteurs radio (IC: 9794A-G2SC1, IC: 10224A-2020BG95M6) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne figurant sur la page précédente et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, méme si le brouillage est susceptible d'en compromettre le fonctionnement.

UK / CE

There is no restriction for the commercialization of Monnit ALTA 868MHz and 433MHz wireless products in all the countries of the European Union. The European Community provides specific directives for the electronic equipment introduced on the market. All of the relevant information is available on the European Community websites.

ALTA wireless products comply with the specific harmonized standards, regulations, instruments, and directives listed in the table below. For more information on product compliance, please contact Monnit Sales or Support and request a copy of the manufacturers Declaration of Confirmatory (DoC) for the relevant product(s).

Directive / Instrument / Regulation	Part	Harmonized Standard(s) / Standard(s)
Low Voltage Directive (LVD) (2014/35/EC) **Electrical Equipment (Safety) Regulations 2016** (S.I. 2016/1101)	All parts	**EN 61010-1**:2010 IEC 61010-1:2010/ AMD1:2016
ElectroMagnetic Compatibility Directive (EMCD) (2014/30/EU)	Emissions Requirement	**EN 55032**:2015/ A11:2020
Electromagnetic Compatibility Regulations 2016 (S.I. 2016/1091)	Immunity Requirement	**EN 55035**:2017/ A11:2020
Radio Equipment Directive (RED) (2014/53/EU) **Radio Equipment Regulations 2017** (S.I. 2017/1206)	Electrical Safety Article 3.1(a)	**EN 61010-1**:2010 IEC 61010-1:2010/ AMD1:2016
	EMC Article 3.1(b)	**ETSI EN 301 489-3** V2.2.0 (2021-11)
	RF Spectrum Efficiency Article 3.2	**ETSI EN 300 220** V3.2.1 (2018-06)
	Internet of Things Cybersecurity Article 3.3(d)-(f)	EU 2022/30 **ETSI EN 303 645** V2.1.1 (2020-06)
Restriction of Hazardous Substances (2011/65/EU) **Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012** (S.I. 2012/3032)	RoHS II and RoHS III	**IEC 63000**:2016/ AMD1:2022
Registration, Evaluation, and Authorization of CHemicals (REACH) Regulation 1907/2006	Article 33	**SVHC 224** (June 10, 2022)

IX. USER SAFETY REQUIREMENTS

<div style="background:red;color:white;text-align:center">**READ CAREFULLY**</div>

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

⚠️ WARNING: This product is not certified for use in hazardous location (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. **DO NOT** rely solely on the gateway 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.

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.

Note: 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.

Industrial-Grade Products | Type 1, 2, 4, 4X, 12, and 13 NEMA-Rated Enclosure

Industrial products are enclosed in reliable, weatherproof NEMA-rated enclosures. Our NEMA-rated enclosures are constructed for both indoor or outdoor use and protect the Site Survey Tool circuitry against the ingress of solid foreign objects like dust and the damaging effects of water.

- Safe from falling dirt
- Protects against wind-blown dust
- Protects against rain, sleet, snow, splashing water, and hose-directed water
- Increased level of corrosion resistance
- Remains undamaged by ice formation on the enclosure

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