

# ALTA Wireless IoT Sensors Kit IT Server Room



## Kit Data Sheet

### “Things” are talking.

**ALTA Remote Monitoring Systems** enable “things” to speak. Wireless sensors, gateways and software give a voice to the IoT (Internet of Things) and allow business-es to leverage data, protect resources & save money.

For example, “things” can speak up when conditions are met that indicate an asset is at risk. The Monnit ecosystem (50+ sensor types) detects changes in variables (such as a temperature, water presence, door position, electrical current and voltages) to employ an **autonomous wireless sensing** solution that protects your bottom line.

### Kit Components

#### Sensors



**Open / Closed**

Coin Cell Battery, 0.75” operational gap



**Temperature** (QTY 2)

AA Battery, +/- 1% accuracy @25° C



**Water Rope**

AA Battery, 10’ water rope (expandable)

#### Gateway



**3G Cellular**

AT&T (USA), Rogers (Canada), w/ Battery Backup



**Ethernet** (pictured in the kit above)

100% Comprehensive - no PC or subscription req'd

### FAST System Setup

**15 min.**  
**< or less**

Build an IoT sensor network in 15 minutes or less! Monnit IoT & RF experts are standing by to help you quickly establish your monitoring system.

Email: [info@monnit.com](mailto:info@monnit.com), Phone: 801-561-5555, Web: [www.monnit.com](http://www.monnit.com)

### The only 1000' / 10-yr. IoT Sensors Platform in the World

1000'+ Wireless Range  
/ 10-yr. Battery Life

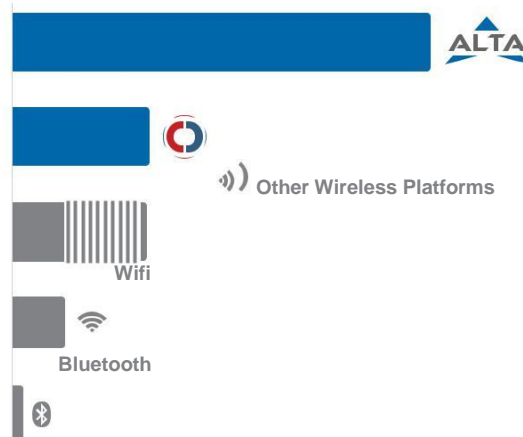


### Enterprise-grade Performance

- ◆ 1,000+ ft. Wireless Range (through 12+ walls or ceilings, non line-of-sight)\*
- ◆ Frequency Hopping Spread Spectrum (FHSS) / Interference Immunity
- ◆ Improved power management for longer battery life.\*\* (10+ years on AA batteries or Industrial)
- ◆ Encrypt-RF™ Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages).
- ◆ Onboard data memory - up to 512 readings / sensor
  - 10 minute heartbeats = 3.5 days
  - 2 hour heartbeats = 42 days
- ◆ Over-the-air updates (future proof)
- ◆ Free iMonnit basic online monitoring and notification software (configure sensors, view data and set alerts via SMS text, email and/or voice calls)

\* Wireless range may vary according to environment.

\*\* Battery life determined by sensor reporting & other variables



# ALTA Wireless OPEN / CLOSED Sensors





The ALTA Wireless Open / Closed Sensor uses a magnetic switch to detect when a door or window is opened or closed. The position of the contact provides the system data that can be purposed for applications such as access control, occupancy monitoring, energy management, etc.

[Data Sheet \(short version\)](#)

[click here for long version](#)

## Technical Specifications

|                          |   |  |
|--------------------------|---|--|
| Supply Voltage           | 2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *  |  |
| Current Consumption      | 0.2 $\mu$ A (Sleep Mode)<br>0.7 $\mu$ A (RTC Sleep)<br>570 $\mu$ A (MCU Idle)   | 2.5 mA (MCU Active)<br>5.5 mA (Radio RX Mode)<br>22.6 mA (Radio TX Mode)   |
| Magnet Contact           | Magnetic Switch   | SPST, gold under -plating with Deactivated Rhodium outer-plating (capable of 50 million activations)                     |
|                          | Operational Gap   | Up to 0.75"  |
|                          | Wire Leads  | 22 gauge / 15 inch length  |
|                          | Magnet  | Alnico magnet / Weatherproof, high-impact ABS plastic covering with self-adhesive backing                                |
|                          | Temperature Range (Magnet)  | -15° to 160°F (-25° to 70°C)   |
| Wireless Range (900 MHz) | 1,000'+ (through 12+ walls or ceilings / non line-of-sight)   |  |
| Security                 | Encrypt-RF™ (256-bit key exchange and AES-128 CTR)  |  |
| Integrated Memory        | Up to 512 sensor messages   |  |
| Certifications           |   Industry Canada | 900 MHz product - FCC ID: ZTL-G2SC1<br>IC: 9794A-G2SC1<br>UL Listed (Industrial): UL508-4x specifications (File E194432) |

## Power Options / Form Factors

|  | AA Batteries   | Coin Cell   | Industrial 3.6V Lithium (1800 mAh capacity)      |
|--|--|---|--|
| Operating Temperature Range (board circuitry + batteries) ** | 0° to 130°F (-18°-55°C) alkaline,<br>-40° to 185°F (-40° - 85°C) lithium | 20° to +140°F,<br>(-7° - 60°C) **                 | -40° to +185°F<br>(-40° - 85°C)**                |
| Optimal Operating Temperature Range (batteries) **           | +10° to +50°C (+50° to +122°F)   |   | -40° to +85°C (-40° to +185°F)                   |
| Weight   | 3.7 oz.  | 0.7 oz.   | 4.7 oz.  |
| Enclosure  | High impact ABS Plastic  | High impact ABS Plastic (w/ PinchPower enclosure) | IP65, NEMA 4X, CE, sealed, weather & shock proof |
| Dimensions (click #s to view dimensional drawings)           | 4.375" x 2.470" x 1.120"   | 2.000" x 1.125" x 0.875"                          | 3.701" x 2.316" x 1.378"                         |

\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

\*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

[Solar-Powered Option \(available with "Industrial" version only\)](#)

Solar Panel: 5VDC / 30mA (53mm x 30mm)

Charging Temperature Range: 0° to 45°C (32° to 113°F)

Max. Temperature Range: -20° to 60°C (-4° to 140°F)

Rechargeable Battery (Included): 600 mAh / >2000 Charge Cycles (80% of initial capacity)

## Principle of Operation



OPEN / CLOSED

The ALTA Open / Closed Sensor uses an external magnetic switch to detect the presence or removal of a trigger magnet. When the sensor detects that the magnet is removed or returned, it sends the information to the iMonnit Online Sensor Monitoring and Notification System. The data is stored in the online system and can be reviewed and exported. Notifications can be setup through the online system to alert the user when a magnetic source is present or not present - with the ability to specify notifications within time-of-day parameters.

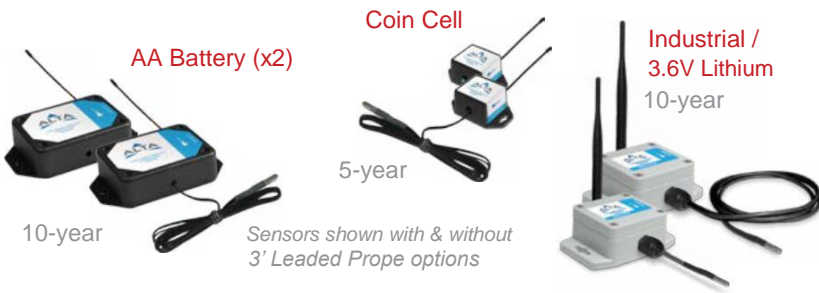
**Get IoT Started**

801-561-5555

[info@monnit.com](mailto:info@monnit.com)

[www.monnit.com](http://www.monnit.com)

# ALTA Wireless TEMPERATURE Sensors





The ALTA Wireless Temperature Sensor uses a type NTC thermistor to measure temperature.

- ◆ Accurate to  $\pm 1^\circ\text{C}$  ( $\pm 1.8^\circ\text{F}$ )
- ◆ Increased accuracy by user calibration to  $\pm 0.25^\circ\text{C}$  ( $\pm 0.45^\circ\text{F}$ )

[Data Sheet \(short version\)](#)

[click here for long version](#)

## Technical Specifications

|                          |   |  |
|--------------------------|---|--|
| Supply Voltage           | 2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *  |  |
| Current Consumption      | 0.2 $\mu\text{A}$ (Sleep Mode)<br>0.7 $\mu\text{A}$ (RTC Sleep)<br>570 $\mu\text{A}$ (MCU Idle)   | 2.5 mA (MCU Active)<br>5.5 mA (Radio RX Mode)<br>22.6 mA (Radio TX Mode)   |
| Temperature Sensor       | Thermistor Temperature Range (Thermistor Only)  | $-40^\circ$ to $+125^\circ\text{C}$ ( $-40^\circ$ to $+257^\circ\text{F}$ ) Limited to Main Unit Circuitry, $-7^\circ$ to $+60^\circ\text{C}$ unless thermistor leads being used |
|                          | Accuracy @ $25^\circ\text{C}$   | $\pm 1\%$ ( $1^\circ\text{C}$ or $1.8^\circ\text{F}$ )   |
|                          | User Calibrated Accuracy  | $\pm 0.25^\circ\text{C}$ ( $\pm 0.45^\circ\text{F}$ )  |
| Wireless Range (900 MHz) | 1,000'+ (through 12+ walls or ceilings / non line-of-sight)   |  |
| Security                 | Encrypt-RF™ (256-bit key exchange and AES-128 CTR)  |  |
| Integrated Memory        | Up to 512 sensor messages   |  |
| Certifications           |   | 900 MHz product: FCC ID: ZTL- G2SC1<br>IC: 9794A-G2SC1<br>UL Listed (Industrial): UL508-4x specifications (File E194432)   |

| Power Options / Form Factors                                 | AA Batteries   | Coin Cell  | Industrial 3.6V Lithium (1800 mAh capacity)                                   |
|--|--|--|---|
| Time Constant @ $25^\circ\text{C}$                           | 15 sec max   | 30 seconds   |   |
| Operating Temperature Range ** (board circuitry + batteries) | $0^\circ$ to $130^\circ\text{F}$ ( $-18^\circ$ - $55^\circ\text{C}$ ) alkaline,<br>$-40^\circ$ to $185^\circ\text{F}$ ( $-40^\circ$ - $85^\circ\text{C}$ ) lithium | $20^\circ$ to $+140^\circ\text{F}$ ,<br>( $-7^\circ$ - $60^\circ\text{C}$ ) ** | $-40^\circ$ to $+185^\circ\text{F}$<br>( $-40^\circ$ - $85^\circ\text{C}$ )** |
| Optimal Operating Temperature Range (batteries) **           | $+10^\circ$ to $+50^\circ\text{C}$ ( $+50^\circ$ to $+122^\circ\text{F}$ )   |  | $-40^\circ$ to $+85^\circ\text{C}$ ( $-40^\circ$ to $+185^\circ\text{F}$ )    |
| Weight   | 3.7 oz.  | 0.7 oz.  | 4.7 oz.   |
| Enclosure  | High impact ABS Plastic  | High impact ABS Plastic (w/ PinchPower enclosure)                              | IP65, NEMA 4X, CE, sealed, weather & shock proof                              |
| Dimensions (click #s to view dimensional drawings)           | 4.375" x 2.470" x 1.120"   | 2.000" x 1.125" x 0.875"   | 3.701" x 2.316" x 1.378"  |

\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

\*\* At temperatures above  $100^\circ\text{C}$ , it is possible for the board circuitry to lose programmed memory.

[Solar-Powered Option \(available with "Industrial" version only\)](#)

Solar Panel: 5VDC / 30mA (53mm x 30mm)

Charging Temperature Range:  $0^\circ$  to  $45^\circ\text{C}$  ( $32^\circ$  to  $113^\circ\text{F}$ )

Max. Temperature Range:  $-20^\circ$  to  $60^\circ\text{C}$  ( $-4^\circ$  to  $140^\circ\text{F}$ )

Rechargeable Battery (Included): 600 mAh / >2000 Charge Cycles (80% of initial capacity)

## Principle of Operation



Sensor outputs ambient temperatures in degrees Fahrenheit. It is programmed to sleep for a user-given time interval (heartbeat); then wakeup, send power to the NTC Thermistor, wait for it to stabilize, convert the analog data, mathematically compute the temperature and transmit the data to the gateway. To stay within the abilities of the processor, the temperature is computed off a data table provided by the manufacturer.

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801-561-5555

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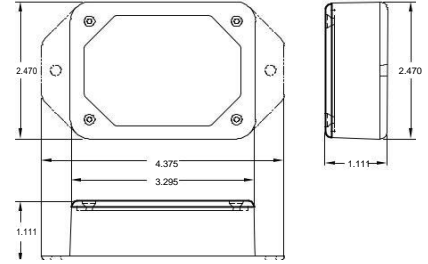
[www.monnit.com](http://www.monnit.com)

# ALTA Wireless Water Rope Sensor (AA)



The ALTA Wireless Water Rope Sensor detects the presence of water anywhere along the surface of the rope. Sensor comes with 10' of water rope. Additional 10 ft. sections are available and can be connected up to 100 feet.

- ◆ 10 ft. lead and 10 ft. water detection rope.
- ◆ Immediately detects water anywhere along rope.
- ◆ Expandable up to 100 ft. of detection rope.



## Technical Specifications

|   |   |  |
|---|---|--|
| Supply Voltage  | 2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *  |  |
| Current Consumption   | 0.2 $\mu$ A (Sleep Mode)<br>0.7 $\mu$ A (RTC Sleep)<br>570 $\mu$ A (MCU Idle)<br>2.5 mA (MCU Active)<br>5.5 mA (Radio RX Mode)<br>22.6 mA (Radio TX Mode) |  |
| Operating Temperature Range (Board Circuitry and Batteries) | -18°C to 55°C (0°F to 130°F) using alkaline<br>-40°C to 85°C (-40°F to 185°F) using lithium **  |  |
| Optimal Battery Temperature Range (AA)                      | +10°C to +50°C ( +50°F to +122°F )  |  |
| Water Rope  | Material  | PE + alloy lead  |
|   | Maximum Exposed Temperature   | 75°C (167°F)   |
|   | Weight  | 30g/meter  |
|   | Pull Force Limit  | 60kg   |
|   | Core Resistance   | 3ohm/100 meters  |
|   | Cable Diameter  | 5.5mm  |
|   | Cable Length  | 10 ft. (included, 120", expandable to 100')                    |
|   | Fire Resistance   | Second pressure plenum cable                                   |
|   | Wireless Range  | 1,000+ ft. (through 12+ walls or ceilings / non line-of-sight) |
| Security  | Encrypt-RF™ (256-bit key exchange and AES-128 CTR)  |  |
| Integrated Memory   | Up to 512 sensor messages   |  |
| Weight  | 3.7 Ounces  |  |
| Certifications  | 900 MHz product: FCC ID: ZTL- G2SC1,<br>IC: 9794A-G2SC1   |  |

\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

\*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

## Principle of Operation

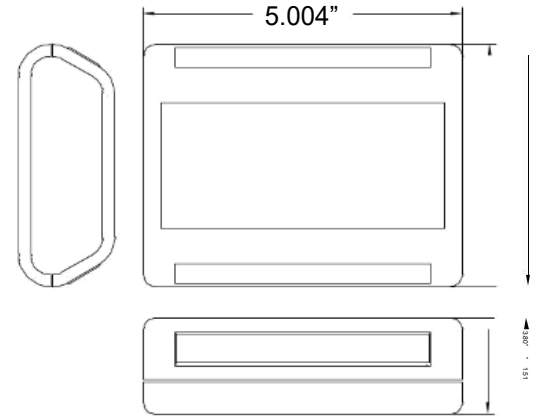


The ALTA Wireless Water Rope Sensor detects conductive liquids anywhere along the length of the detection rope by using two wires covered with conducting polymer. When water or conductive liquid contacts the rope, the sensor will immediately turn on the RF radio and transmit the data to the wireless gateway and iMonnit Online Sensor Monitoring and Notification System, allowing the user to immediately receive an alert by SMS text, email or voice call. The sensor rope dries quickly allowing the sensor to reset for next use. Detection rope can be expanded up to 100 feet by simply clicking additional 10 foot sections of detection rope together. Additional sections of water detection rope are available on the Monnit website

# ALTA 3G Cellular Gateway



True plug & play, no hassles for Internet configuration setup  
 No PC required for operation  
 Low-cost cellular service packages  
 Local status LEDs with transmission and online status indicators



## Technical Specifications

### Cellular

|                        |  |
|------------------------|--|
| Carriers Support       | AT&T (USA), Rogers (Canada)                    |
| Cellular Technology    | UMTS<br>Frequency Range: 850 / 1700 / 1900 MHz |
| Antenna                | Connector: SMA<br>Gain (dBi): 1.5              |
| SIM Card Compatibility | Mini-SIM (2FF) 25 mm x 15 mm x 0.76 mm         |

### Power

|                         |  |
|-------------------------|--|
| Input Power             | 5.5 VDC @ 2.5 A                            |
| Optional Battery Backup | Battery Type: Rechargeable Lithium Polymer |
|                         | Battery Duration: Up to 24 hours           |
|                         | Battery Cycle Life: 500 times              |

### Mechanical

|                |  |
|----------------|--|
| LEDs           | Cellular Status LED, Online Status LED, Sensor Network Status LED  |
| Device Memory: | 50,000 sensor messages<br>(Sensor messages will be stored in the event of Internet outage and transferred when connection is restored) |
| Enclosure      | ABS  |
| Dimensions     | 5.004 x 3.8 x 1.51 in.   |
| Weight         | 7 ounces   |

### Environmental

|                       |                              |
|-----------------------|------------------------------|
| Operating Temperature | -10 to +70 °C (14 to 158 °F) |
| Storage Temperature   | -20 to +85 °C (-4 to 185 °F) |

### Wireless

|                |   |
|----------------|---|
| Wireless Range | 1,000+ ft. (through 12+ walls or ceilings / non-line-of-sight)        |
| Security       | Encrypt-RF™ (256-bit key exchange and AES-128 CTR)                    |
| Certifications | FCC: ZTL- G2SC1, FCC: RI7HE910<br>IC: 9794A-G2SC1 and IC: 5131A-HE910 |



## Principle of Operation

The ALTA Cellular Gateways are based on the latest Dual-band CDMA and 3G wireless protocols and come integrated with Monnit's wireless access point network (WAN) for use with all Monnit wireless sensors.

The ALTA Cellular Gateway is an advanced all wireless M2M gateway that enables fast time-to-market solutions for a wide range of M2M and partner applications as well.

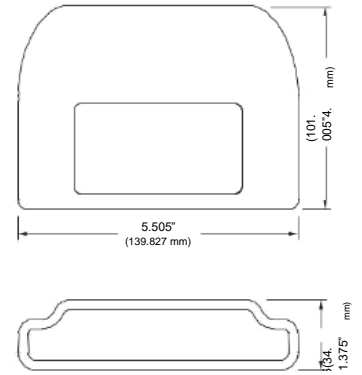
## Options & Add-ons

| Carriers           | Protocol            |
|--------------------|---------------------|
| ◆◆ CDMA            | ◆◆ Cellular         |
| ◇◇ Sprint          | ◇◇ CDMA             |
| ◇◇ US Cellular     | ◇◇ 3G               |
| ◆◆ 3G              | ◆◆ Ethernet         |
| ◇◇ AT&T (USA)      | ◆◆ USB              |
| ◇◇ Rogers (Canada) | Operating Frequency |
|                    | ◆◆ 900 MHz          |

# ALTA Ethernet Gateway



The ALTA Ethernet gateway allows your ALTA Wireless Sensors to communicate with the iMonnit™ Online Wireless Sensor Monitoring and Notification System without requiring a PC. Simply plug this device into any open network port with internet connection and it will automatically connect with online servers. With the graphical iMonnit software, you can easily configure your network, view collected sensor data and set alarms through SMS or e-mail.



## Technical Specifications

### Ethernet

|                          |   |
|--------------------------|---|
| Ethernet Types           | Standard, POE   |
| Antenna                  | Connector: SMA<br>Gain: 5.0 dBi (900 MHz Product)<br>3.0 dBi (868 and 433 MHz Product)  |
| Hardware                 | 10/100 Ethernet Controller  |
| IEEE Standard Compliance | 802.3-2002  |
| Operation:               | Full- and Half-Duplex   |
| Cross-Over Correction    | Automatic MDI/MDI-X   |
| Addressing               | Pre-programmed MAC Address  |
| Host Address             | t1.sensorsgateway.com   |
| Default Port             | 3000  |
| Protocols Supported      | UDP, DHCP, TCP, SNMP, MODBUS  |
| Cable Connector          | Cat 5   |
| Device Memory            | 16,000 sensor messages (Sensor messages will be stored in the event of Internet outage and transferred when connection is restored) |

### Power

|              |   |
|--------------|---|
| Power Supply | 5.5 V AC adapter or 5.5 V Power-Over-Ethernet adapter * |
|--------------|---|

### Mechanical

|            |   |
|------------|---|
| LEDs       | H/W status, iMonnit connection status, sensor data activity   |
| Enclosure  | ABS plastic   |
| Dimensions | 4.0 in x 5.5 in x 1.375 in (139.85 mm x 101.75 mm x 34.95 mm) |
| Weight     | 12.6 ounces   |

### Environmental

|                       |                                 |
|-----------------------|---------------------------------|
| Operating Temperature | -10 to +70 °C (14 to 158 °F) ** |
| Storage Temperature   | -20 to +85 °C (-4 to 185 °F)    |

### Wireless

|                |  |
|----------------|--|
| Wireless Range | 1,000+ ft. (through 12+ walls or ceilings, non line-of-sight)*** |
| Security       | Encrypt-RF™ (256-bit key exchange and AES-128 CTR)               |
| Certifications | 900 MHz product - FCC ID: ZTL- G2SC1 and IC: 9794A-G2SC1.        |



Industry  
Canada

\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

\*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

\*\*\* Actual range may vary depending on environment.

Data Capturing Options - Data collected by the Ethernet Gateway from the sensors in the network can be accessed when these interfaces are turned on. Multiple interfaces can be active at the same time. All interfaces require that the Ethernet gateway be set to a Static IP address. (By default, the unit uses DHCP). The following data capturing options are supported:

SNMP Poll and Trap Interface • MODBUS TCP Interface • Real Time TCP Interface

## Durability Grades

### Commercial Grade

If not specified as "Industrial Grade", all ALTA sensors are commercial grade and are designed for applications in ordinary environments (normal room temperature, humidity and atmospheric pressure). Do not use these sensors under the following conditions as these factors can deteriorate the product characteristics or cause failures.

- ◆◆ Corrosive gas / De-oxidizing gas (chlorine, hydrogen sulfide, ammonia, sulfuric acid, nitric oxides, etc.)
- ◆◆ Volatile or flammable gas
- ◆◆ Dusty conditions
- ◆◆ Under low or high pressure
- ◆◆ Wet or excessively humid locations
- ◆◆ Places with salt water, oils chemical liquids or organic solvents
- ◆◆ Where there are excessively strong vibrations
- ◆◆ Other places where hazardous conditions exist

Use these product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality.

### Industrial Grade

#### Type 1, 2, 4, 4X, 12 and 13 NEMA Rated Enclosure

ALTA Industrial sensors are enclosed in reliable, weatherproof NEMA rated enclosures. Our NEMA rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose directed 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
- ◆◆ Will remain undamaged by ice formation on the enclosure

For more information about our products or to place an order, please contact our sales department at [info@monnit.com](mailto:info@monnit.com) or 801-561-5555.

Visit us on the web at [www.monnit.com](http://www.monnit.com).

## Options & Add-ons

### Sensor Power Sources

#### AA Battery

AA battery powered sensors are commercial grade and are ideal for indoor sensor networks. AA sensors are able to achieve up to a 10-year battery life.

#### Line Power (w/ AA Battery Backup)

AA battery powered sensors can be upgraded to support line-powered operations.

#### Coin Cell Battery

Coin cell battery powered sensors offer the smallest form factor of all power options. Coin cell sensors are able to achieve up to a 5-year battery life.

#### Industrial Lithium Battery

Industrial sensors are powered by a replaceable lithium battery. Industrial sensors are ideal for indoor sensor networks. Industrial sensors are able to achieve up to a 10-year battery life.

#### Solar

Industrial Grade Sensors can be upgraded to support solar powered operations.

#### RF Operating Frequency

In North America, ALTA wireless products operate using the license-free 900 MHz ISM band. Contact Monnit regarding products requiring 868 MHz, 433 MHz or 920 MHz operating frequencies.



Monnit Corporation  
3400 South West Temple  
Salt Lake City, UT 84115  
801-561-5555  
[www.monnit.com](http://www.monnit.com)



## Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

### Наши контакты:

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331