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

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

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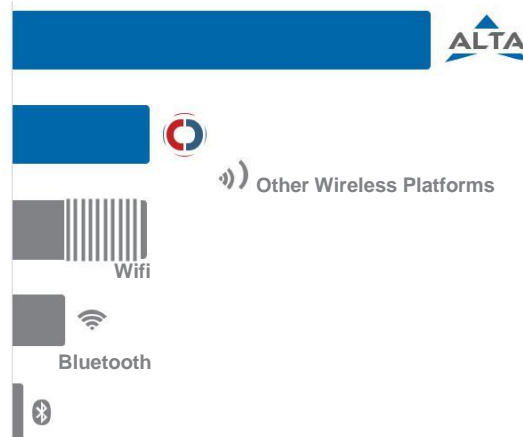/ 10-yr. Battery Life

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 my vary according to environment.
** Battery life determined by sensor reporting & other variables

ALTA

Other Wireless Platforms

Wifi

Bluetooth

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, Phone: 801-561-5555,
Web: www.monnit.com

ALTA Wireless OPEN / CLOSED Sensors

AA Battery (x2)

Coin Cell

Industrial /
3.6V Lithium

10-year

5-year

10-year

The ALTA Wireless Open / Closed Sensor uses a magenetic 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 µA (Sleep Mode) 0.7 µA (RTC Sleep) 570 µA (MCU Idle)	2.5 mA (MCU Active) 5.5 mA (Radio RX Mode) 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 — FC — Industry Canada	900 MHz product - FCC ID: ZTL- G2SC1 IC: 9794A-G2SC1 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, -40° to 185°F (-40° - 85°C) lithium	20° to +140°F, (-7° - 60°C) **	-40° to +185°F (-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. Notifi - cations 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.
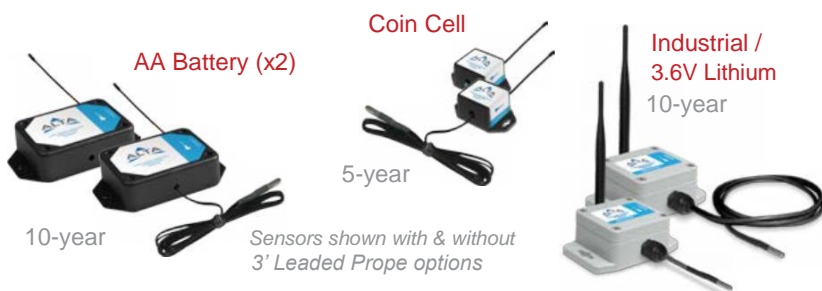
Get IoT Started

801-561-5555

info@monnit.com

www.monnit.com

ALTA Wireless TEMPERATURE Sensors

AA Battery (x2)

Coin Cell

Industrial / 3.6V Lithium
10-year

5-year

10-year

Sensors shown with & without 3' Leaded Prope options

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

♦♦ Accurate to ± 1° C (± 1.8° F)

♦♦ Increased accuracy by user calibration to ± 0.25° C (± 0.45° 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 µA (Sleep Mode) 2.5 mA (MCU Active) 0.7 µA (RTC Sleep) 5.5 mA (Radio RX Mode) 570 µA (MCU Idle) 22.6 mA (Radio TX Mode)

Temperature Sensor		
	Thermistor Temperature Range (Thermistor Only)	-40° to +125°C (-40° to +257°F) Limited to Main Unit Circuitry, -7° to +60°C unless thermistor leads being used
	Accuracy @ 25°C	+/- 1% (1° C or 1.8° F)
	User Calibrated Accuracy	+/- 0.25° C (± 0.45° 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	**FC** 🇨🇦 Industry Canada 900 MHz product: FCC ID: ZTL- G2SC1 IC: 9794A-G2SC1 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°C	15 sec max	30 seconds	
Operating Temperature Range ** (board circuitry + batteries)	0° to 130°F (-18°-55°C) alkaline, -40° to 185°F (-40° - 85°C) lithium	20° to +140°F, (-7° - 60°C) **	-40° to +185°F (-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

TEMPERATURE

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.
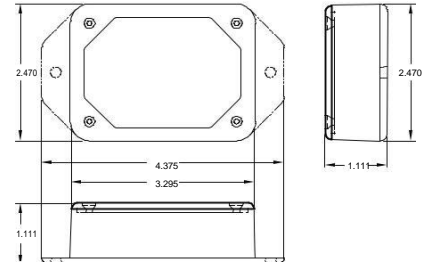
Get IoT Started

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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 µA (Sleep Mode) 0.7 µA (RTC Sleep) 570 µA (MCU Idle) 2.5 mA (MCU Active) 5.5 mA (Radio RX Mode) 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 -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 FC ◆ Industry Canada		900 MHz product: FCC ID: ZTL- G2SC1, 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

WATER ROPE

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
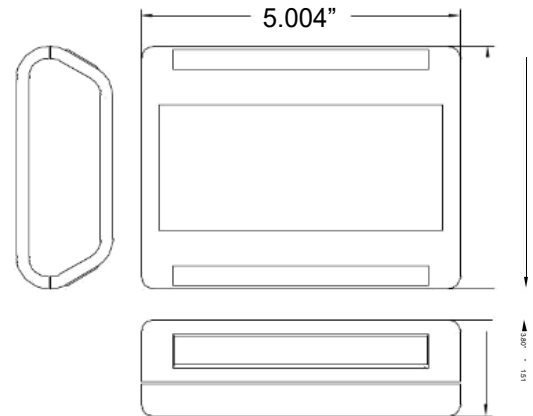
ALTA 3G Cellular Gateway

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

5.004"

Technical Specifications

Cellular

Carriers Support	AT&T (USA), Rogers (Canada)
Cellular Technology	UMTS Frequency Range: 850 / 1700 / 1900 MHz
Antenna	Connector: SMA 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 (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 Industry Canada	FCC: ZTL- G2SC1, FCC: RI7HE910 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
- ◆◆ CDMA
  - ◊◊ Sprint
  - ◊◊ US Cellular
- ◆◆ 3G
  - ◊◊ AT&T (USA)
 - ◊◊ Rogers (Canada)

Protocol
- ◆◆ Cellular
  - ◊◊ CDMA
  - ◊◊ 3G
- ◆◆ Ethernet
- ◆◆ USB

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.

5.505"
(139.827 mm)

(101.00 mm)
5.4"

1.375"
34 mm
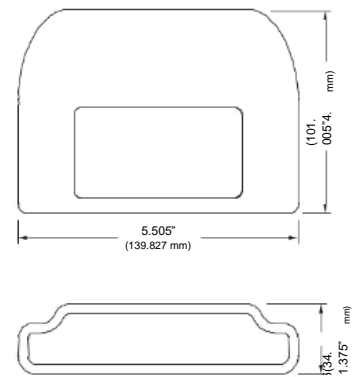
Technical Specifications

Ethernet	
Ethernet Types	Standard, POE
Antenna	Connector: SMA Gain: 5.0 dBi (900 MHz Product) 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.

FC | 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 interfac-es 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

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®

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

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