![ALTA by MONNIT logo]

Remote Monitoring for Business

Wireless Water Detection Sensors

General Description

The ALTA Wireless Water Detection Sensor detects the presence and absence of water.

Water Detection

- 3 ft leaded wires
- Immediately detects water

Principle of Operation

The sensor detects when water is present by completing the circuit between the two wires at the end of the water detection lead. When the detection state changes 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 SMS text or email alert. The sensor can be set to go aware when the detection state changes, water is present, or water is absent. If the sensor sends an aware message it can trigger the gateway to forward the data to iMonnit immediately, otherwise the data will be forwarded when the gateway talks to the server on its heartbeat or when triggered by another sensor. The sensor can be configured to detect both the presence and absences of water.

Applications

- Water heater monitoring
- Plumbing leak detection
- Sump monitoring
- Boat bilge monitoring
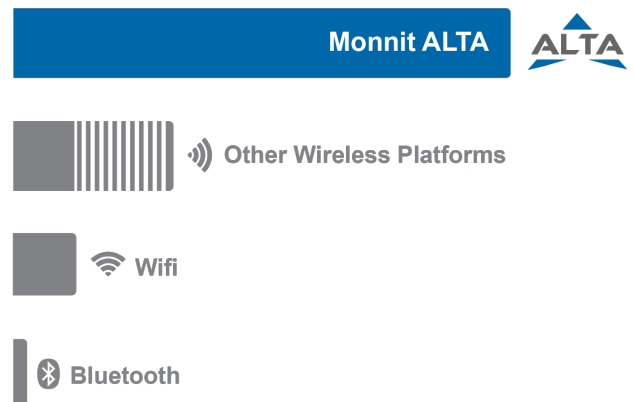- Reservoir level monitoring

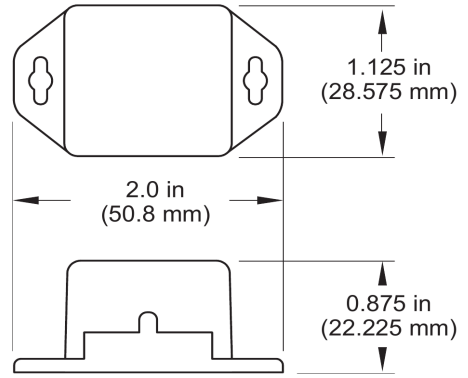### Features of Monnit ALTA Sensors

- Wireless range of 1,200+ feet through 12+ walls *
- Frequency-Hopping Spread Spectrum (FHSS)
- Improved interference immunity
- Improved power management for longer battery life **
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- Onboard data memory stores up to 512 readings per sensor:
    - 10-minute heartbeats = 3.5 days
    - 2-hour heartbeats = 42 days
- Over-the-air updates (future proof)
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email

*Actual range may vary depending on environment.

****Battery life is determined by sensor reporting frequency and other variables. Other power options are also available.
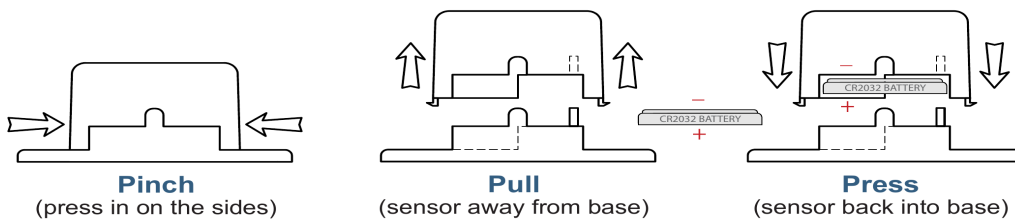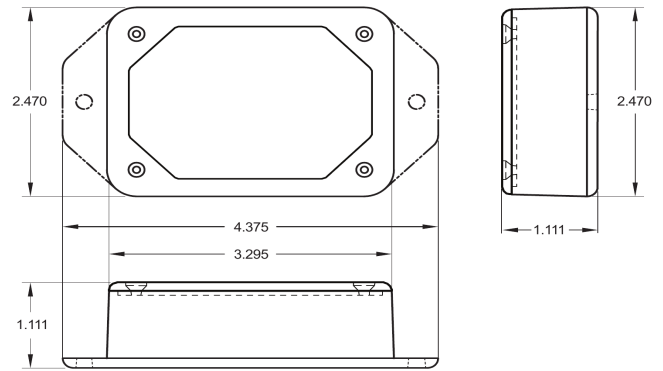
Wireless Range Comparison

Monnit ALTA

Other Wireless Platforms

Wifi

Bluetooth

1.125 in
(28.575 mm)

2.0 in
(50.8 mm)

0.875 in
(22.225 mm)

ALTA Commercial Coin Cell Wireless Water Detection Sensor | Technical Specifications	
Power source	3.0 Volt CR2032 Coin Cell Battery*
Power voltage rating	2.0 to 3.8 VDC
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 coin cell)	-7°C to +60°C (20°F to +140°F)
Optimal battery temperature range (coin cell)	+10°C to +50°C (+50°F to +122°F)
Integrated memory	Up to 512 sensor messages
Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	0.7 ounces
Certifications	900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

*Circuits cannot withstand negative voltage. Please take care when installing batteries.

PinchPower™ Enclosures

Pinch
(press in on the sides)

Pull
(sensor away from base)

Press
(sensor back into base)

CR2032 BATTERY

CR2032 BATTERY

ALTA Commercial AA Wireless Water Detection Sensor | Technical Specifications

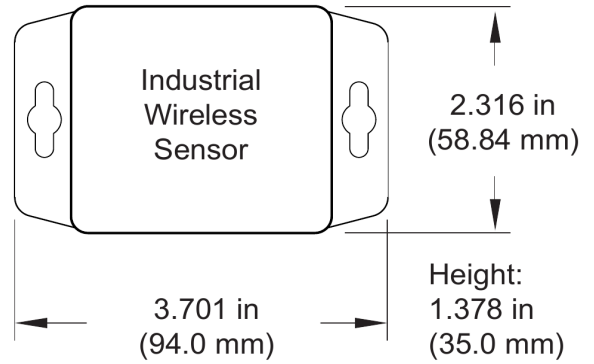|	
Supply voltage	2.0–3.8 VDC (3.0–3.8 VDC using power supply) *
Current consumption	0.2 µA (sleep mode), 0.7 µA (RTC sleep), 570 µA (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and batteries)	-18°C to 55°C (0°F to 130°F) 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)
Integrated memory	Up to 512 sensor messages
Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	3.7 ounces
Certifications FC Industry Canada	900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

*Circuits cannot withstand negative voltage. Please take care when installing batteries.

Power Options

The standard version of this sensor is powered by two replaceable 1.5 V AA sized batteries (included with purchase).

This sensor is also available with a line power option. The line powered version of this sensor has a barrel power connector allowing it to be powered by a standard 3.0–3.6 V power supply. The line powered version also uses two standard 1.5 V AA batteries as backup for uninterrupted operation in the event of line power outage.

Power options must be selected at time of purchase, as the internal hardware of the sensor must be changed to support the selected power requirements.

Industrial Wireless Sensor

2.316 in (58.84 mm)

3.701 in (94.0 mm)

Height: 1.378 in (35.0 mm)

ALTA Industrial Wireless Water Detection Sensor | 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 battery)		-40°C to +85°C (-40°F to +185°F)
Included battery	Max temperature range	-40° to +85°C (-40° to +185°F)
	Capacity	1500 mAh
Optional solar feature	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)
	Included rechargeable battery	600 mAh/>2000 charge cycles (80% of initial capacity)
	Solar efficiency	Optimized for high and low-light operation **
	Charging efficiency	40%***
	Luminous sustainability	Minimum of 250 LUX ***
Integrated memory		Up to 512 sensor messages
Wireless range		1,200+ ft non-line-of-sight
Security		Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight		4.7 ounces
Enclosure rating		NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed and weather proof
UL rating		UL Listed to UL508-4x specifications (File E194432)
Certifications		900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950

FC Industry Canada

*Circuits cannot withstand negative voltage. Please take care when installing batteries.

**Light present 25% of day yields 125% of operating power to support 10-minute heartbeats.

*** Solar feature's energy harvesting circuitry works indoors with low light.

Sensor Specifications

Input impedance		2.5 MΩ
Minimum medium impedance		500.0 kΩ (Clean water has a typical impedance of 50 to 200 kΩ)
Lead wire length		3 ft (36 in)
Detection Wire Specifications	# Wires	2-conductor (red/black)
	Gauge	22 AWG
	Conductor Material	Stranded Copper 7/30
	Insulation	PVC, 0.010"
	Tinning	Tips Silver(Ag) Solder
	Shield	No
	Jacket	PVC (black)
	Overall Diameter	0.164"
	Ratings / Approvals	NEC (UL) Type CM, UL AWM Style 2464, CSA AWM FT4, RoHS Compliant
	Temperature Rating	-20° to 60°C
	Voltage Rating	300 V Max*
	Dielectric Strength	1500 V RMS*

*The input of this sensor is passive, never apply any voltage to the water detection lead.

Commercial Grade Sensors

Monnit commercial grade sensors 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 and cause failures and burnout.

- Corrosive gas or deoxidizing gas: chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, nitric oxides gas, etc.
- Volatile or flammable gas
- Dusty conditions
- Low-pressure or high-pressure environments
- Wet or excessively humid locations
- Places with salt water, oils chemical liquids or organic solvents
- Where there are excessively strong vibrations
- Other places where similar hazardous conditions exist

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

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

Monnit's 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

MONNIT®