ALTA by MONNIT

Remote Monitoring for Business

WATER ROPE

ALTA® Wireless Water Rope Sensors

General Description

ALTA® Wireless Water Rope Sensors detect the presence of water anywhere along the surface of the rope.

Key Features

- Immediately detects water anywhere along the rope
- 3 meters (10') of lead and water detection rope
- Expandable up to 30 meters (100') of detection rope

Principles of Operation

The ALTA Wireless Water Rope Sensors detect 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, a wireless communication is immediately sent to the gateway. The communications can be configured to be sent urgent or "aware" when:

- Water is present
- Water is absent
- Water is present or absent

If the communication is not marked urgent, the data will be stored and scheduled to be forwarded by the gateway at a later time. If the communication is marked urgent, the gateway will immediately attempt to securely send the message to the iMonnit, or other approved data services.

The sensor rope quickly dries so it can reset. You can expand the detection rope up to 30 meters (100') by simply connecting additional 3-meter (10') sections.

Applications

- Freezers and coolers
- Data center and server room water monitoring
- Water heater monitoring
- Plumbing leak detection
- Sump pump monitoring
- Boat bilge monitoring
- Reservoir level monitoring
- Additional applications

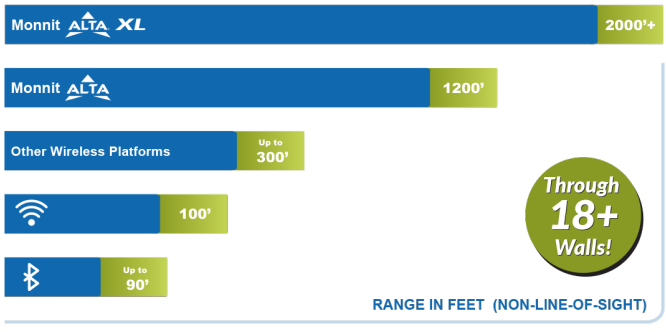
Features of Monnit ALTA Sensors

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

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

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

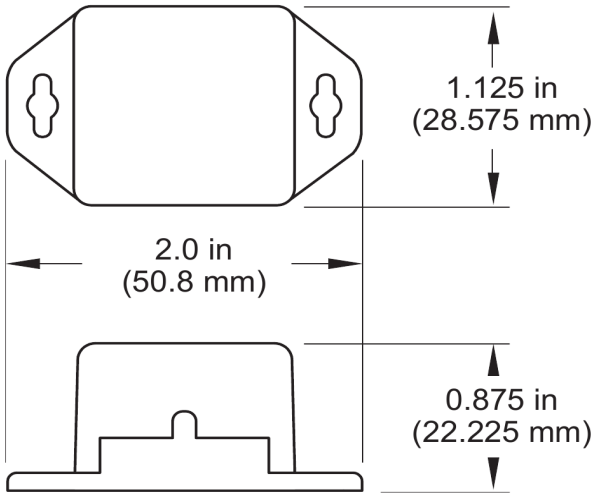
Wireless Range Comparison



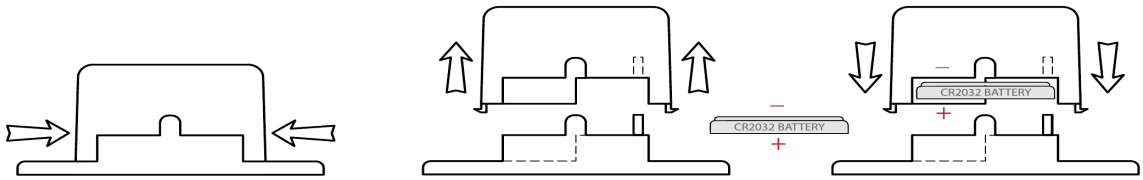
Technical Specification | ALTA® Wireless Water Rope Sensors		
Detection Requirements	Input impedance	2.5 MΩ
	Maximum medium impedance	900.0 kΩ (Clean water has a typical impedance of 50 to 200 kΩ)[1]
Water Rope	Cable length	3 meters (10') included and expandable to 30 meters (100')
	Material	PE + alloy lead
	Cable diameter	5.5mm
	Water rope weight	30g/meter
	Water rope pull force limit	60kg
	Water rope maximum exposed temperature	75°C (167°F)
	Water rope core resistance	3ohm/100 meters[2]
	Water rope fire resistance	Second pressure plenum cable
ALTA Wireless	Data logging	Sensor logs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through power cycling): 10-minute Heartbeats = ~22 days - 2-hour Heartbeats = ~266 days
	Wireless protocol	ALTA Proprietary Frequency-Hopping Spread Spectrum (FHSS)
	Wireless transmission power (EIRP)	50 mW (900MHz), 25 mW (868 MHz), 10 mW (433 MHz)
	Wireless range	2,000+ ft. through 18+ walls with the ALTA XL® Gateway
	Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
General	Battery voltage range	2.0 to 3.8 VDC
	Operating altitude (non-pressurized	-15.2 to 1,982 m (-50 to 6,500 ft)[3]
	Storage altitude (non-pressurized environments)	-15.2 to 3,048 m (-50 to 10,000 ft)[3]
	Operating humidity	5 to 85% RH (non-condensing)
	Certifications 	900 MHz sensors: **FCC ID: ZTL-G2SC1** and **IC: 9794A-G2SC1**. 868 and 433 MHz sensors tested and comply with: **EN 55032**: 2015/A11:2020; **EN 55035**:2017/A11:2020; **ETSI EN 300 220** V3.2.1 (2018-06); **ETSI EN 301 489-3** V2.2.0. (2021-11); and **ETSI EN 303 645**. All sensors tested and comply with: **EN 61010-1** and **EN 60950** and meet **RoHS 2015/863** and **REACH 224** (June 2022), according to **IEC 63000**:2016/AMD1:2022.

1. The resistance between the conductive probe ends must be less than this to ensure water detection.
2. The input of this sensor is passive. Never apply any voltage to the water detection lead.
3. Operating and storage altitude without DC power supply is -30.48 to 9144 m (-100 to 30000 ft).

The sensor reports Water Present or No Water Present.



PinchPower™ Enclosures



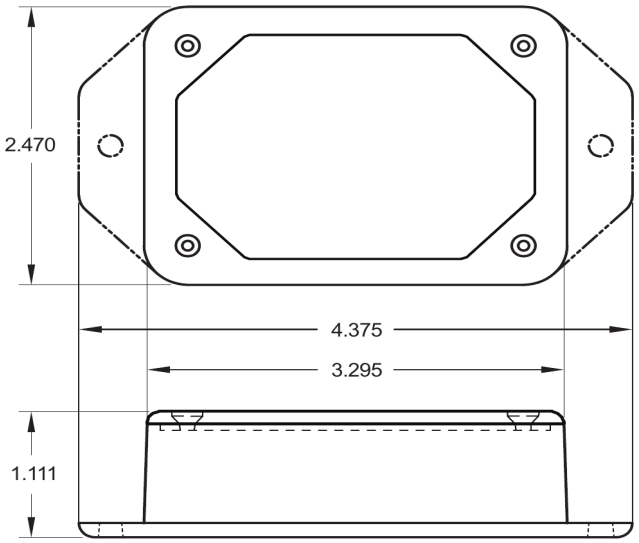
Pinch
(press in on the sides)

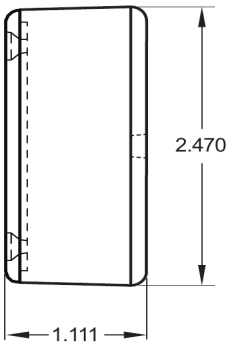
Pull
(sensor away from base)

Press
(sensor back into base)

Technical Specifications | ALTA® Commercial	
Battery[1]	1x 3.0V CR2032 Button Cell, 100 mAh
Battery Life	2+ years expected
Operating temperature range (board circuitry and battery)	-7°C to 60°C (20°F to 140°F)[2]
Optimal battery temperature range (coin cell)	+10°C to 50°C (50°F to 122°F)
Wireless antenna type	1/4-wave, 20 gauge wire whip, 3.5" (900/868MHz), 7" (433MHz)
Weight	0.7 oz. (19.8g) - No water rope | 3.9 oz (110.5g) - with 10 ft water rope

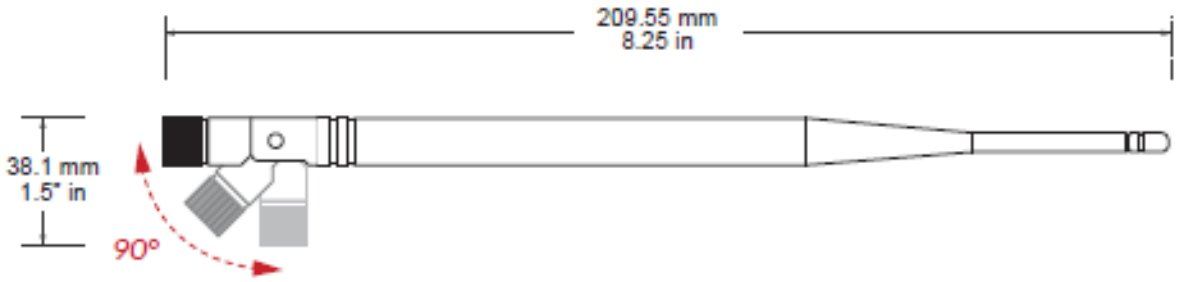
1. Hardware cannot withstand negative voltage. Please take care when inserting and removing battery.
2. At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

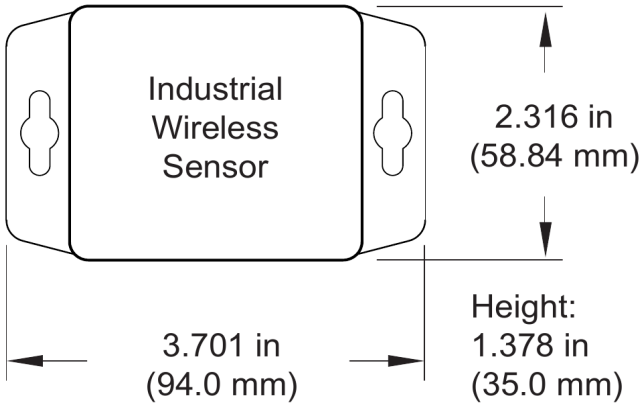




Technical Specifications | ALTA® Enterprise	
Battery[1]	2x 1.5V AA Alkaline, 1500 mAh, (standard) 2x 1.5V AA Lithium, 3000 mAh, (optional)
Battery Life	10+ years expected
External line-power option[2]	Input voltage: 5.0-12.0 V Power jack: 2.1 x 5.5 mm barrel, center positive
Operating temperature range (board circuitry and battery)[3]	-18°C to 55°C (0°F to 130°F) - AA Alkaline Batteries -25°C to 60°C (-13°F to 140°F) - AA Lithium L91 Batteries 0°C to 40°C (32°F to 104°F) - US 5V Power Supply 10°C to 40°C (50°F to 104°F) - International 5V Power Supply
Optimal battery temperature range (AA)	10°C to 50°C (50°F to 122°F)
Wireless antenna type	1/4-wave, 20 gauge wire whip, 3.5" (900/868MHz), 7" (433MHz)
Weight	3.7 oz. (104.8g) - No water rope | 6.9 oz (195.6g) - with 10 ft water rope

1. Hardware cannot withstand negative voltage. Please take care when inserting and removing batteries.
2. Batteries will provide backup power in the case the external power is removed.
3. Operating below 0°C (-32°F) degrees will reduce battery life.





Technical Specifications | ALTA® Industrial	
Battery	1x 3.6V AA Lithium Thionyl Chloride, 1500mAh, pre-installed
Battery Life	10+ years expected
Operating temperature range (board circuitry and battery)[1]	-40°C to 85°C (-40°F to 185°F)[2]
Wireless antenna type	1/2-wave waterproof dipole with RP-SMA connector and swivel neck; dBi of 3.0 (900/868MHz) or 2.5 (433 MHz); length of 8.27" (210mm) (900/868MHz) or 7.68" (195mm) (433 MHz); diameter at thickest point of 0.55" (14mm)
Weight	4.7 oz. (133.2g) - No water rope | 7.9 oz. (223.9g) - with 10 ft water
Enclosure rating	IP-65 (dust-proof and waterproof but not submersible) NEMA 1, 2, 4, 4x, 12, and 13 rated, sealed, and weatherproof UL Listed to UL508-4x specifications (File E194432)

1. Operating below 0°C (-32°F) degrees will reduce battery life.
2. At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

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 oxide 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 temperatures 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 indoor and outdoor use and protect the sensor 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
- Will remain undamaged by ice formation on the enclosure

MONNIT

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