Remote Monitoring for Business

ALTA® Wireless Water Detect & Detect+ Sensors

General Description

ALTA® Wireless Water Detect and Detect+ Sensors report the presence or absence of water and are available with various lead options.

Key Features

- ‣ Immediately detects water
- ‣ Lead length options:
  - ‣ 0.9 m (3') Standard, 3 m (10'), 7.5 m (25'), 15 m (50'), 30 m (100')
- ‣ Lead or probe options:
  - ‣ Detect: bare-wire lead
  - ‣ Detect+: stainless steel probe

Principles of Operation

ALTA Wireless Water Detect and Detect+ Sensors identify when water is present by completing a circuit between the two contacts at the end of the lead. When the detection state of the sensor changes, wireless communication is immediately sent to the gateway. The communications can be configured to be sent urgently or as an awareness notification 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 later. If the communication is marked urgent, the gateway will immediately attempt to securely send the message to iMonnit, or other approved data services.

Applications

- ‣ 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.
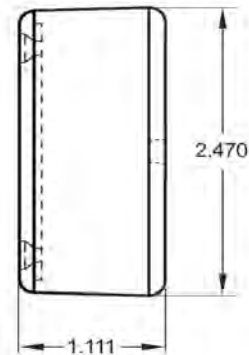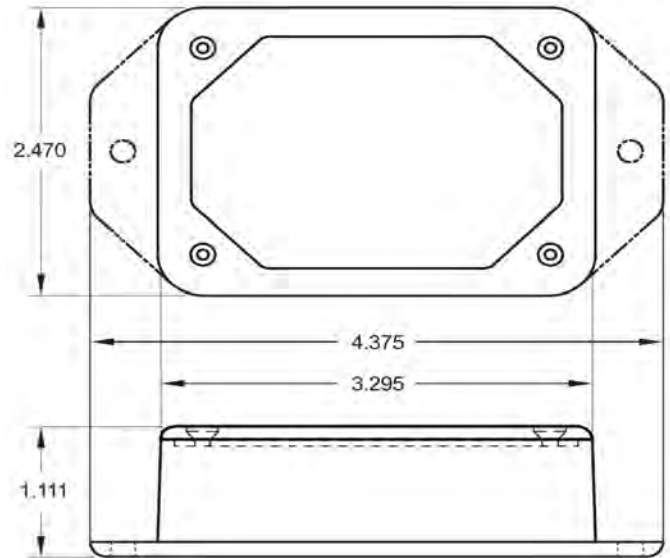
Wireless Range Comparison

RANGE IN FEET (NON-LINE-OF-SIGHT)

Technical Specification | ALTA® Wireless Detect & Detect+ 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]
Detect Lead	Cable length	Standard: 0.9 m (3 ft) Optional: 3 m (10'), 7.5 m (25'), 15 m (50'), 30 m (100')
	Wire count	2-conductor (red/black)
	Wire 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	4.2 mm (0.164")
	Ratings / Approvals	NEC (UL) Type CM, UL AWM Style 2464, CSA AWM FT4, RoHS
	Temperature Rating	-20°C to 60°C (-4°F to 140°F)
	Voltage Rating	300 V Max[2]
	Dielectric Strength	1500 V RMS[2]
Detect+ Probe	Electrode Composition	Stainless Steel 304
	Probe Casing	ABS Plastic
	Lead Composition	Same as the Detect Lead above
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**

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.
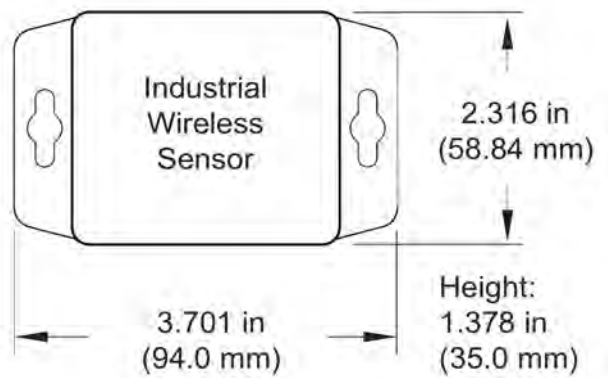3. Operating and storage altitude without DC power supply is -30.48 to 9144 m (-100 to 30000 ft).

The sensor reports the data points: Water Present or No Water Present.

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 (sensor body)[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
Wireless antenna type	1/4-wave, 20 gauge wire whip, 3.5" (900/868MHz), 7" (433MHz)
Weight	3 oz. (85.05 g) with no lead 3.7 oz. (105 g) with 0.9 m (3.0') lead

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.
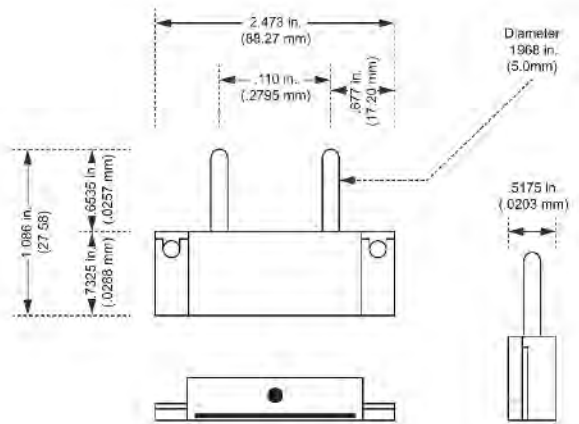3. Operating below 0°C (-32°F) degrees will reduce battery life.

Technical Specifications | ALTA® Industrial

Battery	1x 3.6V AA Lithium Thionyl Chloride, 1500mAh, pre-installed
Battery Life	10+ years expected
Operating temperature range (non-leaded measurement range)[1]	-40°C to 85°C (-40°F to 185°F)
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 g) with 0.15 m (6.0") lead 5.2 oz. (147 g) with 0.9 m (3.0') lead
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.

Detect+ Probe Dimensions

2.473 in.
(88.27 mm)

.110 in.
(.2795 mm)

.677 in.
(17.20 mm)

Diameter
.1968 in.
(5.0mm)

1.086 in.
(27.58)

.6536 in
(.0257 mm)

.7325 in
(.0288 mm)

.5175 in.
(.0203 mm)

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 both indoor or 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

WS-WP-ADS (03/25)