ALTA by MONNIT

Remote Monitoring for Business

ALTA® Wireless Sens-a-Leak™ Rechargeable Water Detection Disc

General Description

ALTA® Wireless Sens-a-Leak™ Rechargeable Water Detection Disc Sensors report the presence or absence of water. The convenient low-profile puck design helps you place the sensor nearly anywhere. Water levels must be ~.07" or 1.8 mm high to trigger detection.

Key Features

- Immediately detects water presence
- Rechargeable battery through USB-C connector

Principles of Operation

ALTA Wireless Sens-a-Leak Rechargeable Water Detection Disc Sensors detect when water is present by completing a circuit between the two probe points (exposed stainless steel rods) on the bottom of the sensor. When the sensor's detection state of the sensor changes (water present or absent), a wireless message is immediately sent to the gateway. The communications can be configured to be sent urgently or aware when:

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

If the communication isn't marked urgent, the data will be stored and 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 iMonnit or other approved data services.

Applications

- Water heater monitoring
- Plumbing leak detection
- Data center subfloor water detection
- Sump pump monitoring
- Water intrusion / flood detection
- Crawl space water intrusion monitoring
- Additional applications

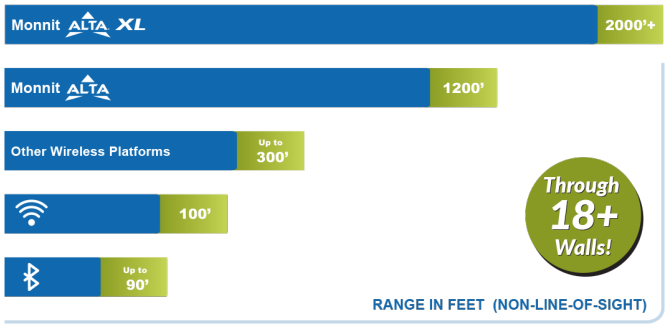
Features of Monnit ALTA Sensors

- 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

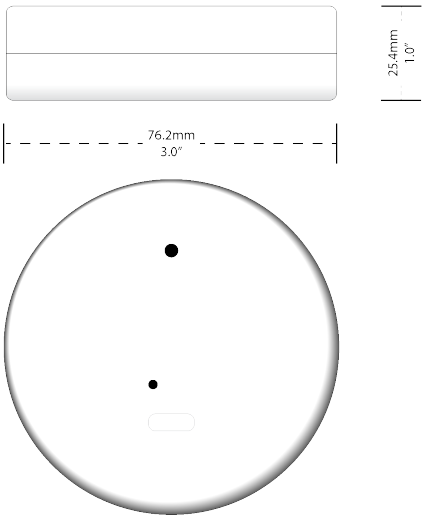
1 Actual range may vary depending on the environment and gateway.

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

Wireless Range Comparison



The sensor reports Water Present or No Water Present.



Technical Specification | ALTA® Wireless Sens-a-Leak™ Water Detection Disc 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]
Disc	Dimensions	75mm (diameter), 25mm (height), 30mm (height with rubber feet)
	Enclosure material	ABS
	Water protection	Water Resistant
	Water detection minimum height	.07" or 1.8 mm
	Weight	7.6 ounces
	Battery	3.7V 2400mAh LiPo (rechargable)
	Expected battery life	10 years at a 10-minute Heartbeat[2]
	Operating temperature range	-20°C to 60°C (-4°F to 140°F)[3]
	Charging temperature range	5°C to 40°C (41°F to 104°F)[3]
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	Operating altitude (non-pressurized	-15.2 to 1,982 m (-50 to 6,500 ft)[4]
	Storage altitude (non-pressurized environments)	-15.2 to 3,048 m (-50 to 10,000 ft)[4]
	Operating humidity	5 to 85% RH (non-condensing)
	Certifications	900 MHz sensors: **FCC ID: ZTL-G2WD1** and **IC: 9794A-G2WD1**

1. The resistance between the conductive probe ends must be less than this to ensure water detection.
2. Battery life is determined by the sensor reporting frequency and other variables.
3. At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory. Effective capacity of the battery can be reduced by up tp 50% when operating below 0°C.
4. Operating and storage altitude without DC power supply is -30.48 to 9144 m (-100 to 30000 ft).

Button and LED Behavior

Turning the Disc ON

Press and hold the button until the LED turns GREEN. When the Device first turns on, the LED will flash GREEN four times and then remain GREEN for one second. If the Water Detection Disc is able to successfully connect to a gateway, the LED will flash GREEN two times. If the disc is unable to connect to a gateway within 25 seconds, the LED will flash RED two times.

Sending a Data Message

Press and hold the button until the LED turns GREEN. Once the LED is GREEN, release the button. The disc will then detect the presence or absence of water and send a data message to the gateway. If no connection to the gateway has been made, when the button is pressed, the LED will first flash RED for 125 ms and then turn green. If the button is released while the LED remains GREEN, the disc will then try and connect to a gateway and send a data message.

Turning the Disc OFF

Press and hold the button for 5 seconds until the LED flashes RED four times and then remains RED. Once the LED turns RED the device will power off as soon as the button is released.

Charging Behavior

The Water Detect Disc contains a rechargeable battery. This battery can be recharged through the USB-C port on top of the device. When a power cable is detected, the device will automatically begin charging the battery. The LED behavior depends on the charge of the battery.

BATTERY CHARGING LED BEHAVIOR	
Battery Percentage	**LED Behavior**
0-75%	LED will continually flash RED for 2 seconds and off for 2 seconds
76 - 90%	LED will continually flash RED for 1 second and off for 1 second
91-99%	LED will continually flash RED for 500 ms and off for 500 milliseconds
100%	LED will stay a solid GREEN as long as power is detected

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
- 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.

MONNIT

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