Remote Monitoring for Business

ALTA® Wireless Digital Temperature Sensors

General Description

The ALTA® Wireless Digital Temperature Sensor produces and displays a thermistor-based temperature measurement and is available with multiple lead lengths.

Key Features

▸ Measurement Range: -40 to 125°C (-40 to 257°F)
  ▸ Resolution: 0.1°C (0.18°F)
  ▸ Accuracy: ± 1°C (± 1.8°F)
▸ 4-digit display with Power and Read buttons
▸ Configurable thresholds for critical condition monitoring

Principles of Operation

The ALTA Digital Temperature Sensor measures the ambient temperature based on a user-configurable time interval or Heartbeat. The temperature is also shown on the digital display when you press the Read button.

When performing a measurement, the sensor momentarily energizes a thermistor in series with a precision resistor. This produces a voltage directly proportional to the temperature of the thermistor. The sensor converts the analog voltage signal to a digital value and computes the temperature measurement. On every Heartbeat or when the Read button is pressed, the sensor reports its current measurement to the gateway, making the data available in iMonnit or other approved data services.

The ALTA Digital Temperature Sensor can also be calibrated for improved accuracy.

Example Applications

▸ Ambient temperature monitoring
▸ Cooler and freezer monitoring
▸ Environmental monitoring
▸ Laboratory monitoring
▸ Data center monitoring
▸ Meeting data redundancy regulations
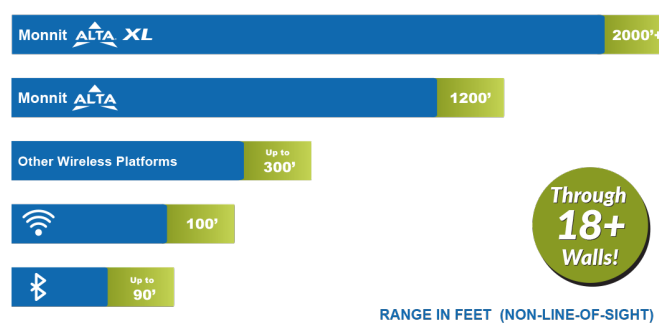▸ Additional applications

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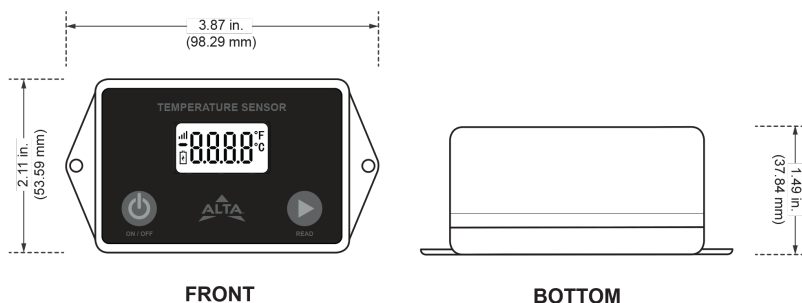
1 Actual range may vary depending on the environment and gateway.

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

Wireless Range Comparison

Monnit ALTA XL — 2000'+
Monnit ALTA — 1200'
Other Wireless Platforms — Up to 300'
— 100'
— Up to 90'

Through 18+ Walls!

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

The sensor reports the temperature (in °C or °F) of the thermistor.

3.87 in.
(98.29 mm)

2.11 in.
(53.59 mm)

TEMPERATURE SENSOR

8.8.8.8 °F °C

ON / OFF   READ

FRONT

1.49 in.
(37.84 mm)

BOTTOM

Technical Specification | ALTA® Wireless Digital Temperature Sensors

Temperature Measurement	Range - Leaded sensor	-40°C to 125°C (-40°F to 257°F)
	Accuracy @ 25°C (77°F)	± 1°C (±1.8°F)
	Calibrated accuracy	± 0.25°C (± 0.45°F)
	Resolution	0.1°C (0.18°F)
	Response time	50 seconds (10 second time constant)[1]
	Units	C or F (User configurable)
Leaded Probe	Transducer Type	10 KOhm NTC Thermistor (β = 3455 K)
	Tip dimension	4.00 mm (0.157") diameter by 30 mm (1.18")
	Tip material	Type 304 stainless steel
	Cable material	Waterproof high-temperature ABS with EMF shielding
	Cable diameter	3.56 mm (0.14")
	Cable length options	3 ft or 10 ft (Contact Monnit for custom length options)
LED Display	Operating temperature range	-10°C to 60°C (14°F to 140°F)
	Storage temperature range	-20°C to 70°C (-4°F to 158°F)
	LED symbols	4 digits, 3 decimals, C/F, Low Battery, Signal Strength, Minus
	Display size	14.0 mm x 26.0 mm
	Digit Size	8.5 mm x 4.5 mm
ALTA Wireless	Data logging	Sensor logs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through power cycling): 10-minute
	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
	Expected battery life (default settings)	14+ years
	Operating altitude (non-pressurized environments)	-15.2 to 1,982 m (-50 to 6,500 ft)[2]
	Storage altitude (non-pressurized environments)	-15.2 to 3,048 m (-50 to 10,000 ft)[2]
	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**

Industry Canada

1. Response time defined as five time constants for 99.3% of actual temperature.
2. Operating and storage altitude without DC power supply is -30.48 to 9144 m (-100 to 30000 ft).

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