



## Wireless Duct Temperature Sensors

### General Description

The ALTA Wireless Duct Temperature Sensor uses an NTC thermistor with 8 ft lead wires to accurately measure temperatures in duct work, while maintaining a sealed environment. Can be easily installed and mounted for long-term use.

- Accurate to  $\pm 1^{\circ} \text{C}$  ( $\pm 1.8^{\circ}\text{F}$ )
- Increased accuracy by user calibration to  $\pm 0.25^{\circ} \text{C}$  ( $\pm 0.45^{\circ} \text{F}$ )
- Probe temperature range of  $-40^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $+302^{\circ}\text{F}$ )
- 8 ft UL listed plenum cable

### Principle of Operation

The ALTA Wireless Duct Temperature Sensor outputs the ambient temperature in degrees Fahrenheit. It is programmed to sleep for a user-given time interval (heartbeat) and then wakeup, send power to the temperature probe, wait for temperature to stabilize, then transmit the temperature data to the gateway. To stay within the abilities of the processor, the temperature is computed off a data table provided by the manufacturer.

Industry leading 25 month NIST certified product included on leaded temperature sensors.

### Example Applications

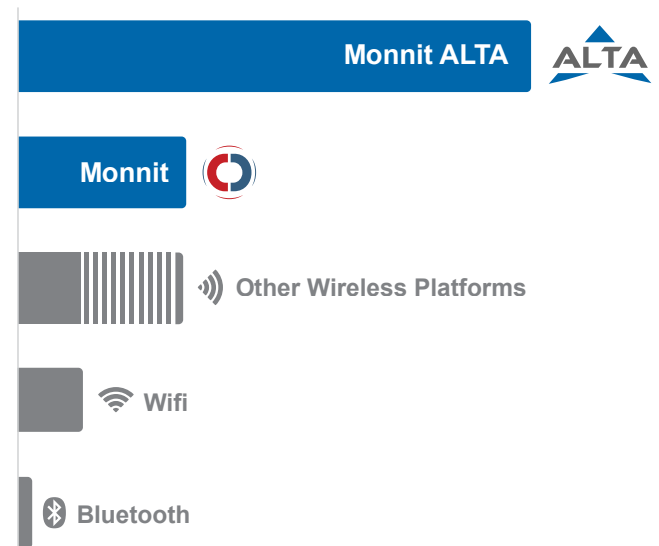
- Air duct temperature monitoring
- HVAC operation & testing
- Data center monitoring
- Coolers & freezers
- Environmental monitoring
- Smart machines & smart structures
- Many additional applications

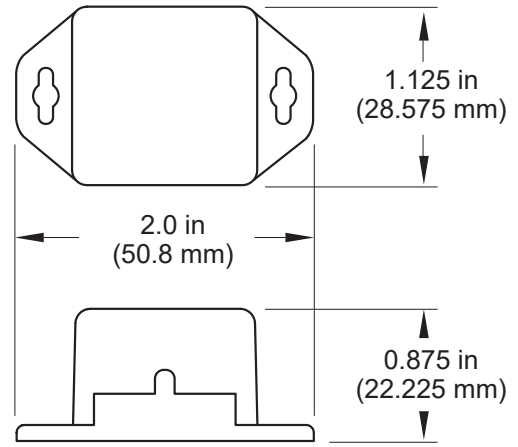
### Features of Monnit ALTA Sensors

- Wireless range of 1,200+ feet through 12+ walls \*
- Frequency-Hopping Spread Spectrum (FHSS)
- Improved interference immunity
- Improved power management for longer battery life \*\* (12+ years on AA batteries)
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- All ALTA sensors now have up to 3200 readings:
  - 10-minute heartbeats = 22 days
  - 2-hour heartbeats = 266 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



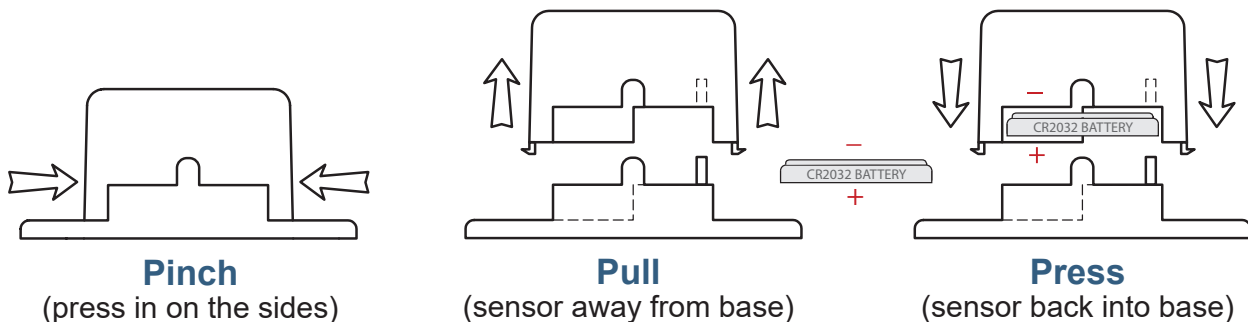


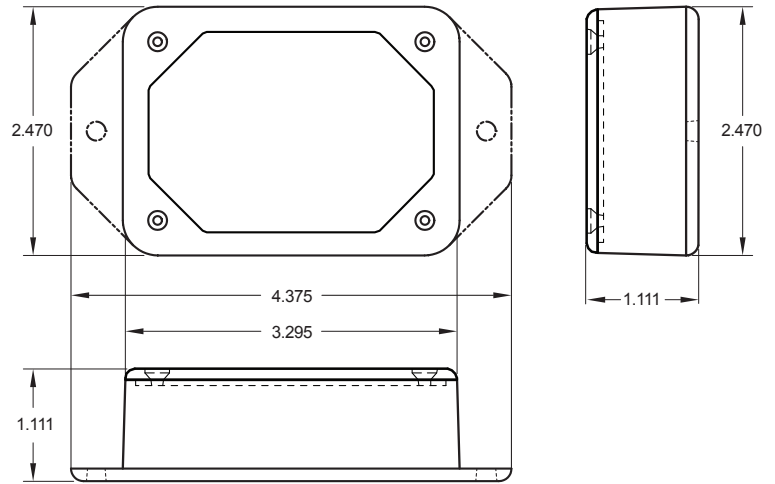
## ALTA Commercial Coin Cell Wireless Duct Temperature Sensor | Technical Specifications

Supply voltage	2.0–3.8 VDC *
Current consumption	0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (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)
Thermistor temperature range (leaded thermistor)	-40°C to +150°C (-40°F to +302°F)
Accuracy @ 25°C	+/- 1° C ( $\pm$ 1.8°F @ 77°F)
User-calibrated accuracy	+/- 0.25° C ( $\pm$ 0.45°F @ 77°F)
Time constant @ 25°C	30 sec.
Lead wire length	8 ft (96 in)
Cable rating	UL listed plenum cable
Integrated memory	Up to 3200 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	  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



\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

## PinchPower™ Enclosures





## ALTA Commercial AA Wireless Duct Temperature Sensor | Technical Specifications

Supply voltage	2.0–3.8 VDC (3.0–3.8 VDC using power supply) *
Current consumption	0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (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)
Thermistor temperature range (leaded thermistor)	-40°C to +150°C (-40°F to +302°F)
Accuracy @ 25°C	+/- 1° C ( $\pm$ 1.8°F @ 77°F)
User-calibrated accuracy	+/- 0.25° C ( $\pm$ 0.45°F @ 77°F)
Time constant @ 25°C	30 sec.
Lead wire length	8 ft (96 in)
Cable rating	UL listed plenum cable
Integrated memory	Up to 3200 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	<div style="display: flex; align-items: center; gap: 10px;">   <span>Industry Canada</span> </div> 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

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## 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.



## ALTA Industrial Wireless Duct Temperature Sensor | Technical Specifications

Supply voltage	2.0–3.8 VDC (3.0–3.8 VDC using power supply) *	
Current consumption	0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (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	250 LUX **
Thermistor temperature range (leaded thermistor)	-40°C to +150°C (-40°F to +302°F)	
Accuracy @ 25°C	+/- 1° C ( $\pm$ 1.8°F @ 77°F)	
User-calibrated accuracy	+/- 0.25° C ( $\pm$ 0.45°F @ 77°F)	
Time constant @ 25°C	30 sec.	
Lead wire length	8 ft (96 in)	
Cable rating	UL listed plenum cable	
Integrated memory	Up to 3200 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	<div style="display: flex; align-items: center; gap: 10px;">   <span>Industry Canada</span> </div> 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	

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

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