



THERMOCOUPLE

## Wireless Thermocouple Sensor

### General Description

The Wireless Thermocouple Sensor is available with a hardwired thermocouple or K-type connector to support various thermocouple types and ranges. The hardwired thermocouple option measures temperatures up to 400°C (752°F).

### Features

- Hardwired version measures temperatures up to 400°C (752°F)
- Pigtail version supports standard K-type thermocouples



Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email.

### Principle of Operation

The Wireless Thermocouple is available with either a hardwired thermocouple or a K-Type connector (for supporting various thermocouple types and ranges) to measure high temperature applications. It is programmed to sleep for a user-given time interval (heartbeat) and then wakeup, send power to the thermocouple and wait for it to stabilize, and convert the analog data, mathematically compute the temperature and transmit the data to the gateway. To stay within the abilities of the processor, the temperature is computed off a data table provided by the manufacturer.

### Example Applications

- Chimney / Flue Temperature Monitoring
- Kiln Temperature Monitoring
- High Temperature Food Monitoring
- And many more...

### Monnit Sensor Core Specifications

- Wireless Range: 250 - 300 ft. (non-line-of-sight / indoors through walls, ceilings & floors) \*
- RF Communication: 900, 920, 868 and 433 MHz
- Power: Replaceable batteries (optimized for long battery life, line-power and solar (Industrial only) options are available)
- Battery Life (at 1 hour heartbeat setting): \*\*
  - Coin Cell > 2-3 years.
  - AA battery > 4-8 years
  - Industrial > 4-8 years

\* Actual range may vary depending on environment. (Wi-Fi sensor typical range up to 100 ft.)

\*\* Battery life is determined by sensor reporting frequency and other variables.

### Sensor Types & Options

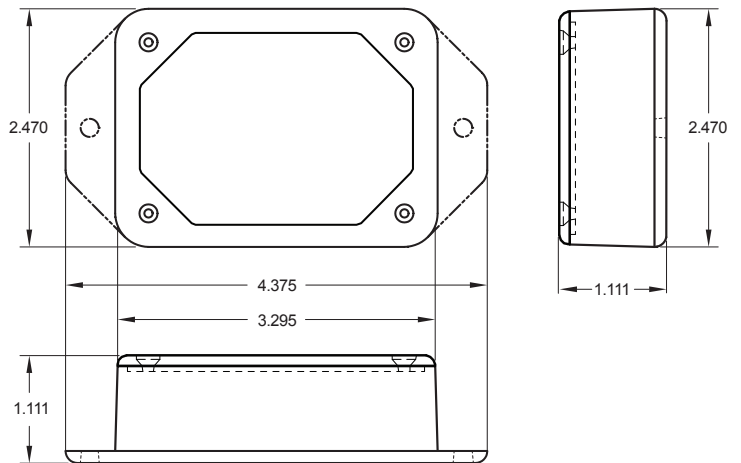
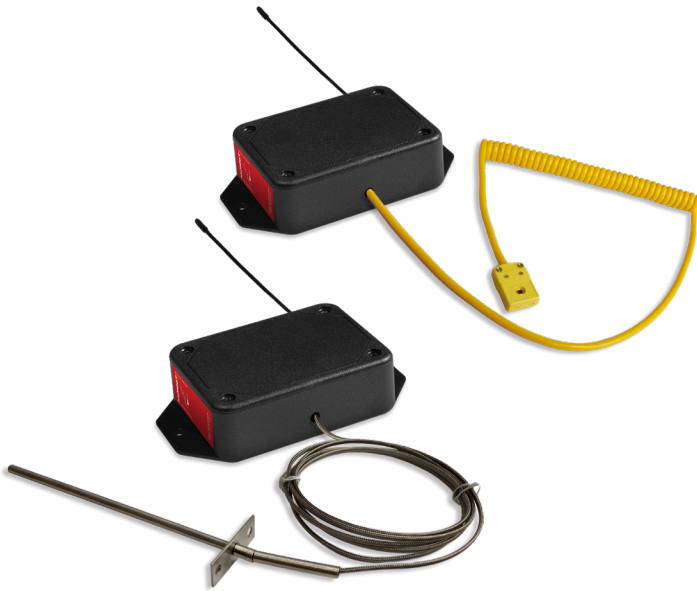
Wireless Thermocouple Sensor (AA) 2

Wireless Thermocouple Sensor (Coin Cell) 3

Wireless Thermocouple Sensor (Industrial) 4

Notes 5

## Wireless Thermocouple Sensor (AA)



### Technical Specifications

Supply Voltage	2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *
Current Consumption	0.7 $\mu$ A (sleep mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 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 )
Thermocouple Connection Options	6 ft hardwired probe / 5 ft K-type connector
Hardwired Thermocouple Probe - Temperature Range	-100°C to +400°C ( -148°F to +752°F )
Hardwired Thermocouple Probe - Accuracy above 0°C	+/- 2.2°C or 0.75% (whichever is greater)
Hardwired Thermocouple Probe - Accuracy below 0°C	+/- 2.2°C or 2.0% (whichever is greater)
Weight	4.7 oz.
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables
Certifications	900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 920 MHz product; ARIB STD-T108 R210-103733. 868 and 433 MHz product tested and found to comply with: CISPR 22:2008-09 / EN 55022:2010 - Class B and ETSI EN 300 220-2 V2.4.1 (2012-05).

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

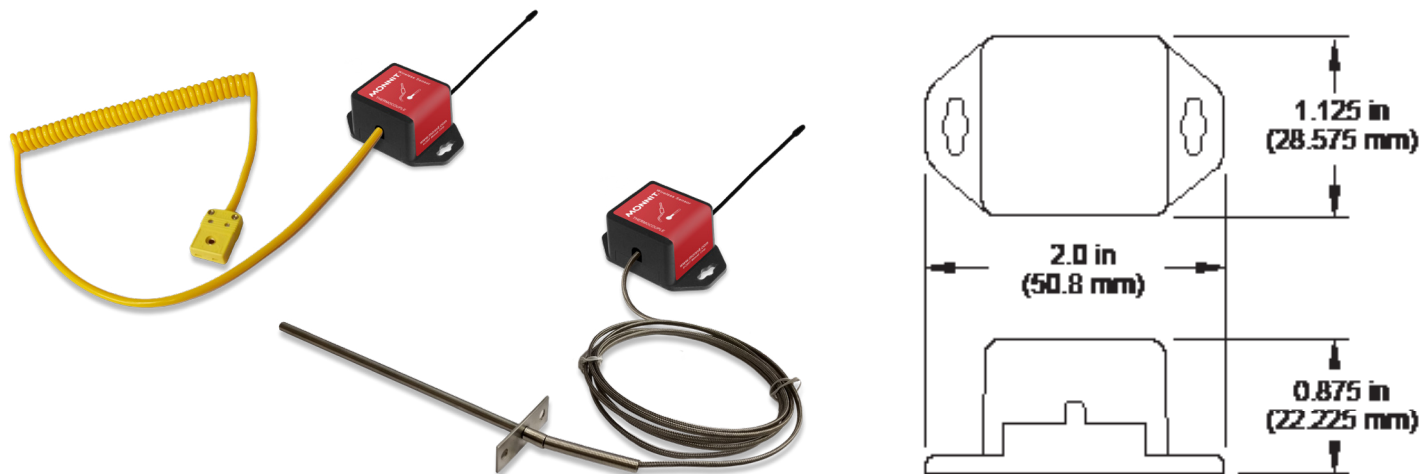
\*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

### Power Options

Two replaceable 1.5V AA sized batteries are included with the standard model. A line-power version with battery backup is also available - allowing it to be powered by a standard 3.0 - 3.6V power supply and use the internal batteries if there is a power interruption.

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.

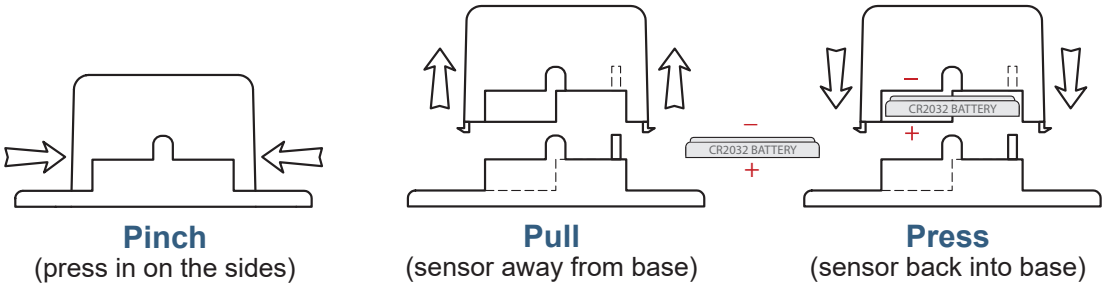
Wireless Thermocouple Sensor (Coin Cell)



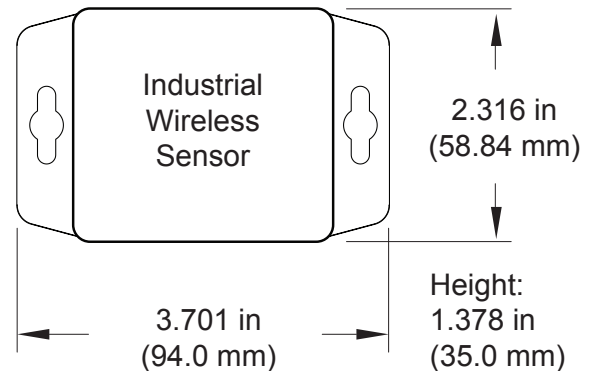
Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC *
Current Consumption	0.7 $\mu$ A (sleep mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 mA (radio TX mode)
Operating Temperature Range (Board Circuitry and Coin Cell)	-7°C to +60°C ( 20°F to +140°F )**
Optimal Battery Temperature Range (Coin Cell)	+10°C to +50°C ( +50°F to +122°F )
Thermocouple Connection Options	6 ft hardwired probe / 5 ft K-type connector
Hardwired Thermocouple Probe - Temperature Range	-100°C to +400°C ( -148°F to +752°F )
Hardwired Thermocouple Probe - Accuracy above 0°C	+/- 2.2°C or 0.75% (whichever is greater)
Hardwired Thermocouple Probe - Accuracy below 0°C	+/- 2.2°C or 2.0% (whichever is greater)
Weight	1.7 oz.
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
Certifications	900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 920 MHz product; ARIB STD-T108 R210-103733. 868 and 433 MHz product tested and found to comply with: CISPR 22:2008-09 / EN 55022:2010 - Class B and ETSI EN 300 220-2 V2.4.1 (2012-05).

\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.  
\*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.




PinchPower™ Enclosure



## Wireless Thermocouple Sensor (Industrial)



### Technical Specifications

Supply Voltage		2.0 - 3.6 VDC *
Current Consumption		0.7 $\mu$ A (sleep mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 mA (radio TX mode)
Operating Temperature Range (Board Circuitry and Battery)		
Included Battery	Max Temperature Range:	-40°C to +85°C ( -40°F 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)
Thermocouple Connection Options		6 ft hardwired probe / 5 ft K-type connector
Hardwired Thermocouple Probe - Temperature Range		-100°C to +400°C ( -148°F to +752°F )
Hardwired Thermocouple Probe - Accuracy above 0°C		+/- 2.2°C or 0.75% (whichever is greater)
Hardwired Thermocouple Probe - Accuracy below 0°C		+/- 2.2°C or 2.0% (whichever is greater)
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)
Weight		5.7 oz
Wireless Range		250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
Certifications   Industry Canada 		900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 920 MHz product; ARIB STD-T108 R210-103733. 868 and 433 MHz product tested and found to comply with: CISPR 22:2008-09 / EN 55022:2010 - Class B and ETSI EN 300 220-2 V2.4.1 (2012-05).

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

\*\* 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 burn-out.

- Corrosive gas or deoxidizing gas - chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, nitric oxides gas, etc.).
- Volatile or flammable gas.
- Dusty conditions.
- Under low or high pressure.
- 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 temperature 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 as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose directed 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



For more information about our products or to place an order, please contact our sales department at 801-561-5555.

Visit us on the web at [www.monnit.com](http://www.monnit.com).

Monnit Corporation  
3400 South West Temple  
Salt Lake City, UT 84115  
801-561-5555  
[www.monnit.com](http://www.monnit.com)