

## Wireless Temperature Sensor

### General Description

The Wireless Temperature Sensor uses a type NTC thermistor to measure temperature.

### Features

- Accurate to  $\pm 1^\circ \text{C}$  ( $\pm 1.8^\circ \text{F}$ ).
- Increased accuracy by user calibration to  $\pm 0.25^\circ \text{C}$  ( $\pm 0.45^\circ \text{F}$ ).



Free iSenseit 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 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 NTC Thermistor 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. To reduce error, a variable resistor configuration is implemented over specified temperature ranges.

### Example Applications

- Ambient Temperature Monitoring
- Environmental Monitoring
- Smart Machines & Smart Structures
- HVAC Operation & Testing
- Data Center Monitoring

And many more...

### Senseit Sensor Core Specifications

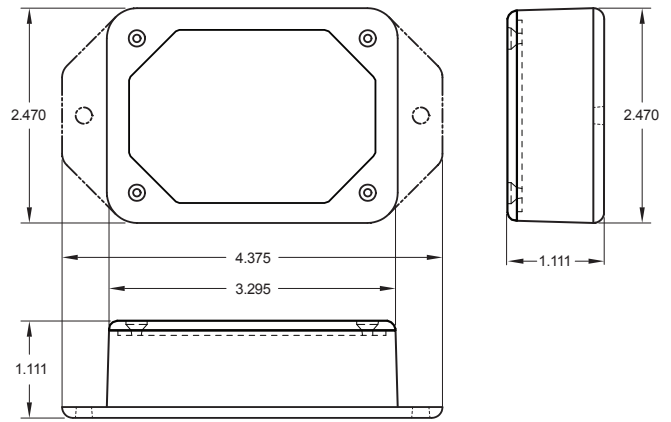
- Wireless Range: 250 - 300 ft. (non-line-of-sight / indoors through walls, ceilings & floors) \*
- RF Communication: 900 MHz Power:
- Replaceable batteries (optimized for long battery life and line-power options available
- Battery Life (at 1 hour heartbeat setting): \*\*

AA battery > 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.

## Wireless Temperature 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 )
Thermistor Temperature Range (Thermistor Only)	-40°C to +125°C ( -40°F to +257°F ) (Limited to Main Unit Circuitry, -7°C to +60°C unless thermistor leads are being used.)
Accuracy @ 25°C	+/- 1% (1° C or 1.8° F)
User Calibrated Accuracy	+/- 0.25° C ( $\pm$ 0.45° F)
Time Constant @ 25°C	15 sec max
Weight	3.6 oz. (3.7 oz w/ 3' probe)
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.

\* 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.



## Notes

### Commercial Grade Sensors

Senseit 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.