

# Wireless Humidity (RH) Sensor

## General Description

The Wireless Humidity (RH) Sensor allows you to accurately monitor the relative humidity of the air within a room or enclosure.

## Features

- Measures relative humidity, temperature and dew point with high accuracy.



Free 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 Humidity (RH) Sensor measures the relative humidity at the device. The sensor returns RH and temperature values to the Online Sensor Monitoring and Notification System. The system calculates dew point from the data and stores all three data points in the online system where the data can be reviewed and exported as a data sheet or graph. Notifications can be set up through the online system to alert the user when defined thresholds have been met or exceeded.

## Example Applications

- Greenhouse humidity monitoring.
- Agriculture environmental monitoring.
- Art gallery and museum environmental monitoring.
- Humidor monitoring.
- General weather and environmental monitoring.

And many more...

## 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): \*\*

AA battery > 4-8 years  
 Industrial > 4-8 years

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

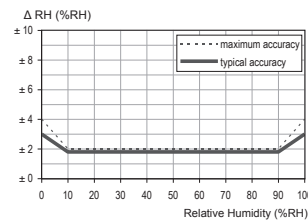


Figure 1. Typical and maximal tolerance at 25°C.

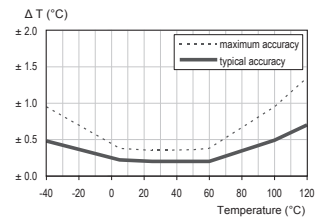


Figure 2. Maximal tolerance for temperature sensor in °C.

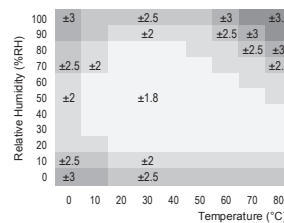


Figure 3. Typical accuracy of relative humidity measurements given in %RH for temperatures between 0 – 80°C.

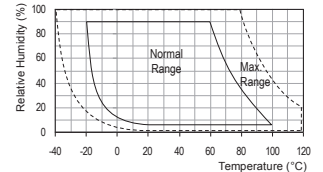
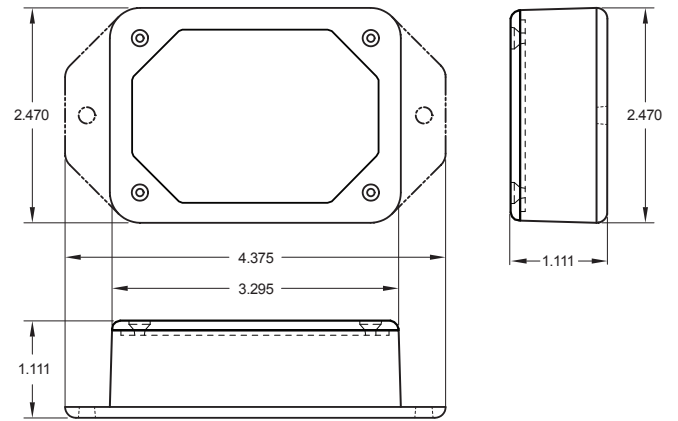


Figure 4. Operating Conditions

## Wireless Humidity Sensor (AA)

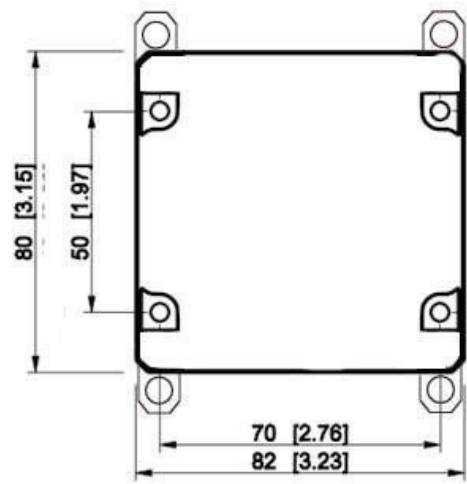


### Technical Specifications





|   |  |
|---|--|
| Supply Voltage  | 2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *   |
| Current Consumption   | 0.7 $\mu$ A (sleep mode)<br>2 mA (radio idle/off mode)<br>2 mA (measurement mode)<br>25 mA (radio RX mode)<br>35 mA (radio TX mode)  |
| Operating Temperature Range (Board Circuitry and Batteries) | -18°C to 55°C (0°F to 130°F) using alkaline<br>-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 )   |
| Accuracy  | $\pm$ 3% under normal conditions ( 10% - 90% RH )  |
| RH Operating Range  | 0 – 100% RH  |
| RH Response Time  | 8 sec ( tau 63% )  |
| Weight  | 3.7 Ounces   |
| Wireless Range  | 250 - 300 ft. (Through walls, ceilings and floors)<br>Range may vary according to environmental variables  |
| Certifications  | 900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-<br>RFSC1. 920 MHz product; ARIB STD-T108 R210-<br>103733. 868 and 433 MHz product tested and found<br>to comply with: CISPR 22:2008-09 / EN 55022:2010 -<br>Class B and ETSI EN 300 220-2 V2.4.1 (2012-05). |



## Wireless Humidity Sensor (Industrial)



### Technical Specifications

|   |  |   |
|---|--|---|
| Supply Voltage  | 2.0 - 3.6 VDC *  |   |
| Current Consumption                                       | 0.7 $\mu$ A (sleep mode)<br>2 mA (radio idle/off mode)<br>2 mA (measurement mode)<br>25 mA (radio RX mode)<br>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) |
|   | Charging efficiency  | 5% ***  |
|   | Luminous sustainability  | Minimum of 10,000 LUX ***                               |
| Accuracy  | $\pm$ 3% under normal conditions ( 10% - 90% RH )  |   |
| RH Operating Range  | 0 – 100% RH  |   |
| RH Response Time  | 8 sec ( tau 63% )  |   |
| 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  | 4.7 oz   |   |
| Wireless Range  | 250 - 300 ft. (Through walls, ceilings and floors)<br>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). |   |

## Notes

### Humidity Operating Range

The sensor works stable within recommended Normal Range – see Figure 4 on first page. Long term exposure to conditions outside Normal Range, especially at humidity >80%RH, may temporarily offset the RH signal (+3%RH after 60h). After return into the Normal Range it will slowly return towards calibration state by itself. Prolonged exposure to extreme conditions may accelerate aging.

### Commercial Grade Sensors

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

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