Monnit
Wireless Humidity (RH) Sensor (AA)

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 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 Humidity (RH) Sensor measures the relative humidity at the device. The sensor returns RH and temperature values to the iMonnit 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.

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 un-interupted 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.

Monnit Sensor Core Specifications

- Power: Two replaceable 1.5 V AA batteries (Option for line power with battery backup)
- Communication: RF 900, 920, 868 and 433 MHz
- Dimensions: 4.375" x 2.470" x 1.111"
- Antenna: 4" wire antenna
- Operating Temperature: -40° to 85°C (-40° to 185°F) Device Range: 250 - 300 ft. non-line-of-sight*
- Battery Life: At 1 hour heartbeat setting, standard AA batteries will last up to 4 years.**

 * Actual range may vary depending on environment.
** Battery life is determined by sensor reporting frequency and other variables. Other power options are also available.
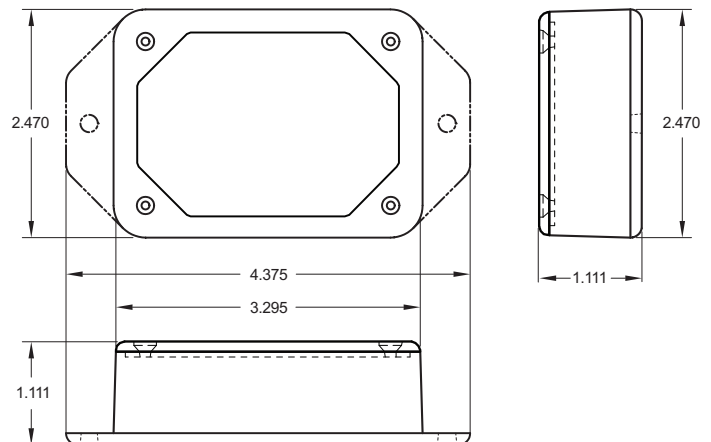
Example Applications

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

The Leader in Low Cost Wireless Sensors

Technical Specifications

Supply Voltage	2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *
Current Consumption	0.7 µA (sleep mode) 25 mA (radio RX mode) 2 mA (radio idle/off mode) 35 mA (radio TX mode) 2 mA (measurement mode)
Operating Temperature Range (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)
Accuracy	± 3% under normal conditions (10% - 90% RH)
RH Operating Range	0 – 100% RH
RH Response Time	8 sec (tau 63%)
Certifications	FC CE [Canada] 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.
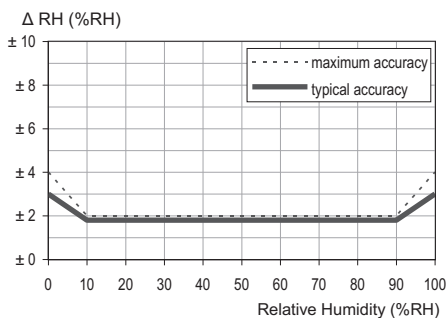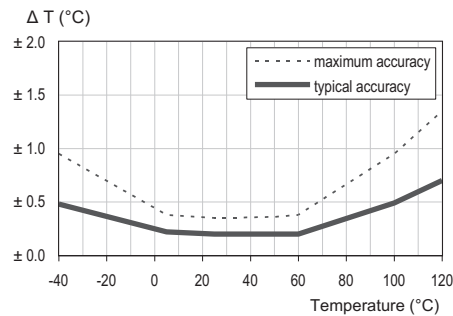

Figure 1. Typical and maximal tolerance at 25°C.

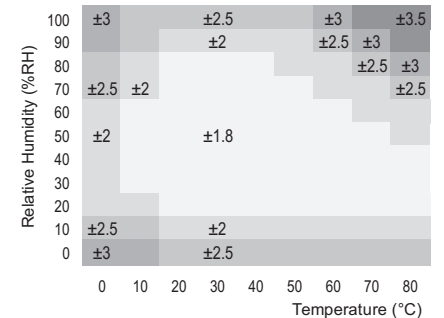Figure 2. Maximal tolerance for temperature sensor in °C.

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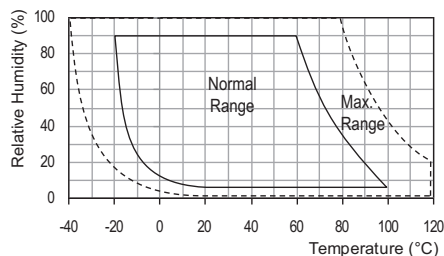

Figure 4. Operating Conditions

Operating Range

The sensor works stable within recommended Normal Range – see Figure 4. 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.

Caution/Notice:

This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure). Do not use this sensor 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 this product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality of this product.

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