



Monnit Wi-Fi Humidity Sensor

Technical Overview



General Description

The Monnit Wi-Fi Humidity (RH) sensor allows you to monitor the relative humidity of the air within a room or enclosure. Ideal for monitoring humidity within greenhouses, museums and building applications. An integrated 802.11 b/g radio allows the sensor to work with any existing Wi-Fi network. Monnit Wi-Fi sensors can be easily programmed with your Wi-Fi network's WEP or WPA(2) security via the free MoWi Setup Utility (PC application) and a MoWi USB programming cable (available in the [Monnit web store](#)).

Features

- +/- 3% accuracy (between 10% - 90% RH).
- Measures relative humidity, temperature and dew point with high accuracy.
- Logs data if Wi-Fi network is disrupted.
- 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 Monnit Wi-Fi 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.

High Gain Antenna Option

Monnit Wi-Fi sensors are also available with a detachable high gain antenna to provide a 20-30% increase in range over the standard Wi-Fi sensor. Option uses a different hardware configuration and must be chosen at time of purchase.

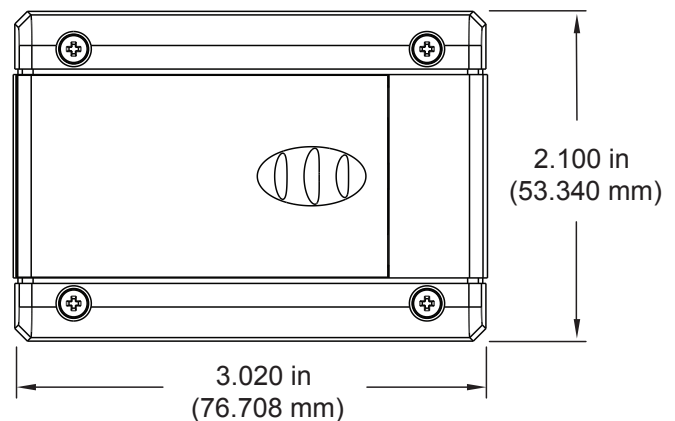


Monnit Wi-Fi Sensor Electronics Specifications

- Power: 2 replaceable 1.5V "AA" batteries (included)
- Communication: 802.11 b/g (2.412 - 2.484 GHz)
- Wi-Fi Security: Open, WEP, WPA, WPA2
- Dimensions: 3.02" x 2.1" x 1.27"
- Transmission Range: Up to 100 ft. *
- Battery Life: Up to 5 years.**

* Actual range may vary depending on environment.
** Battery life is affected by sensor type, Wi-Fi security type, distance from Wi-Fi router, reporting frequency and other variables.


Height: 1.270 in (32.258 mm)



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	
Networking Standards	IEEE 802.11 b/g
Frequency Band	2.412 - 2.484 GHz
Wi-Fi Security Standards	Open, WEP, WPA, WPA2
Wi-Fi Security Programming	Via PC software using USB cable. (Can be changed through iMonnit online software.)
Network Settings	Auto DHCP/DNS or Static
Data Logging	Standard - On Wi-Fi disruption, unit will log the first 50 readings and transmit when Wi-Fi connection is re-established. Premiere - Unit can record up to 50,000 readings and transmit when Wi-Fi is available.
Power consumption	4uA sleep, 35mA active RX, 180mA TX (at +12dBm)
Battery Life	Up to 5 years depending on sensor type, Wi-Fi security, distance from Wi-Fi router, reporting frequency and other variables. (Testing surpassed 90,000 transmissions until battery depletion.)
Wi-Fi Data Rate	Auto configures to best rate for maximum range.
Wireless Range	Up to 100 ft. device range (typical to standard Wi-Fi devices).
Electronics Operating Temperature	Using Alkaline Batteries: -18°C to +55°C (0°F to +130°F) Using Lithium Batteries: -40°C to +85°C (-40°F to +185°F)
LED Light	Status / activity
Certifications	 FCC ID: T9J-RN171. IC: RSS-210 low-power communication device. CE ID: 0681.

Humidity Sensor Specifications	
Accuracy	± 3% under normal conditions (10% - 90% RH)
Energy Consumption	80uW (at 12bit, 3V, 1 measurement / s)
RH Operating Range	0 – 100% RH
T Operating Range	-40 – +125°C (-40 – +257°F)
RH Response Time	8 sec (tau63%)

* 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.

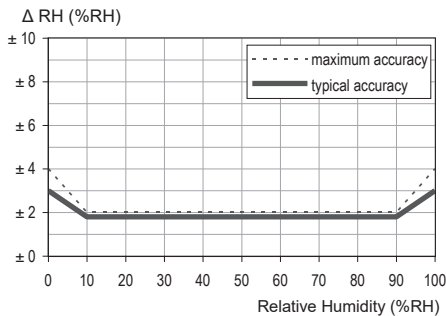


Figure 1. Typical and maximal tolerance at 25°C.

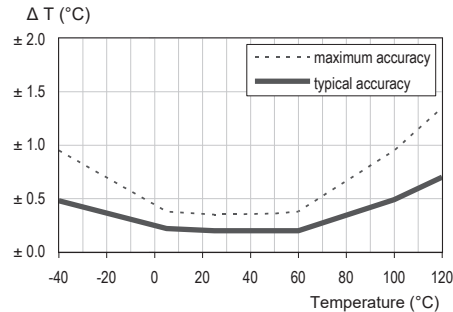


Figure 2. Maximal tolerance for temperature sensor in °C.

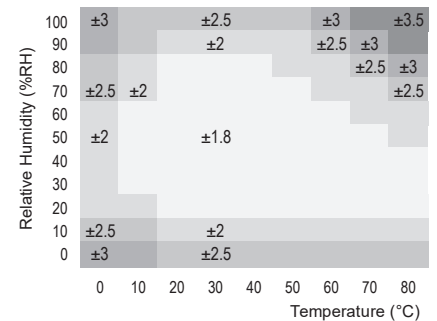


Figure 3. Typical accuracy of relative humidity measurements given in %RH for temperatures between 0 – 80°C.

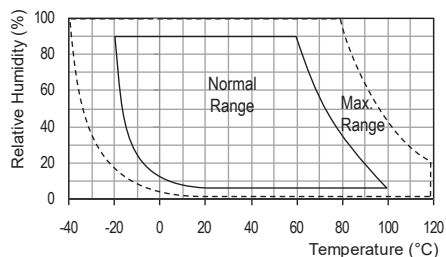


Figure 4. Operating Conditions

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.



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