



## MIMOS Relative Humidity & Temperature Sensor (RHT)

RHT is wireless sensor that measures real-time ambient temperature and relative humidity of the environment and reports the readings to a centralized server over the Internet via wireless mesh network.

### Overview

RHT is a wireless sensor for measuring real-time temperature and relative humidity of ambient environment. RHT sensor readings can be uploaded (via Mi-SPARK Gateway) to a centralized server over the Internet and viewed using user-friendly web dashboard.

RHT uses 6LoWPAN, a low-power wireless network technology where each device has its own IP address. This allows RHT to easily exchange data with remote hosts over the Internet or wireless local area network through a gateway. Communication between RHT and gateway uses sub-GHz ISM radio band (919-923MHz). This enables longer communication range with less RF interference compared to 2.4GHz band. Each RHT is able to route data of other nearby RHT devices, thus forming an ad-hoc mesh network with self-healing capability to further extend the network coverage area.

RHT can also be used as a standalone data logging device, where there is no need for real time monitoring.

### Features

RHT comprises the following features:

- **Real Time Temperature & Humidity Measurement With Remote Monitoring**  
Monitor real-time ambient temperature and relative humidity of the environment via user-friendly web dashboard.
- **IP-based Low Power Wireless Mesh Network**  
RHT is a low power embedded device that can form an ad-hoc wireless mesh network and able to communicate over the Internet via gateway which allows the device to send data to the cloud.
- **Data Logger**  
Support standalone data logging capability, without the need for network connectivity.
- **Easy Integration with External System**  
Can be integrated with external system via standard web-based technologies, such as REST and web socket.



### Technology Summary

#### RHT

Measures real-time ambient temperature and relative humidity of the environment and reports the readings to centralized server over the Internet via wireless mesh network.

**Industries:** Home/office, Building Management System, HVAC Control System

#### Features

- Real time temperature and relative humidity monitoring
- Wireless mesh sensor network
- Data logging capability
- Easy integration with external system via REST or web socket

#### Technology Benefits

- Enabling smart building
- Robust communication
- Low deployment and operational cost

### Technology Benefits

The benefits of RHT are:

- **Enabling Smart Building**  
RHT enables real-time energy management systems to fine-tune and reduce energy consumptions, hence saving money.
- **Robust Communication**  
RHT operates at sub-GHz frequency where signal absorption and attenuation by the surrounding environment is less compared to 2.4GHz ISM band. This means longer range and better penetration, especially indoors. Narrowband operating mode in sub-GHz band, which is less crowded, also makes RHT less susceptible to interference.
- **Low Deployment And Operational Cost**  
With mesh network, coverage can be extended to the whole building with higher network redundancy but with minimum number of gateway. RHT is a low power device that costs less than RM1 per annum in electricity bill.

### Specifications

RHT Specifications	
Power Supply	5V DC (USB Micro Type B)
Operating Environment	- Indoor - Outdoor (with cover and no direct exposure to weather)
Temperature Range	0°C - 50°C
Temperature Accuracy	± 1.0°C (Typical)
Relative Humidity Range	0 - 100% (non-condensing)
Relative Humidity Accuracy	± 3% @ 20% to 60% RH
Mesh Networking	Yes
RF Spectrum	919 - 923MHz
Data Rate	50kbps
Receive Sensitivity	-103dBm
Max TX Power (dBm)	+26dBm