Ambient Humidity & Temperature Wireless Sensor Network

**Features**

- Wireless transmission of sensor data
  - ISM wireless band (2.4 GHz)
  - USB controlled base station
  - Up to 255 sensor nodes per base station
- High-speed sensing
- High accuracy
- Low power consumption
  - Battery powered
- Small form factor

**Application**

- Implement a relative humidity and temperature wireless sensor network using the MVH3001D chip
- Allows for multi-point relative humidity and temperature sensing for industrial, automotive, building automation, agricultural and other sectors

**User Benefits**

- Long Term Stability and Reliability: Proprietary sensing structures, biasing circuitry, and calibration algorithms ensure accurate and repeatable measurements.
- Calibrated Measurements: Built-in digital sensor calibration ensures high accuracy measurements in any sensing environment at no cost in calibration time.
- Wireless Output: Each node wirelessly interfaces with the base station through interference robust 2.4 GHz ISM band communication.

**Description**

This wireless sensor network composed of a base station and several sensor nodes developed by MEMS Vision allows for the high resolution monitoring of ambient relative humidity (RH) and temperature (T) levels at various remote locations. The small form factor node can be placed in a wide range of locations and is well-suited to many applications.

The sensor node utilizes MEMS Vision's MVH3001D RH & T sensor chip. As a result, it features fast measurements, low power operation and configurable sensing resolution. Built-in digital calibration algorithms ensure accurate and repeatable measurements over a wide range of operating conditions.

Each sensor node includes a micro-controller and a wireless transceiver that allows it to communicate with the base station over the 2.4 GHz ISM band.

A software interface can display and log data collected by the base station from all the wireless sensor nodes.
Operation

The base station polls each sensor node on the network at regular intervals and its software interface, running on a PC, displays in real-time the RH & T conditions measured by each sensor node.

The application interface is used to activate the polling and display the acquired data in real-time. The user can start and pause data collection and view the current temperature and humidity measurements of each node. These measurements are also plotted versus time to visualize trends in the environmental conditions at each node’s location. Collected data can be logged to a file for added flexibility.

The user can alter the number of measurement points saved, and the delay between measurements.

Wireless base station relative humidity and temperature sensing software interface

COMPANY PROFILE

MEMS Vision provides miniaturized sensing products fabricated with a proprietary manufacturing platform, optimized over many years of R&D. This platform allows for our MEMS transducers to be fabricated directly above the electronics, and to be suitable for use in harsh environments. The results of this unique technology are ideal solutions for compact systems that meet the stringent performance and power consumption requirements of high-end or mobile applications. Notably, our products can be used in environmental sensing for the consumer electronics, automotive, industrial, and agricultural sectors.

MEMS Vision sensing products have very small footprints and provide high accuracy, robustness, reliability, and durability. Our experienced team also offers customized MEMS / IC design services and IP for MEMS-based highly integrated systems, with proven first-pass silicon success.

Harness the infinite possibilities of the infinitely small.
Reach the highest levels of system integration and performance.

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