

# Product Brief MVH3200D Series

## High Performance Digital Relative Humidity & Temperature Sensor

Sold in North America by:

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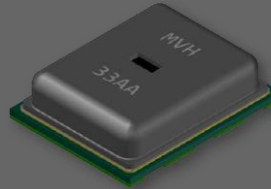
### Features

- Fast RH response time
  - Typical 6 seconds time constant
- High accuracy
  - Relative humidity (MVH3201D):  $\pm 1.5\%$  RH typ. (10 – 90%RH, 25°C)
  - Temperature (MVH3201D):  $\pm 0.2^\circ\text{C}$  typ. (-10 – +80°C)
- Independent resolution settings for RH and T
  - 8, 10, 12 or 14 bits
- Fully compliant I<sup>2</sup>C interface
- Extended supply voltage range of 1.8V – 5.5V
- Very low power consumption
  - 1.0  $\mu\text{A}$  avg. current at one RH + T measurement per second (8-bit, 1.8V supply)
- Miniature form factor for use in compact systems
  - 3 × 2.4 × 0.8 mm DFN-style LGA package

### Applications

The MVH3200D series is ideal for use in environmental sensing for the consumer electronics, automotive, industrial, agricultural and other sectors. Some application examples include:

- OEM products
- Battery-powered systems
- Smartphones and tablets
- Instrumentation
- Heating, ventilation & air conditioning systems
- Drying
- Medical equipment
- Refrigeration equipment
- Building automation
- Meteorology
- White goods
- Data logging



MVH DFN-style package

The MVH3200D series is packaged in a miniature and convenient DFN-style package with pins for serial data (SDA), serial clock (SCL), and chip power supply (VDD and VSS).

### MVH3200D Series RH & T Sensors Accuracy Comparison

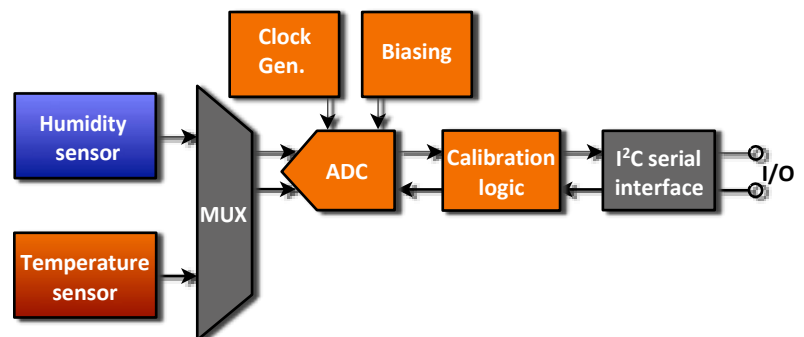
MVH3201D	MVH3202D
Rel. humidity accuracy: $\pm 1.5\%$ typ. (10 – 90%RH, 25°C)	Rel. humidity accuracy: $\pm 2.0\%$ typ. (10 – 90%RH, 25°C)
Temperature accuracy: $\pm 0.2^\circ\text{C}$ typ. (-10 – 80°C)	Temperature accuracy: $\pm 0.2^\circ\text{C}$ typ. (-10 – 80°C)
MVH3203D	MVH3204D
Rel. humidity accuracy: $\pm 2.5\%$ typ. (20 – 80%RH, 25°C)	Rel. humidity accuracy: $\pm 3.5\%$ typ. (20 – 80%RH, 25°C)
Temperature accuracy: $\pm 0.25^\circ\text{C}$ typ. (0 – 70°C)	Temperature accuracy: $\pm 0.3^\circ\text{C}$ typ. (0 – 70°C)

### Description

The MVH3200D series relative humidity (RH) and temperature (T) sensors are built using the company's revolutionary MoSiC™ technology and the long experience of its team with MEMS and ASIC designs, enabling high levels of performance, such as fast RH measurement response time and high accuracy. The technology also offers a very robust proprietary sensor-level protection, ensuring excellent stability against aging and harsh environmental conditions such as corrosion, scratching, shocks and volatile chemicals.

The highly miniaturized smart sensors provide standard digital I<sup>2</sup>C outputs which are fully calibrated and linearized for plug-and-play integration. The output RH & T resolutions can be independently programmed for maximum flexibility and to minimize power consumption, depending on the application and operating conditions. The micro-Watt levels of power consumption of these sensors make them the ideal choice for portable and remote applications.

MEMS Vision's combined RH+T sensors offer the **industry's most competitive performance-to-price value**, for a wide range of applications and end users.



MVH3200D series functional diagram.

The infinite possibilities of the infinitely small™

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User Benefits

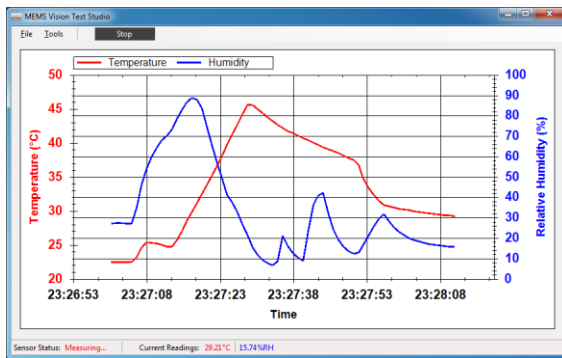
- Long Term Stability and Reliability: Proprietary sensing structures and protection technology, robust biasing circuitry, and self-diagnosis algorithms ensure accurate and repeatable measurements.
- Digital Output: Allows for native interfacing with embedded system components such as FPGAs or off-the-shelf micro-controllers.
- Fully Calibrated System: Built-in digital sensor calibration ensures high accuracy measurements and linear behavior under varying sensing environments.

Evaluation Kit

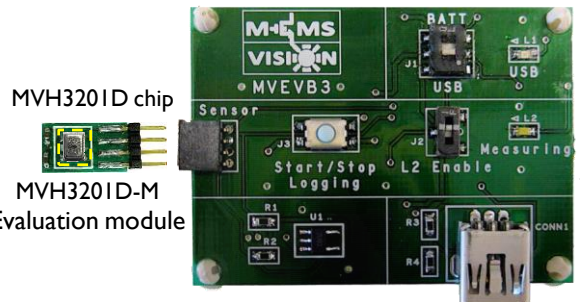
The MVH3200D series Evaluation Kit is used by partners to assess the high performance MVH3200D series humidity and temperature sensor chips.

The hardware allows users to carry out data logging experiments, and can communicate with the MEMS Vision Test Studio software on a PC through a standard USB interface.

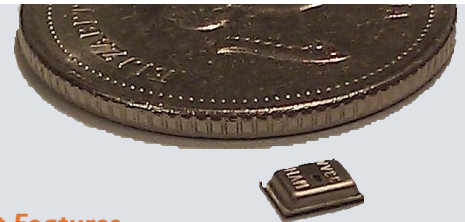
This software makes it possible to view measurements in real-time, adjust the resolution of the sensor, configure measurement parameters, and download previously logged measurements. The evaluation kit can be powered directly from the USB port of a computer, or from the supplied battery, to enable fully autonomous (untethered) data logging.



MEMSVision Test Studio user interface.



MVEVB3 evaluation board and MVH3201D module.



Kit Features

- Includes 3 MVH3200D series sensor modules and an extension cable
- USB or battery operation
- Convenient sensor monitoring
  - ▶ Data logging mode or live data display
  - ▶ Embedded measurement push button
- Embedded micro-controller
  - ▶ Preconfigured for quick evaluation
- EEPROM for on-board data storage
- PC software interface
  - ▶ Pre-configured software package included
  - ▶ USB communications
  - ▶ Data logging and export ability
  - ▶ Easy measurement configuration (rate & resolution)



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 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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