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**MVH4000D-EV**  
**MVH4000D Series Evaluation Kit**

**User Guide**

## 1- Kit Description

The MVH4000D-EV Evaluation Kit is used by partners to assess the high performance MVH4000D 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 board can be powered directly from the USB port of a computer, or from a CR1632 coin cell battery, to enable fully autonomous (untethered) data logging.

## 2- System Requirements

The MEMS Vision Test Studio software needs the following minimum system requirements:

- CPU: Intel or compatible
- RAM: 512 Mbyte
- Screen Resolution: 1024 x 768 or higher
- Operating System: Windows XP / 7 / 8 / 10
- Ports: One available USB port

## 3- Kit Setup

Please refer to the accompanying Quick Start Guide to setup the evaluation kit, and for instructions on how to connect the sensor module to connector ①.

## 4- Taking Measurements

1. Connect the board USB port ② to a PC using the supplied USB cable, and ensure that the power switch ③ on the board is in the *USB* position. The *USB LED* ④ will light up.
2. Run the MEMS Vision Test Studio software package and click the *Measure* button ⑤ (Fig. 2). The *Measuring indicator* ⑥ will blink whenever data is being captured.

## 5- Measurement Settings

To change the interval and number of measurements to be made, select *Measurement Settings* from the *Tools* menu, then enter the desired values and click *OK*.

To change the measurement resolution, select *Set Resolution* from the *Tools* menu, then select the desired resolution and click *OK*.

The resolution setting is stored on the sensor, and it will be the default value applied when measurements are started.

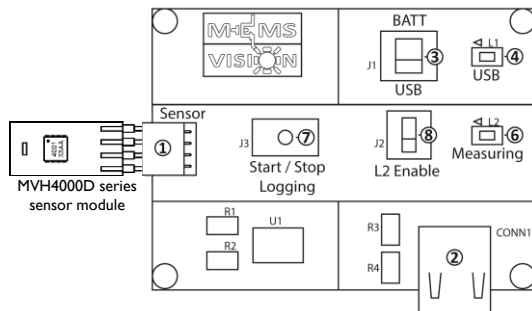


Fig. 1 Evaluation Board.

- ① Measurement settings can be changed only when no measurements are being taken.

## 6- Exporting Data

The data displayed in the plotter area can be exported in two different formats.

- To export the measured data points in an Excel compatible comma separated text file, select *Save Data* from the *File* menu.
- To export the plots themselves as a picture file, right click on the plot area and select *Save Image As*.

## 7- Data Logging Mode (untethered)

- ① Ensure that a battery is inserted in the battery holder on the back of the board, with the positive battery terminal facing away from the board.

The following steps describe how to operate the kit in the data logging mode:

1. To set the board to the data logging mode, put the power switch ③ in the *BATT* position.
2. To start data logging, hold the *Start/Stop Logging* button ⑦ for 3 seconds. The *Measuring* indicator ⑥ will light up for 2 seconds then start blinking on every logged measurement. This indicator can be disabled to extend the battery life by toggling the *L2 Enable switch* ⑧.
3. To stop data logging, press the *Start/Stop Logging* button ⑦. The *Measuring* indicator ⑥ will blink 3 times to indicate the end of the logging operation.

4. To download the logged data to the MEMS Vision Test Studio software, connect the USB port ② to the computer using the supplied USB cable, and ensure that the power switch ③ on the board is in the *USB* position. The *USB LED* ④ will light up.

5. In the software, select *Data Logging* from the *Tools* menu and press the *Download Data* button.

- ① The maximum number of measurements that can be stored on the board is 2000.

## 8- Data Logging Settings

To change the data logging measurement interval, select *Data Logging* from the *Tools* menu, then click on *Change Interval*. Enter the desired measurement interval and click *OK*.

The data logging resolution can be selected in the same fashion as described in Section 5.

- ① Data logging settings can only be changed when no measurements are being taken.

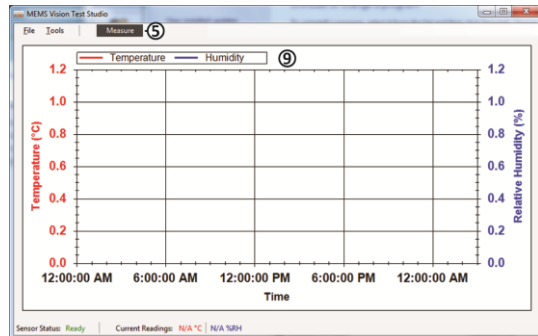


Fig. 2 MEMS Vision Test Studio software interface.

## 9- Using the Plotter

The plotter ⑨ displays the measured relative humidity and temperature data simultaneously versus time.

- Hold the left mouse button and drag it around an area to zoom onto that area.
- Hold the middle mouse button and drag to pan across the plot area.
- You can undo a zoom (pan) operation by right clicking on the plot area and selecting *Un-Zoom (Un-Pan)*.
- The plot area can always be reset to the default view by right clicking on the plot area and selecting *Undo All Zoom/Pan*.
- To display the measurement points on the plotted curves, right click on the plot area and select *Show Data Points*.

- ⑩ While moving the application window, measurements points will not be plotted.

## 10-Valid Settings Ranges

Measurement settings can be selected within the following ranges:

- Measurement interval: 0.5 s – 3600 s.
- Number of measurements: 1 – unlimited.
- Data logging interval: 1 s – 250 s.
- Measurement Resolution: 8, 10, 12, 14 bits.

## 11- Operating Temperatures

- Evaluation Board: -40 °C – 85 °C
- Battery (Typical): -30 °C – 60 °C
- MVH4000D Series Sensor Module: -40 °C – 105 °C
- ⑩ Note that the standalone sensor is rated at -40 °C – 125 °C

For technical support, please contact [support@mems-vision.com](mailto:support@mems-vision.com).



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