Humidity Sensor
Product Number: ENHMD014

Overview

The Humidity sensor measures relative humidity at ranges of 0-100 % relative humidity. It is ideal for environmental, biological and meteorological measurements.

The Humidity sensor can be connected to all einstein™ data loggers.

Typical experiments

Environmental Science

- Monitoring biotic conditions outdoors

- Researching meteorological connections between humidity, temperature and light

- Monitoring the influence of natural ventilation on the indoor climate

Human Physiology

- Investigating the loss of heat through sweat production

How it works

The Humidity sensor contains a variable capacitor that changes its capacity according to the humidity in the environment. This change is converted to a voltage change. This voltage change is then converted into digital data.

Sensor specification

Range:	0 % to 100 % RH *
Accuracy:	±3 % (10 % - 90 % RH *)
Resolution (12-bit):	0.05 % RH *

* RH = Relative Humidity

Note: sensor cables sold separately

Maintenance

The Humidity sensor is sensitive to light and so exposure to sunlight must be avoided.

Data logging and analysis

MiLAB™

1. Take your einstein™ Tablet OR pair your einstein™LabMate™ with your Android or iOS tablet via Bluetooth
2. Insert the sensor cable into one of the sensor ports
3. Launch MiLAB
4. MiLAB will automatically detect the sensor and show it in the Launcher View

5. Make sure the icon next to the sensor is checked (✓) to enable it for logging

MiLAB™ Desktop

1. Pair your einstein™LabMate™ with your PC, MAC, or Linux machine via Bluetooth, or connect it via the USB cable (found in the einstein™LabMate™ box).
2. Insert the sensor cable into one of the sensor ports
3. Launch MiLAB
4. MiLAB will automatically detect the sensor and show it in the Current Setup Summary window

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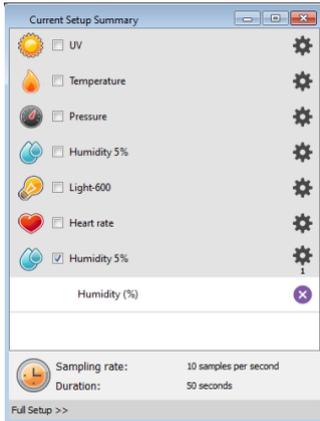
5. Click Full Setup, located at the bottom of the Current Setup Summary window to program the data logger's sample rate, number of samples, units of measurement, and other options
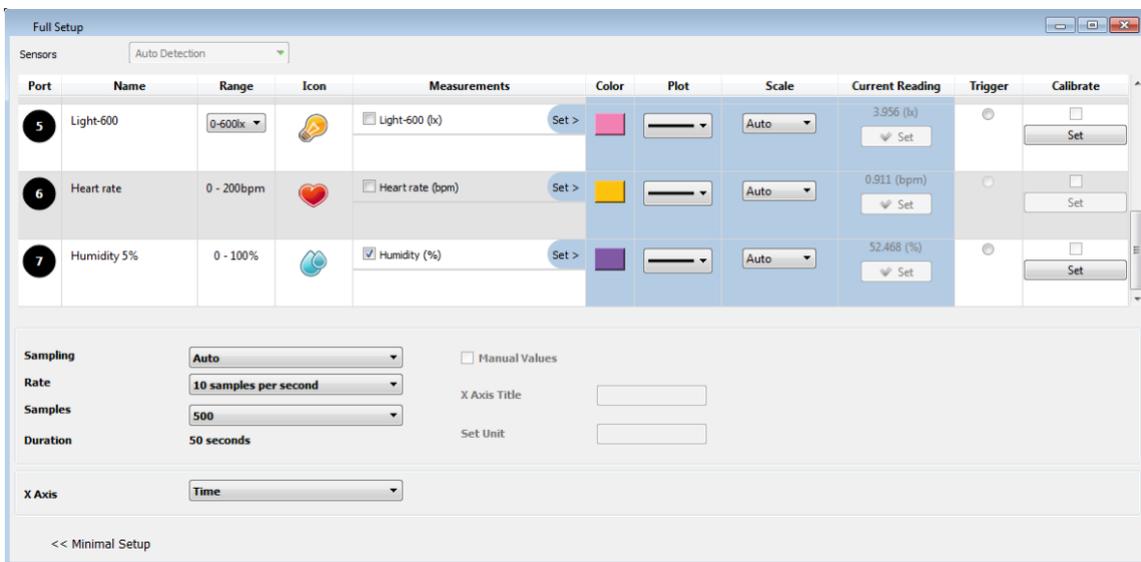
6. Click the Run button ( ) on the main toolbar of the Launcher View to start logging

Calibration

The Humidity sensor ships fully calibrated.

For greater accuracy the Humidity sensor can be calibrated manually.

MiLAB

1. Tap the Settings button next to the sensor's name
2. Tap Manual Calibration

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3. Measure a known value of humidity (e.g. 10%) and wait for the readings to stabilize. Enter the known value in the Point 1, Real Reading field

4. Tap the lock icon 🔒

5. Measure a second, different known value of humidity (e.g. 70%) (e.g. 10%). Enter the known value in the Point 2, Real Reading field

6. Tap the lock icon 🔒

7. Tap Calibrate.

MiLAB Desktop

1. Go to the Full Setup window and in the Calibrate column click Set
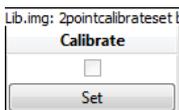
2. The Calibration window will appear
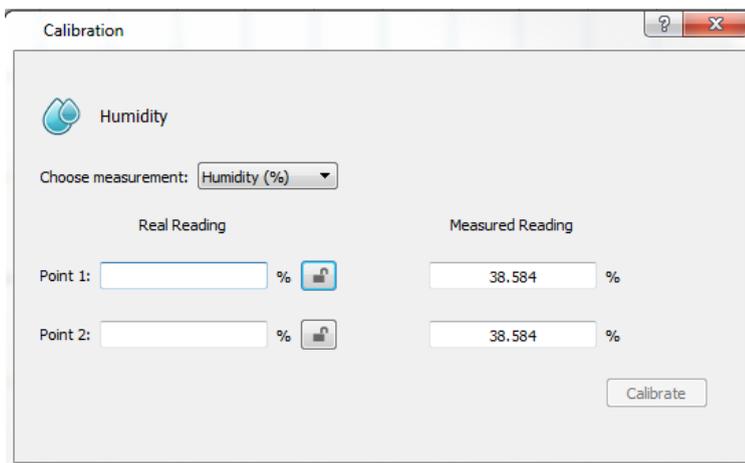
3. Measure a known value of humidity (e.g. 10%) and wait for the readings to stabilize. Enter the known value in the Point 1, Real Reading field

4. Click the lock icon 🔒

5. Measure a second, different, known value of humidity (e.g. 70%) and wait for the readings to stabilize. Enter the known value in the Point 2, Real Reading field

6. Click the lock icon 🔒

7. Click Calibrate

Note: For the most accurate results try to calibrate the sensor with one Real Reading under the expected results

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and one Real Reading over the expected results.

An Example of using the Humidity Sensor
Measuring sweat evaporation

1. Connect the Humidity sensor to your einstein™ device
2. Insert your hand with the humidity sensor into a plastic bag
3. Increase the Duration to 4 minutes
4. Close the bag and select to measure the humidity inside for couple of minutes
5. You should end with a graph similar to the one below
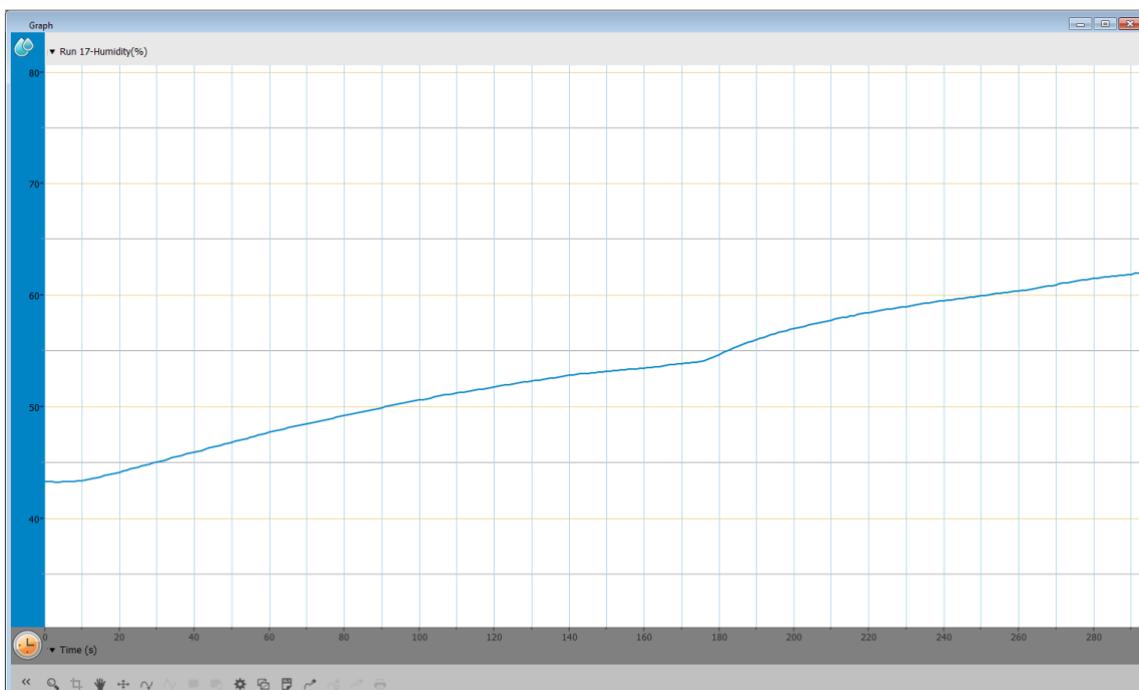
Troubleshooting

If the Humidity sensor isn't automatically recognized by MiLAB, please contact Fourier Education's technical support.

Technical support

For technical support, you can contact the Fourier Education's technical support team at:

Web: www.einsteinworld.com/support

Email: support@fourieredu.com

Copyright and Warranty

All standard Fourier Systems sensors carry a one (1) year warranty, which states that for a period of twelve months after the date of delivery to you, it will be substantially free from significant defects in materials and workmanship.

This warranty does not cover breakage of the product caused by misuse or abuse.

This warranty does not cover Fourier Systems consumables such as electrodes, batteries, EKG stickers, cuvettes and storage solutions or buffers.

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