

# 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 the all einstein™ Tablets™, einstein™ LabMate™, and einstein™ LabMate+™.

## 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. The sensor is part of an electronic oscillator that changes frequency with changing humidity. The oscillator frequency is converted to voltage. This voltage is then adjusted to a range of 0-5 V, accepted by the Analog-Digital converter. The proper result is then recorded and stored in the data logger's memory.

## Sensor specification

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

\* RH = Relative Humidity


**Note: sensor cables sold separately**

## Maintenance

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

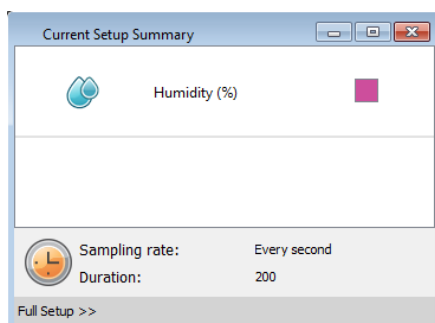
## Data logging and analysis

### MiLAB™

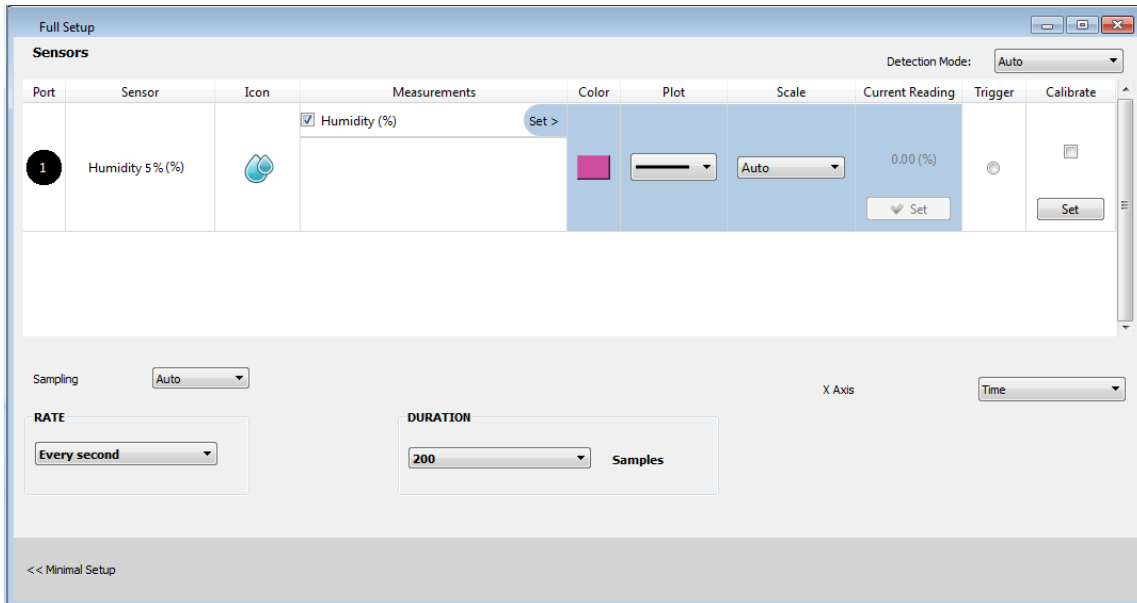
1. Take your einstein™ Tablet OR pair your einstein™LabMate™ with your Android or iOS tablet via Bluetooth
2. Insert the sensor cable into one of the sensor ports
3. Launch MiLAB
4. MiLAB will automatically detect the sensor and show it in the Launcher View
5. Check the icon next to the sensor (  ) to enable it for logging


### MultiLab

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 MultiLab
4. MultiLab will automatically detect the sensor and show it in the Current Setup Summary window



- 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



- Click the Run button (  ) on the main toolbar of the Launcher View to start logging

## Calibration

The Humidity sensor ships fully calibrated.

## An Example of using the Humidity Sensor

### Loss of heat through sweat production: Heat loss measured at fingertips

Exposure of our body to high temperature can lead to an increase in body temperature. To help heat dissipation, sweat production increases significantly. In this experiment we measure the effect of increasing hand temperature on heat dissipation through sweat evaporation. A Humidity sensor is used to measure the sweat evaporation.

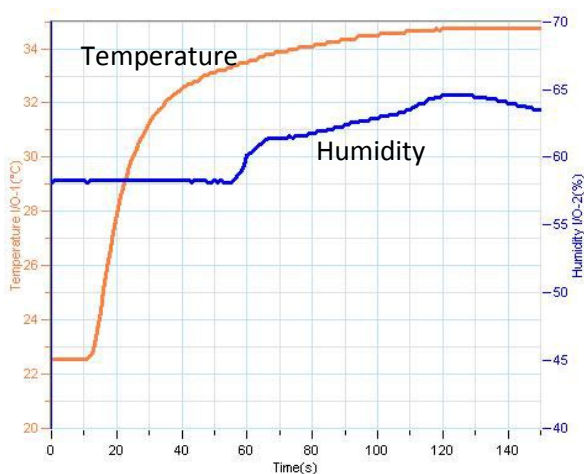


Figure 1: Measuring sweat evaporation

## Troubleshooting

If the Humidity sensor isn't automatically recognized by MultiLab/ 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](http://www.einsteinworld.com/support)

Email: [support@fourieredu.com](mailto:support@fourieredu.com)

Phone (in the US): (877) 266-4066

## 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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