Humidity (5% Accuracy) DT014

(for EcoLog XL)

The Humidity sensor is a relative humidity sensor, measuring a range of 0-100 % relative humidity. The Humidity sensor is housed in the Fourier Systems plastic case, and is equipped with a zero offset calibration screw.
This sensor is mostly used for environmental, biological and meteorological measurements.

Typical Experiments

- Investigating the properties of body respiration
- Monitoring of biotic conditions outdoors
- Researching meteorological connections between humidity, temperature and light
- Monitoring the influence of natural ventilation on the indoor climate
- Investigating the loss of heat through the sweat production of a human body

How it Works

The Humidity sensor is based on a humidity-sensing component. This component is actually 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 Specifications

Range:	0 % - 100 % RH *
Accuracy:	±8 % (10 % - 90 % RH *)
Resolution:	0.2 % RH *
Sensor Storage:	Avoid exposure to sunlight

***** RH = Relative Humidity

Calibration

The Humidity sensor ships fully calibrated.
For further calibration an offset calibration screw is located at the back of the sensor case. Use a reference humidity meter to measure the humidity and start recording. Insert a flat screwdriver to the calibration hole and slowly turn the calibration screw until the reference value is reached.

Using the Humidity Sensor with Ecolog XL and EcoLab Software

1. Connect EcoLog XL to the computer.
2. Connect the Humidity sensor to the Ecolog XL's sensor input (starting from I/O-1). The sensor is automatically recognized by the EcoLab software.
3. If EcoLog XL is running in one of its stand-alone modes, press the **Stop** button on the EcoLog XL front panel.
4. Launch EcoLab.
5. In the **Setup** window deactivate the internal sensors by clicking the button next to the sensors' icon and program the EcoLog XL's sample rate and the recording time.

To begin online recording

1. Click **Run** on the main toolbar.
2. EcoLab automatically opens a graph window displaying the data in real-time, plotting it on the graph as it is recorded.

3. You can stop recording at any time by clicking **Stop**  on the toolbar.

To conduct a remote recording

For remote logging it is necessary to send the setting to Ecolog XL before disconnecting from the computer.

1. In the Setup window deactivate the internal sensors by clicking the button next to the sensors' icon and program the EcoLog XL's sample rate and the recording time.
2. Click **Send Setup**  on the main tool bar, wait until you will see the following message on the EcoLog XL screen:

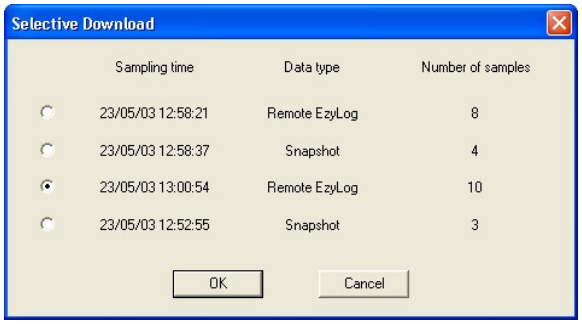
Remote logging Waiting for Go

3. Disconnect the EcoLog XL from the computer, place the EcoLog XL at the desired recording location and press the **Go**  button on the EcoLog XL front panel.

To download data that was recorded offline

EcoLog XL always stores the last four experiments. To download data that was recorded offline, or while EcoLog XL was not connected to the computer:

1. Connect the EcoLog XL to the computer and if EcoLog XL is collecting data, click **Stop**  to end collecting and to return to the main menu.
2. Launch EcoLab.
3. Click **Download**  on the main toolbar to open the **Selective Download** dialog:



The dialog contains details of the stored experiments: the starting time and date, the logging mode and the number of samples taken.

4. Click an option to select the experiment you wish to download, and then click **OK**. This will start the Post-experiment Data Transfer communication mode. Once the transfer is complete, the data will be displayed automatically in the graph window and in the table window.

Maintenance

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

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.

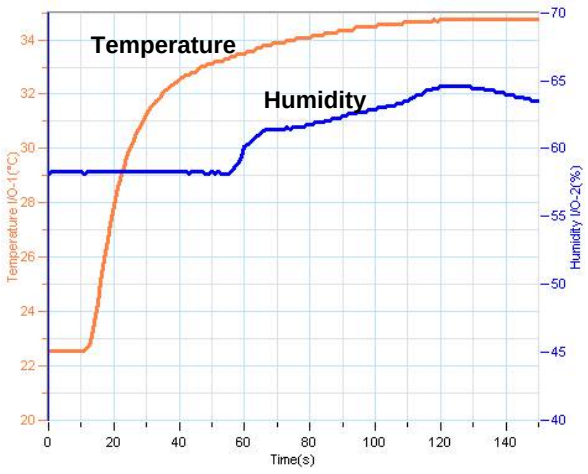


Figure 1: Measuring sweat evaporation

Technical Support

Please contact Fourier technical support as follows:

Web: http://www.fourier-sys.com/support_support.html
Email: support@fourier-sys.com

Consult the FAQs before contacting technical support:
http://www.fourier-sys.com/support_faq.html

Copyright and Warranty

All standard Fourier Systems sensors carry a one-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.