

Humidity (2% Accuracy) and Temperature DT041

Type: Relative Humidity and Temperature	Range: 0% to 100% RH and -25°C to +110°C
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Sensor description

The DT041 sensor is a highly accurate humidity sensor. It measures relative humidity ranging from 0 to 100% with an error of not more than $\pm 2\%$ over the entire range. The DT041 includes, in its screw-on cap, a temperature sensing element that measures temperatures ranging from -25°C to 110°C.



How it works

The DT041 is based on a humidity-sensing component. This component is actually a variable capacitor that changes capacitance according to the humidity in the environment. Results are recorded in Volts ranging from 0-1 Volts, which is accepted by the analog-digital converter. The proper result is then recorded and stored in the data logger's memory. The humidity-sensing component is equipped with two temperature sensors, performing constant temperature compensation, in order to avoid contaminated results caused by changes in room/air temperature.

The temperature sensor receives an input voltage of 5V and returns output voltage between 0 to 5 Volts, which is the range accepted by the MultiLog analog-digital converter. The data logger then records the value into its memory.

Connections

Because DT041 contains two sensors in one unit, MultiLogPRO cannot automatically identify the sensor and must operate in 8 sensors mode.

To use DT041 as Humidity sensor only: plug in the sensor and select the second Humidity sensor from the sensor list.

To use DT041 as Humidity and temperature sensors: connect the DT041 to the common end of a splitter cable (DT011) via a female to female adaptor (DT129). The splitter cable output marked with \updownarrow carries the Humidity signal and the splitter cable output marked with **S** is the temperature sensor.

Calibration

The DT041 ships fully calibrated. No further calibration is needed.

What it is used for

The DT014 is used for biological, environmental and meteorological measurements. Among the experiments using the DT041 is the recording of the body respiration properties, the exploration of biotic conditions outdoors, and the research of meteorological connections between humidity, temperature and light.

The sensor's high precision makes it excellent for academic or professional applications.

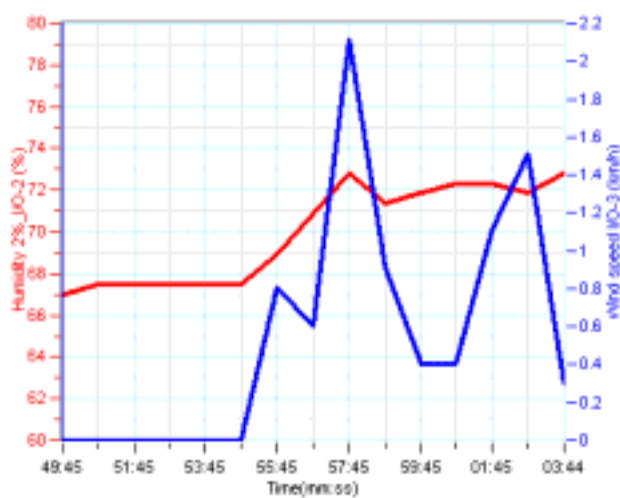
Specifications:

Humidity

- Range: 0% to 100% RH
- 12-bit Resolution (TriLog): 0.13% RH
- 10-bit Resolution (MultiLogPRO, MultiLog): 0.49% RH
- Total accuracy: $\pm 2\%$ RH at 25 °C
- Bandwidth: 1 Hz

Temperature

- Range: -25°C to +110°C.
- 12-bit Resolution (TriLog): 0.09°C
- 10-bit Resolution (MultiLogPRO, MultiLog): 0.25°C
- Total error: $\pm 1\%$



How winds affects indoor humidity