

HumiPro Humidity Sensor

for the LogIT Microsense® system

Instructions



Overview

The HumiPro Humidity sensor measures Relative Humidity (RH) in free air covering a range of 1 - 100% RH. As a delicate precision device it is particularly important to read these instructions before use.

In Use

Relative Humidity is the percentage ratio of the actual vapor pressure in the air to the saturation vapor pressure of water at that temperature and is the unit measure most often used in environmental applications.

If the sensor is to be exposed to humidity levels greater than 75% you should only expose the sensor head (marked by the step in the casing). If you wish to measure Humidity in an open environment such as open air, you must ensure the sensor is carefully mounted so that no water or condensation can get to the sensor or its connections, preferably mounting it in a box with vents to allow air flow but protect it against rain, frost and wind.

Microsense® extension cables can be used and the rest of the sensor including rivet and plug/socket connection can be sealed using self-amalgamating tape. When siting the sensor remember that RH is directly related to temperature and care must be taken to locate it away from direct sources of Humidity or heat (e.g. a hand near the sensor can dramatically affect the results).

Specifications

Range:	0-100% RH
Accuracy:	< +/- 4% RH over range of 1-80% at 25°C
Response:	90% of response for 70% step change < 1.5 seconds
Temperature range:	-20° to 80°C

Care

Never expose to liquid, condensation or extreme temperatures.

Do not use in applications where the air is under pressure.

Never use the sensor with corrosive vapors (eg. Acetone) as these will attack and effect the accuracy of the sensor.

Protect from dirt and other foreign particles from entering the sensor.

Do not attempt to disassemble - there are no user serviceable parts inside.



Waste electrical and electronic products must not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or Retailer for recycling advice.

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Examples of use.

Transpiration of a plant.

Overview:

By enclosing a plant in an air tight plastic bag (closed system), the Humidity within the bag can be recorded using the HumiPro sensor. This change in humidity records the rate of transpiration (water loss) of the plant.

Transpiration is the loss of water by evaporation. It provides a means of transporting salts through the plant and also allows the plant to cool down when being heated by the sun.

Transpiration occurs through the open Stomata in the leaf of the plant. These Stomata are tiny holes found on the underside of the leaf.

Equipment required: LogIT Data logger.
HumiPro humidity sensor. (Extension cable if required)
Plant.
Large plastic bag & elastic band.

Setup:

1. Plug the Humidity sensor into the logger.
2. Either log remotely or connect the logger to a computer for 'Live' readings to be taken.
3. Mount the Humidity sensor against the plant using the elastic band or similar.
4. Place the plant inside a plastic bag and secure it to the base of the plant sealing it with another elastic band. (Make sure the soil is outside the bag.)

Method:

1. Start logging.
2. Allow to run for around half an hour.
3. Stop data logging.
4. Note what happens to the Humidity.

Extension:

Add a temperature sensor and plot graphs comparing Temperature against Time and Humidity against time.

Try different locations for the plant ie. Window sill, dark room or cupboard.



Other experiment ideas.

- By altering the temperature and light supplied to the Plant, measure the effect these parameters have on Transpiration levels. Also try different times of day.
- Measure environmental room Humidity.
- Weather monitoring of Humidity. What happens at different times of the day.
- Relationship between temperature and Humidity in enclosed systems such as greenhouses.