Specifications

MOST IMPORTANT FEATURES	TYPICAL APPLICATIONS

MOST IMPORTANT FEATURES
*   Linear 0 - 100 % RH
*   High Performance
*   Long Term Stability
*   Close tolerances
*   Reliable construction
           and
*   Very low cost

TYPICAL APPLICATIONS
*   Airconditioners
*   Climate control for green houses
*   Storage and warehouses
*   Meteorological applications
*   Food processing
*   Room comfort control
*   Medical applications
*   and many more

* HS10 is a Non RoHS version
Not for new designs, still available while stock last

PRODUCT HIGHLIGHTS

1   The Smartec capacitance humidity sensor measures from 0 to 100 % RH. In many applications 100 % RH and condensation may occur. This condensation has no effect on the performance of the Smartec humidity sensor.

2   Linearity. The Smartec humidity sensors has a linear capacitance change from 0 % to 100% RH within a band of 2%.

3   Due to this and the production technology on silicon substrate we can offer now a humidity sensor at a price level that will allow measurement of humidity where the traditional humidity sensors are to expensive or to unreliable.

4   Due to its robust construction the response time is a little slower as should be. Therefor we do not recommend the use of the sensor for applications where a very high speed of response is required.

PRODUCT DESCRIPTION

The Smartec humidity sensor is a two terminal capacitor which increase in value as water molecules are absorbed into its active polymer dielectric. The capacitor plates consists of a base plate and a water permeable platinum top plate. The sensor will be delivered with gold-plated lead wires attached. Besides the active dielectric, polymers give protection to the base plate, prevent polarisation and pinholing and generally ruggedise the sensor so that it can be used in a wide range of hostile environments

SPECIFICATION

Electrical:

Operating humidity range	0 - 100 %RH noncondensing
Operating temperature range	-40 – 120 ºC
Capacitance value @ 25 ºC, 60 %RH, 100 KC	240 pF ±15 %
Capacitance range over 0-100 % RH	40 pF ±10 %
Advised frequency range	10-100 Kc
Temperature dependency	-0.15% RH/ºC
Response time top 90 %	60 s. typ.
Linearity	± 2% RH
Stability over time(12 month)	± 3 % RH
Maximum Voltage(no DC!)	5 V AC

Storage

Humidity range	0 – 100 %RH
Temperature	-20 – 85 ºC

UNDERSTANDING THE SPECIFICATIONS

The measuring of humidity is difficult. Generally the humidity in air is measured as the fraction of the maximum amount of water that air can absorbed at a certain temperature. At atmospheric conditions and a given temperature this fraction can vary between 0 (absolute dry) and 100% (the point where condensation will begin to form). This relative humidity is only valid at a certain temperature and atmospheric pressure. Therefor it is important that a humidity sensor should not be affected by either temperature or pressure. Many sensing techniques, such as mechanical devices and resistive type sensors are temperature dependent and even the wet and dry bulb is pressure dependent.

TOLERANCE.

The specified tolerance is the tolerance of the capacitor at 60% RH. This tolerance can be considered as an effect of the production technology. When the capacitor is f.i. 2 % to high (@ 0% RH) also the sensitivity will be around 2% to high.

LINEARITY.

The linearity is considered as the maximum deviation from a straight line between 0% RH and 100% RH. In the condensing area some drift can be expected; but this drift is reversible. The device is resistant against submerge in water.
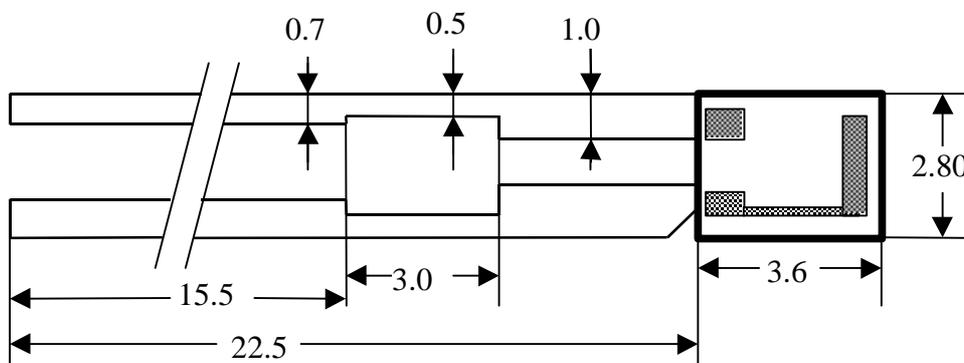
PACKAGE OUTLINE AND SOLDERING PRECAUTIONS.

Soldering.
The products is special suited for soldering by hand. Special precautions has to be taken:
- a heat dissipater(pincers) has to be placed between pins during operation,
- soldering temperature must be below 350 C
- soldering time must be below 3 seconds.

Outline drawing

Humidity Sensor type SMTHS10   All sizes in mm

Leads : gold pleated
        Thickness 0.4 mm

Ordering information

SMTHS10   Smartec Humidity sensor (Non RoHs version)