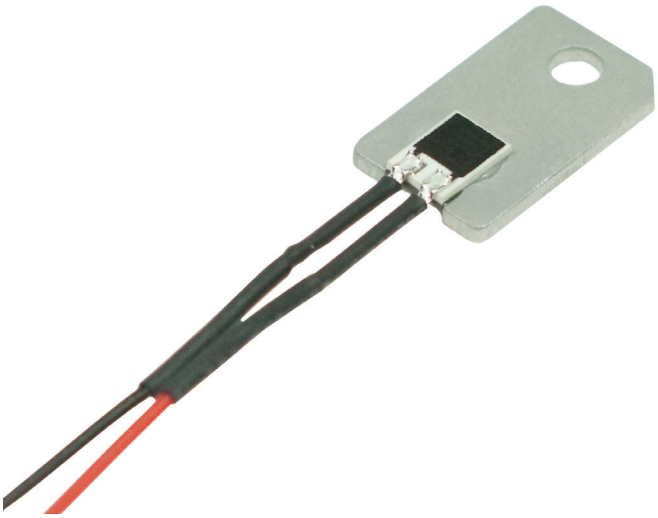
DATA SHEET

Dew Point Sensor SHS-A4L mounted on carrier plate

Description



Characteristic features

- Detection of high humidity, dew formation or condensation
- Application range from 0…100% RH
- Operating temperature range from 0…+60 °C
- Model with SIL-contacts for PCB

Areas of application

- Building instrumentation, cool ceiling controller, air-conditioning
- Moisture protection in switcher panels and electrical equipment
- Condensate detection in outside directed walls
- Ventilation control in sanitory rooms
- Leakage monitor for waterproof housings
- Brown goods, CAMCORDER und Cameras
- Control cabinets
- Cooling ceilings
- Shop display windows
- Humidor devices
- Submersible pumps

Technical Data

Resistive Dew point sensor SHS-A4L	
Measuring principle	resistive humidity sensor
Humidity range	0...100% RH
Operating Temperature	0...+60 °C
Storage Temperature	-20...+85 °C
Impedance	
RH 80% RH	< 10 kΩ
RH 94% RH	< 100 kΩ
RH 98% RH	> 200 kΩ
Max. evaluation voltage	< 0.8 Vpp ~/=
Support substrate	Ceramic 5.1 x 7.0 x 0.6 mm
Connention	30 mm, PVC insulated braid, 0.14 mm²
Ordering No.	0381 0004-03
Rights reserved for change in technical data for technological advance-ments !	

Features

The humidity sensor SHS A4L is a resistive dew point sensor in miniaturised dimensions for detection and /or avoiding the onset of condensation. In the range of low humidity up to 75%RH, the characteristic curve R vs. %RH has a flat slope i.e. small sensitivity to Humidity changes. At 80 %RH and above the sensor resistance begins to increase exponentially with increasing humidity. This Behaviour guarantees a very easy signal evaluation and a stable switching point near the dew formation threshold (high %RH values). The SHS A4L offers thus a real cost-efficient alternative to the relatively expensive capacitive humidity sensors, for applications where it is not really important to know the exact %RH value, but rather to reliably avoid the onset of condensation. With the SIL leads the sensor can be assembled directly on PCBs.

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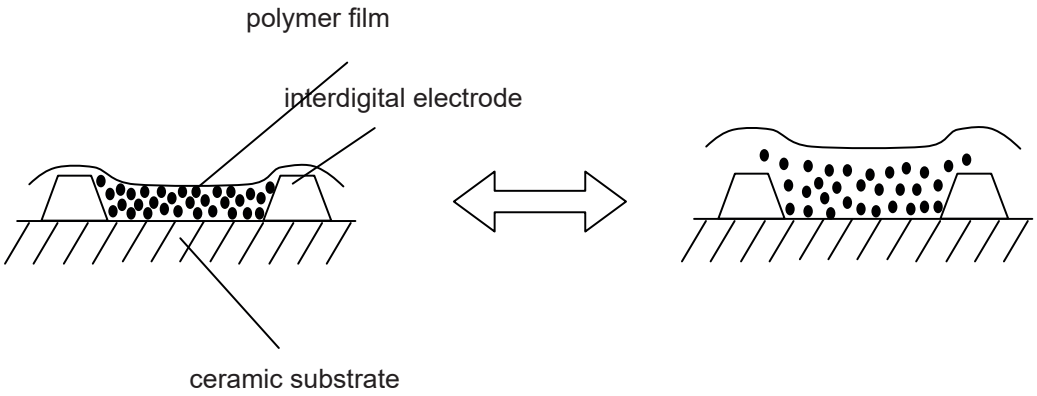
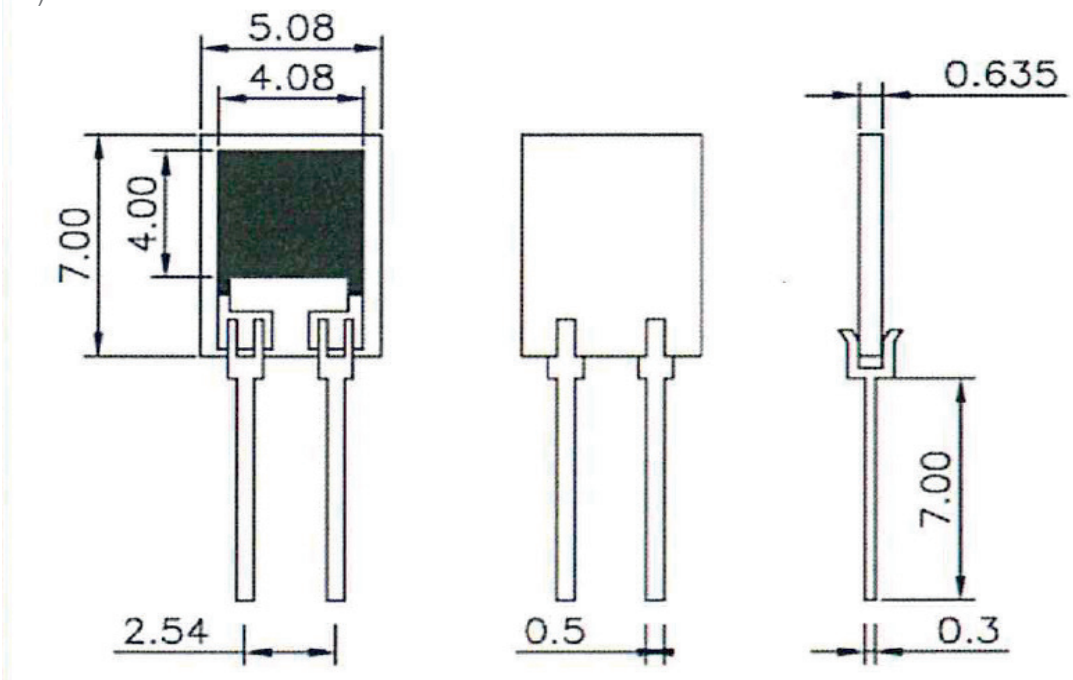
Actuation Principle of Dew Sensor



The dew sensitive polymer film in which conductive particles are dispersed in polymer which expands by water shows a low electric resistance by the contact of carbon under the conditions of dry atmoshere.
On the contrary, when the polymer film absorbs water, it shows a logarithmic increase of electric resistance in high humidity range, because the total contact area between the conductive particles decreases due to swelling of the polymer.
Such a resistance change of the dewdrops feeler film is recognized as a resistance change between the two electrical terminals through the interdigital electrodes.

Dimension (SHS A4L)



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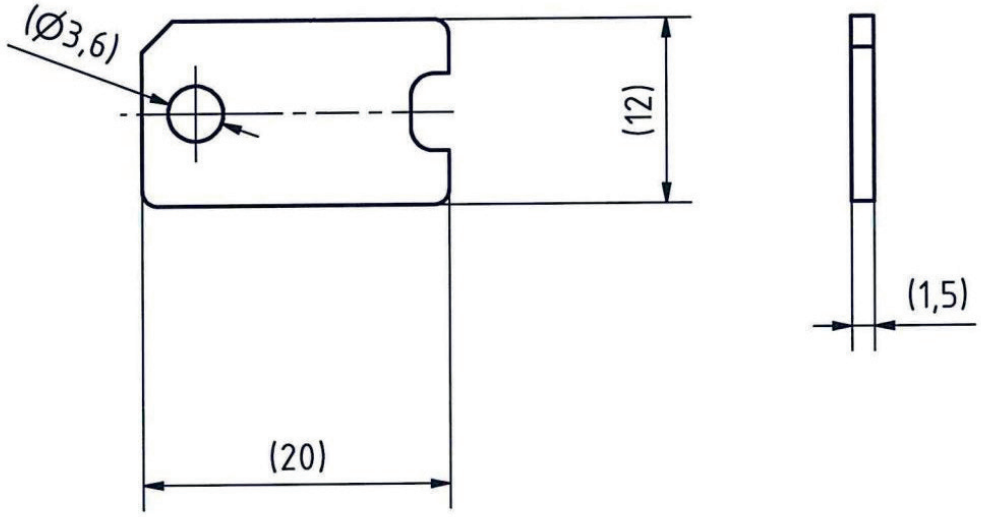
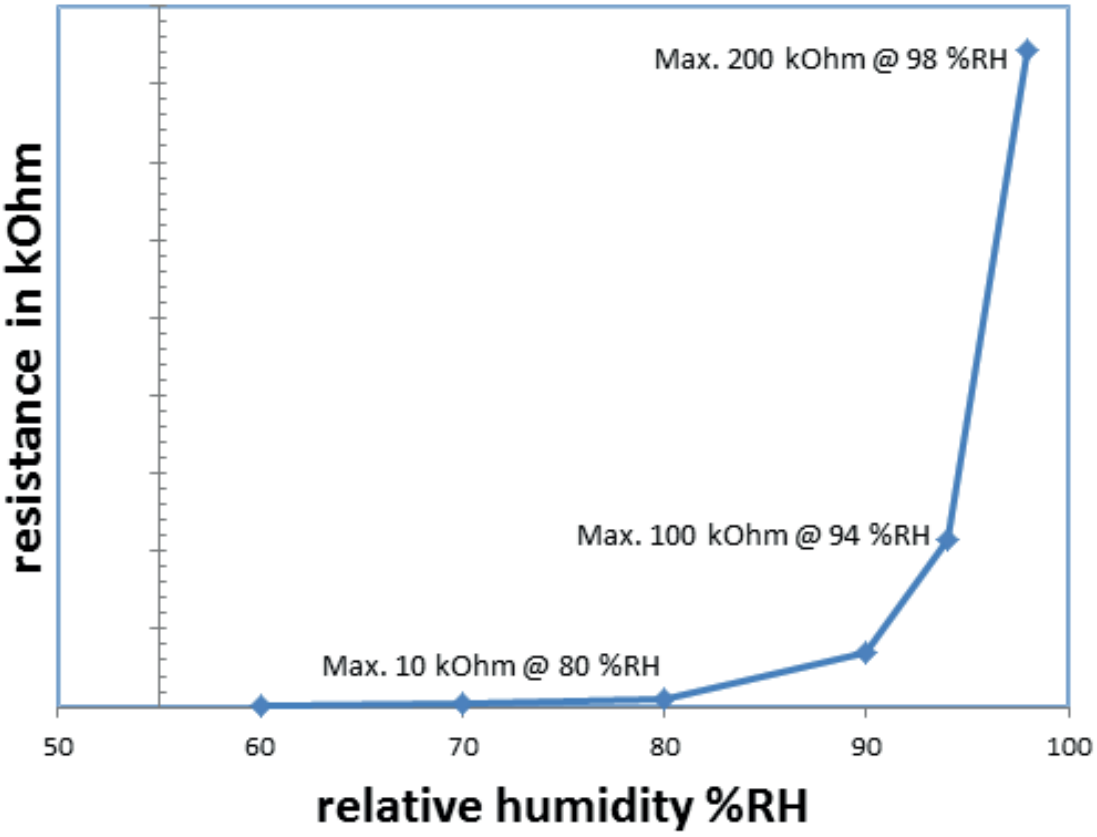
Dimensions carrier plate



The hole distance from the top to the edge is 2 mm. The hole is made exactly in the middle.

Example characteristic curve R vs. %RH



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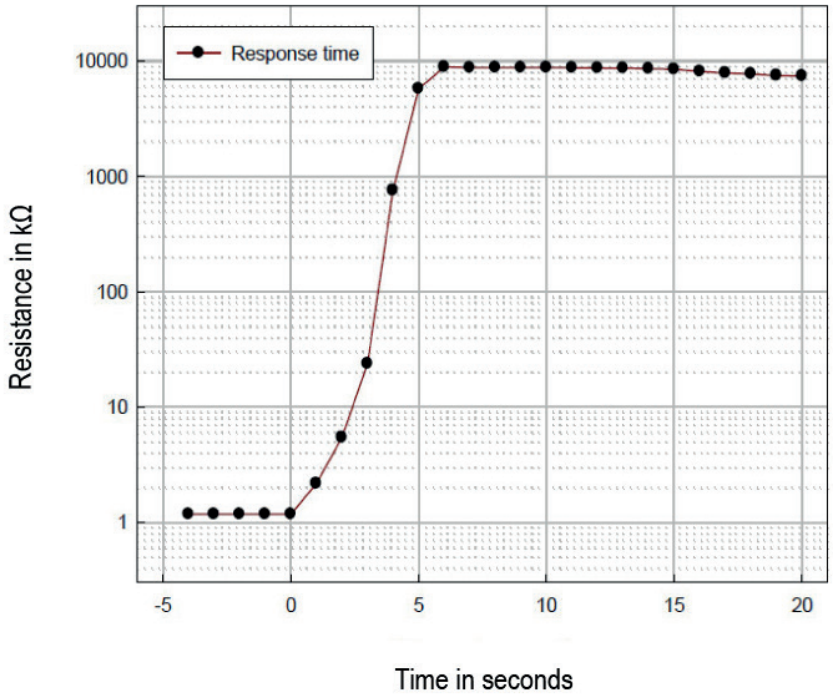
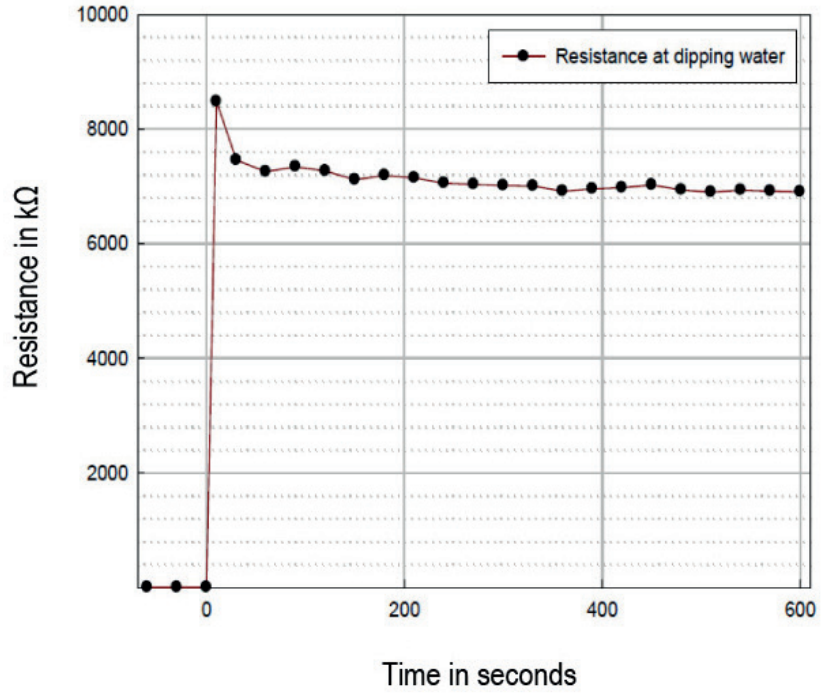
Response characteristics (Test condition: 25 °C, 75% RH → dew point)



Resistance characteristics at dipping water (Test condition: 25 °C Dew condition)



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