



innovative
Sensor
Technology

physical · chemical · biological

APPLICATION NOTE

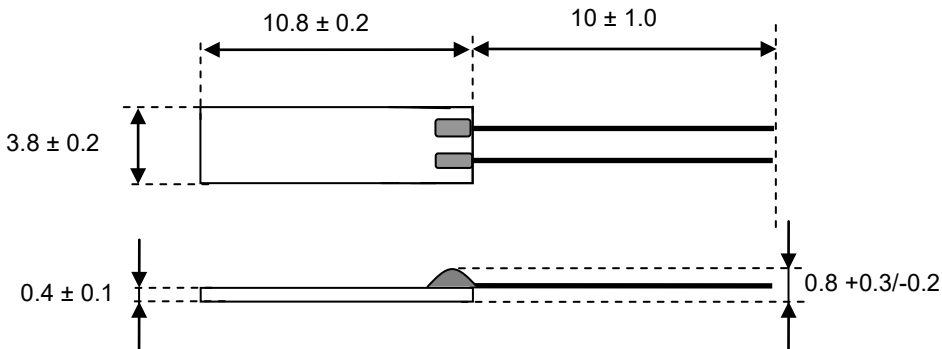
Humidity Elements



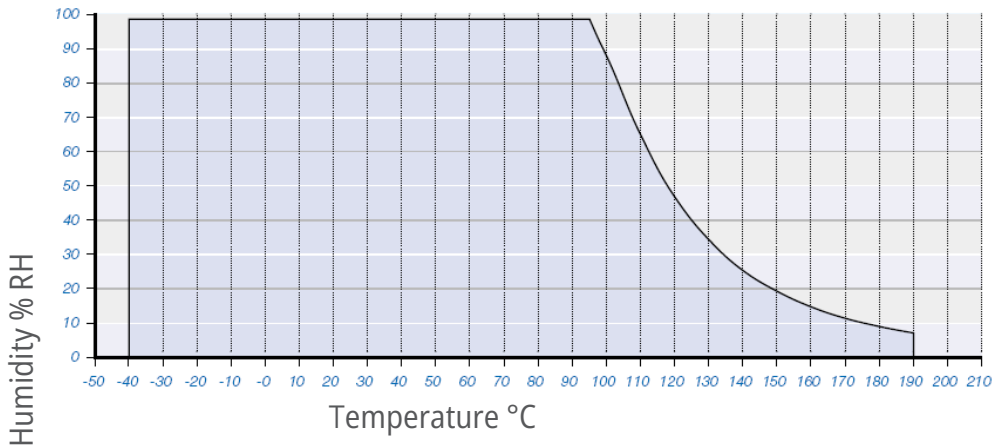
MK33

Our specially-developed capacitive humidity sensor features a base capacitance of 300 pF, enabling a large humidity-temperature range and making it suitable for many applications. The sensor is optionally available with flexible or rigid connecting wires, making it the first choice for installation in detecting probes.

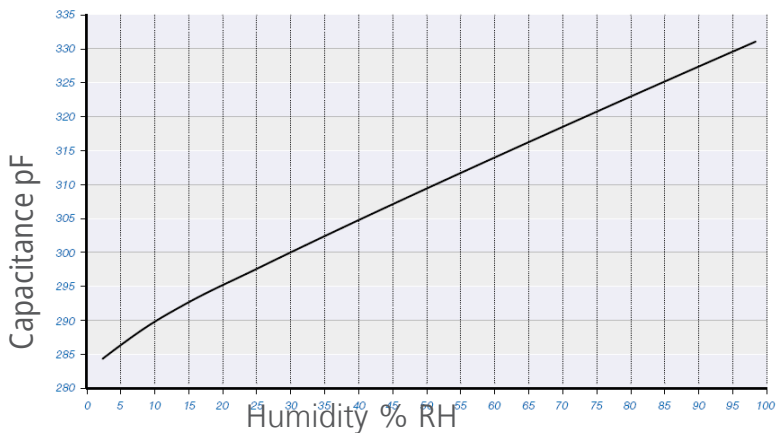
Dimensions



Allowed Humidity-Temperature Range, operating conditions at atmospheric pressure (1 bar)



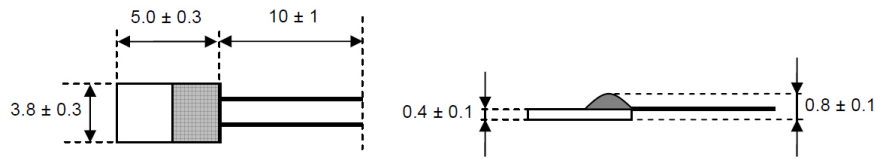
Sensor Characteristic





K5

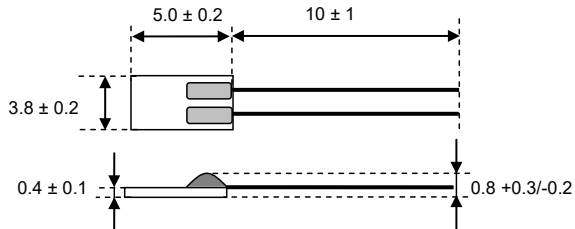
Dimensions



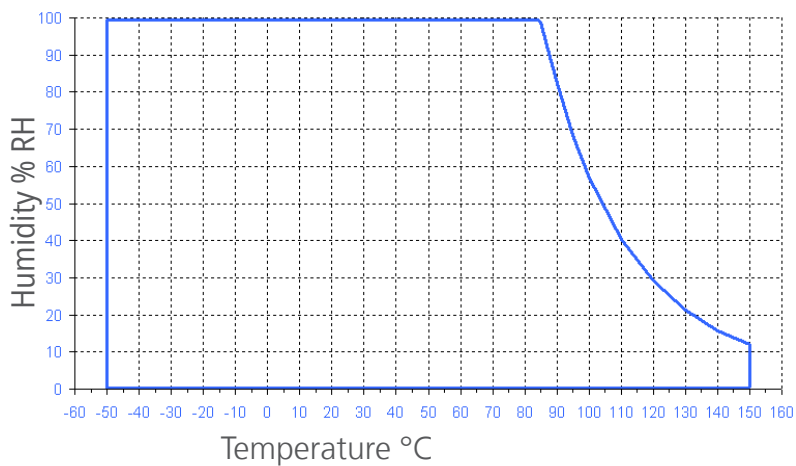
P14

The P-14 humidity sensor was specially developed to satisfy the wide range of applications in HVAC, tests and measurement, white goods and industrial field. By the consistent use of state-of-the-art production technologies and our extensive know-how in the field of high performance polymers, we have succeeded in producing a high quality sensor with an almost linear characteristic. The possibility of selecting the electrical connections provides users with ideal opportunities for implementing their own sensor design without limitation.

Dimensions

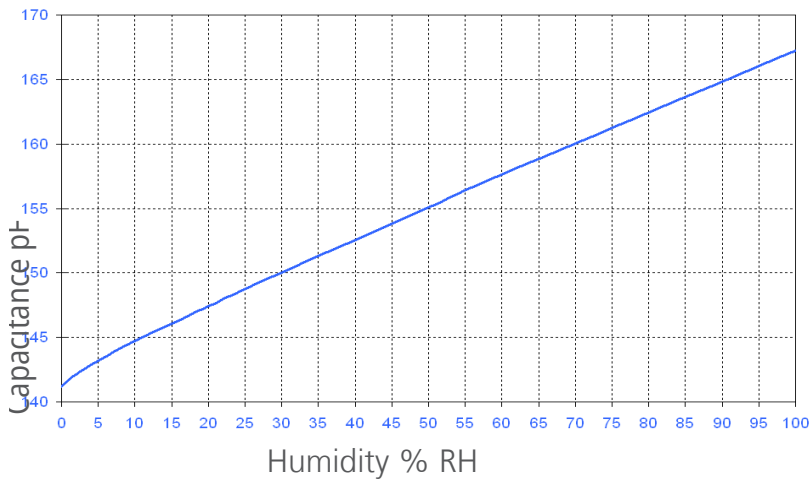


Allowed Humidity-Temperature Range, operating conditions at atmospheric pressure (1 bar)





Sensor Characteristic

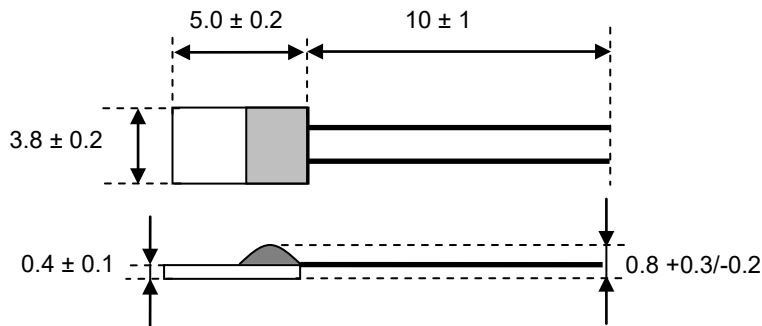


P14 Rapid & P14 Rapid-2

Within meteorology applications, such as radio sondes and weather balloons, there is a strong need for ultra-fast, stable and robust humidity sensors. Not only at normal conditions, but also under elevated environmental constraints as extreme low temperatures, high radiation levels and under extreme condensation, the whole sensor operation has to be granted. Such applications need fully tailored solutions, such as those provided by the new P14 Rapid, being the sensor of choice and unifying all related specification requirements in an ideal manner.



Dimensions





Handling



Before opening the packaging, please note that contamination of sensor surface may cause issues, therefore:

- Do not touch active area of the sensor with bare hands
- Do not expose to UV radiation - if exposure cannot be avoided, compatibility must be custom tested
- Follow below instructions



Packaging



The wired humidity sensors are packaged in blisters. Please be careful when opening the blisters to avoid any damages to the sensors.



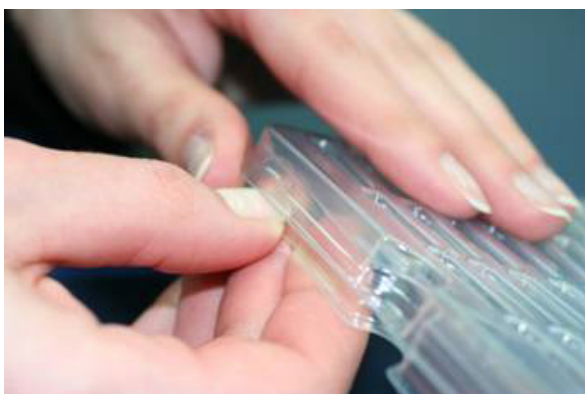
To avoid damages handle as follows:



1. Side with curve has to face you.



2. Push your thumb beneath cover and press carefully lock system until cover removes smoothly.



3. Press lock system on second side on the same way.



4. Remove cover slowly.

Storage

Sensors have to be stored only in the original blisters.

Storage environment :

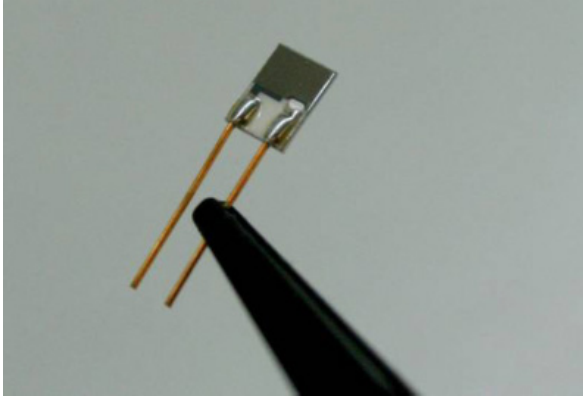
-20°C...+50°C / -4...122°F (temperature range of blister)



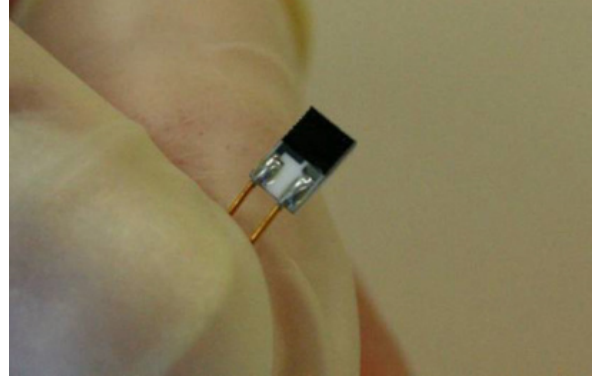
Sensor handling



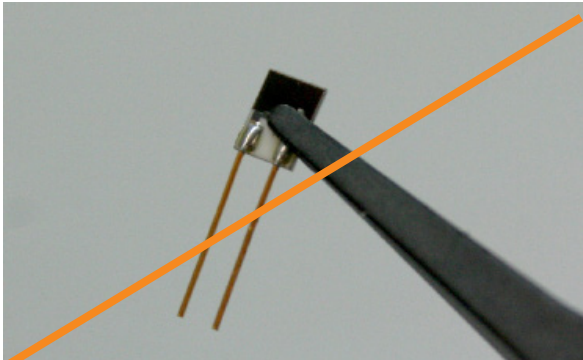
Hold the sensor with plastic tweezers or with gloves on the wires only.



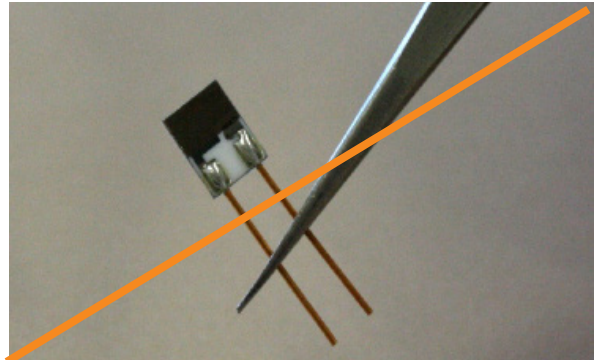
Picture 1: Sensor held on wires with plastic tweezers



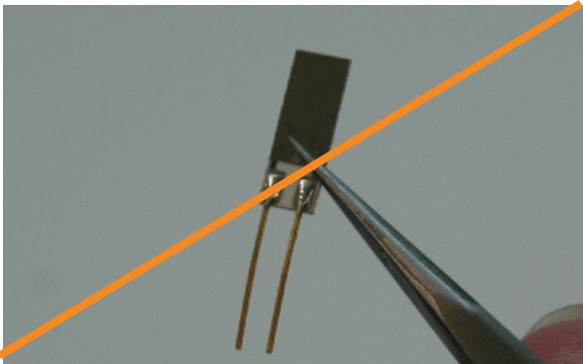
Picture 2: Sensor held with gloves



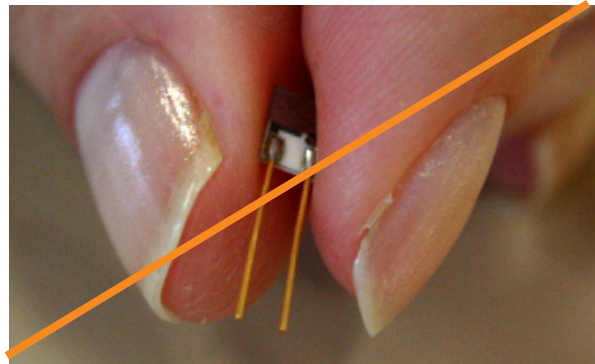
Picture 3: Sensor picked on the active area



Picture 4: Sensor picked on wires with metal tweezers



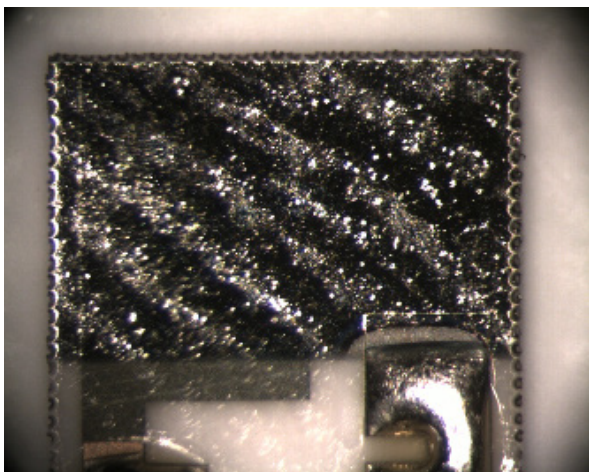
Picture 5: Sensor picked on the active area with metal tweezers



Picture 6: Sensor held with fingers without gloves on the active area

- Do not touch the active area of the sensor.
- Do not use metal tweezers to handle the sensors.
- Never handle the sensor by hand without gloves.

Do not touch or scratch the active area of the sensors. Scratches and contaminations can degrade the sensor characteristic (see bad samples in pictures 7 and 8 below).



Picture 7: Sensor with contaminations



Picture 8: Sensor with a scratch

- Avoid mechanical stress to the sensors, e.g. bending or touching with sharp objects.
- Hold the sensors with plastic tweezers on the side edges only.

Soldering of the sensor

- The maximum temperature of the soldering iron of 320 °C may not be exceeded. Maximum heat apply with the iron must be below 10 seconds at the very end of the connecting wires.
- The calibration of the sensors has to been done 5 days after soldering at earliest. This time is needed to provide a relaxation after the heat induces during the soldering process.
- Avoid soldering flux residues, caused by the soldering process, or any other contaminations inside the active area of the sensor.
- Soldering flux residues on the outside of the sensor's active area are not critical. If the sensor is mounted with glue we recommend baking the sensor at 80 °C for 1 hour after the gluing process.

Cleaning of the sensor

- Any residues can be easily removed with isopropanol at room temperature. Apply of low ultrasonic energy might improve the cleaning process. The sensor has to be dried after the cleaning process.
- The sensor cannot be cleaned mechanically with cotton swabs for instance.
- It is possible to clean the sensor with oil free and filtered clean air, e.g. for removing dust particles.



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