



P14 - Rapid Capacitive Humidity Sensor



Product

Within meteorology applications, like 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 dewing full sensor operation has to be granted. Applications of this class need fully tailored solutions, such as the new P14 Rapid, being the sensor of choice, unifying all related specification requirements in an ideal manner.

Advantages

- Ultra fast response time
- Resistant to temperature shocks
- Excellent linearity
- Low hysteresis
- Resistant to condensation
- Small dimensions
- Robust mechanical design
- RoHs conform

Technical Data

	Wired	SMD
		
Humidity Operating Range:	0 ... 100% relative humidity (max. dewpoint 85°C)	0 ... 100% relative humidity (max. dewpoint 85°C)
Operating Temperature Range:	-80 ... +150°C	-80 ... +150°C
Capacitance (at 23°C and 30% RH):	140 pF ± 40 pF	180 pF ± 50 pF
Sensitivity (15 ... 90% RH):	0,25 pF / % RH	0,30 pF / % RH
Loss Factor (at 23°C, at 10 kHz, at 90% RH.):	< 0,01	< 0,01
Nonlinearity (20 ... 90% RH at 23° C, after one point calibration):	< 1,5% RH	< 1,5% RH
Hysteresis: 1h, 20% RH at 23°C → 1h, 85% RH at 70°C → 1h, 20% RH at 23°C	< 1,5% RH	< 1,5% RH



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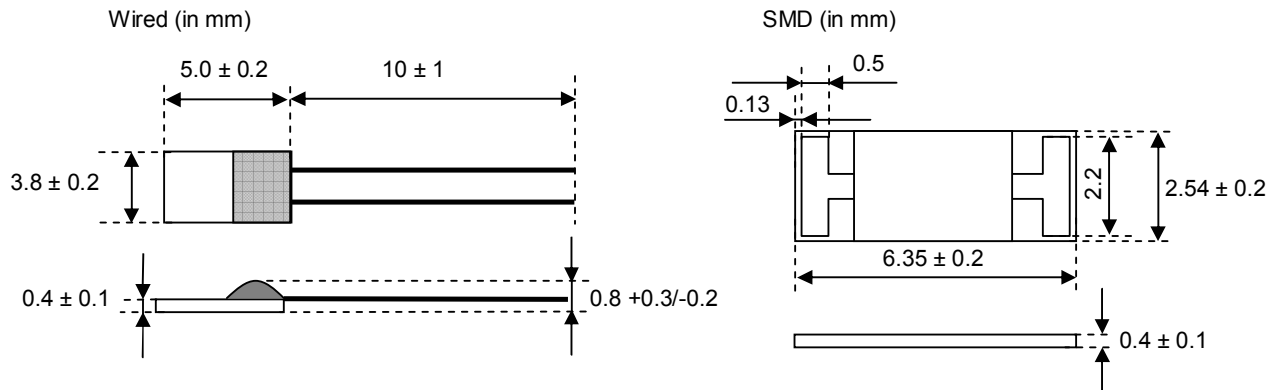
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Technical Data

	Wired	SMD
Response Time T_{63}^* :	< 1.5 s (50% RH → 0% RH) at 23°C	< 1.5 s (50% RH → 0% RH) at 23°C
Frequency Range:	1 ... 100 kHz (recommend 10 kHz)	1 ... 100 kHz (recommend 10 kHz)
Maximum Operating Voltage:	< 12 Vpp AC	< 12 Vpp AC
Signal Form:	alternating signal without DC bias	alternating signal without DC bias
Connectors:	Wires or customer specific	SMD

*Often, response time is measured for ascending humidity steps, whereas physics predict that decreasing humidity leads to often far longer response times for capacitive humidity sensors. We at IST thus measure response time always for decreasing humidity values, as this resembles the worst case.

Construction Sizes



All mechanical dimensions are valid at 25°C ambient temperature, if not differently indicated. ■ All data except the mechanical dimensions only have information purposes and are not to be understood as assured characteristics. ■ Technical changes without previous announcement as well as mistakes reserve. ■ The information on this data sheet was examined carefully and will be accepted as correct. No liability in case of mistakes. ■ Load with extreme values during a longer period can affect the reliability. All rights reserved. The material contained herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner. Typing errors and mistakes reserved. Product specifications are subject to change without notice.



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