WIISTE

Wiiste IoT

SOLIDRH SH3 - SENSOR FOR THE MEASUREMENT OF THE SURFACE SECTIONS OF STRUCTURES

SolidRH SH3 is a wireless sensor developed by Wiiste Oy for installation in the structure's surface sections to measure relative humidity and temperature. The sensor is designed for measurement in, for example, light partition walls, block walls, concrete structures, and for the monitoring of moisture behind a vapour barrier or water-proofing material.

SolidRH is a system for the measurement of a structure's relative humidity and temperature. The system is especially designed for measurements related to the detection of whether a covering material can be applied on top of a concrete surface, and for the long-term monitoring of structural humidity.

The system includes various types of sensors which can be read using the same reader. The sensors do not include an energy source; the required energy is transferred wirelessly, using the reader when performing the measurement. From the reader, the measurement data can be transferred to the Relia cloud service in order to enable easy data management and reporting.

Use of the SolidRH SH3 sensor

The SH3 is a SolidRH-system sensor which, due to its thin housing, can be used for the measurement of surface sections in structures.

The SH3 can be installed in light partition walls as such by nailing it from its installation plate to a frame column. In a block or concrete structure, the sensor is installed in a hole with a diameter of 25 mm. The sensor measures the relative humidity of concrete at a depth of approx. 10 cm.

The maximum distance between the sensor reader head and the RD1 reader is approx. 40 mm, depending slightly on the material in between. For more detailed instructions, refer to the SolidRH system user instructions and the installation instructions of the SH3 sensor.

Serial numbering

Each sensor has a unique serial number. The serial number is programmed into the sensor memory and it is always read during the measuring. The serial number also enables the measurement result to be allocated to the drawing when examining the results at a later time.

Calibration

The SolidRH SH series sensors for permanent installation are delivered factory-calibrated. If stored and installed in accordance with the instructions, the sensor calibration is valid for one year. Typically, sensors are not calibrated after installation, so the gradual weakening of measurement accuracy (see technical data) must be taken into consideration when examining the measurement results.


SOLIDRH SH3 - FEATURES

- **Measurement range 0 ... 100%RH, -40 ... 125°C**
- **Accuracy   2.5%RH,   0.2°C**
- **For the monitoring of surfaces during construction and after concrete has been covered**
- **Thin**
- **Electronic reporting**

TECHNICAL DATA

Humidity measurement

Measurement range[1]	0 … 100% rH
Measurement accuracy[2]	(see Figure 1) 2.5% rH (0 … 80% rH)
Reproducibility[3]	±0,2 %RH
Hysteresis	< ±1 %RH
Resolution	0,1 %RH
Linearity error	< ±1 %RH
Response time t63	< 4 s
Tk residual error	0.05% rH / K (0 … 60°)
Long-term stability	< 0.5% RH / a
Sensor type	capacitive polymer

Figure 1
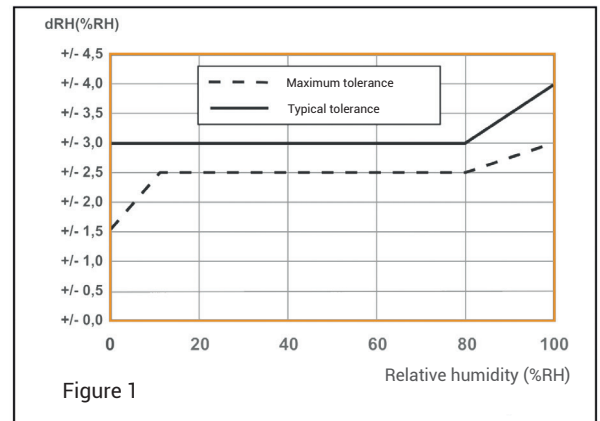
(1) The maximum condensation point is limited to 80 °C.

(2) Accuracy has been tested at 23 °C in the direction of rising relative humidity. The Tk residual error, linearity error or hysteresis have not been considered in the accuracy.

(3) Reproducibility has been measured in the same direction, and it does not consider hysteresis.
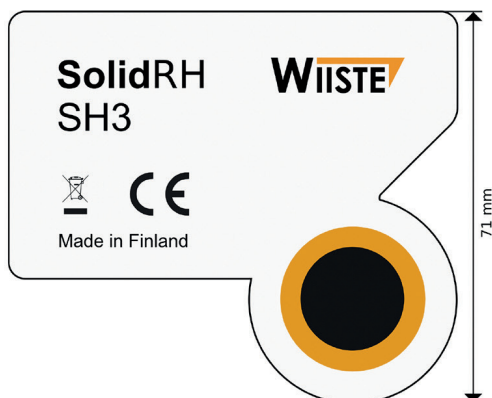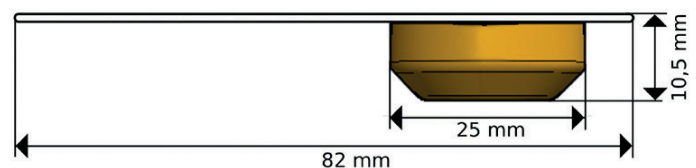
Temperature measurement

Measurement range	- 40 … 125 °C
Measurement accuracy	(see Figure 2) 0.2K (0 … 60 °C)
Reproducibility	±0.1K
Resolution	±0,1 °C
Response time t63	< 5 s
Long-term stability	< 0.05K / a
Sensor type	PTAT
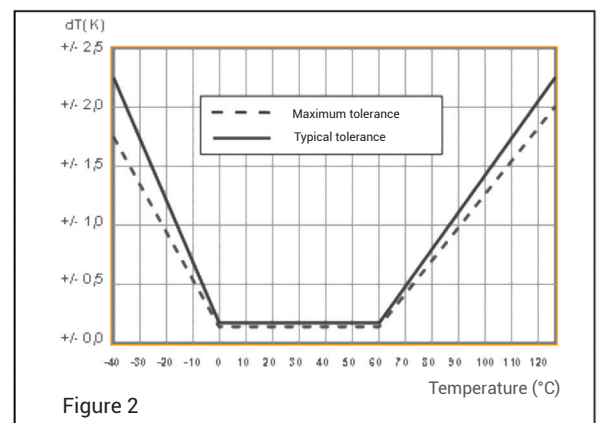
Figure 2

Mechanical properties

Dimensions	(see Figure 3)
IP protection class	IP65

SolidRH SH3

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CE
Made in Finland

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