

SH1-WAN INTERNET-INTEGRATED HUMIDITY SENSOR

Wiiste
IoT

Wiiste SH1-WAN is a Finnish new-generation sensor intended for measuring humidity and temperature of concrete. The sensor is installed in the concrete during casting. The SH1-WAN independently sends the measurement data to the internet, allowing for real-time remote monitoring of the humidity situation outside the site.

The features of the sensor developed for site conditions include automatic alerts for temperature, relative humidity and battery charge. The SH1-WAN enables the building's use-phase automatic monitoring during the lifetime of the battery (up to 10 years). After that, the data can be read with a hand-held scanner and uploaded to the Relia cloud service.

Precise W-Tip sensor

The SH1-WAN includes a new W-Tip sensor structure. Due to its significantly accelerated relaxation time, the sensor enables an accurate humidity measurement of the concrete straight after casting, even in fluctuating temperatures.

Reading the results on a browser

The sensor sends the humidity and temperature data to Relia cloud service in real-time. The browser-based Relia scales for different terminal devices, and its other features include filing, reporting and sharing the data, and planning the measuring on the ground plans.

Measurement depth

The sensors are delivered predimensioned and the measurement depth preprogrammed into the sensor memory. For further information on the selection of the correct measurement depth, refer to, for example, RT product information card RT 103333 "Betonin suhteellisen kosteuden mittaus" (Measurement of relative humidity of concrete).

Calibrating

The permanently installed sensors of the SolidRH SH series are delivered with factory calibrations. The calibration is valid for one year when stored and installed according to the instructions. The sensors are typically not calibrated after installation, therefore the diminished measurement accuracy occurring over time (see technical data) must be taken into account when examining the measurement results.



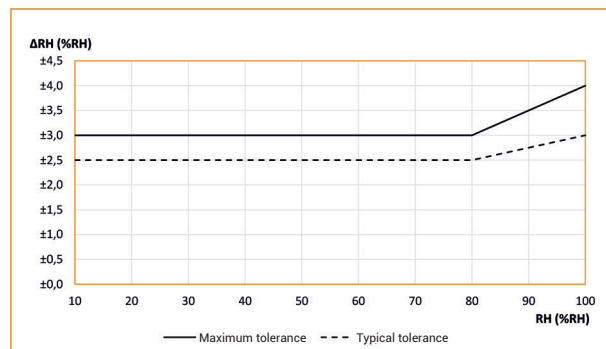
SH1-WAN – FEATURES

- Can be permanently installed in concrete during casting
- Wireless remote reading (LoRaWAN)
- Wireless close reading (SolidRH RD1)
- Battery operating time up to 10 years
- Fast Wiiste W-Tip sensor
- Measurement depth 15 to 70 mm
- Accuracy $\pm 2.5\%$ RH, 0.2°C

TECHNICAL DATA

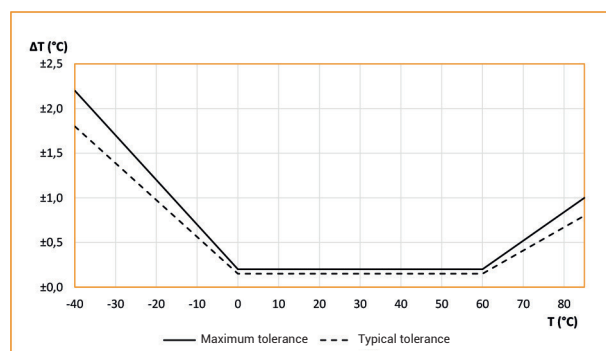
Humidity measurement

Measurement range	10 ... 100 %RH
Measuring accuracy	(see picture 1) $\pm 2.5\%RH$ (10 ... 80%RH)
Repeatability	$\pm 0.2\%RH$
Hysteresis	$< \pm 1\%RH$
Resolution	0.1%RH
Linearity error	$< \pm 1\%RH$
Response time (T10-90%)	$< 20s$
Transfer accuracy	$< 0.5\%RH/a$
Sensor type	Capacitive polymer



Temperature measurement

Measurement range	-40 ... 85°C
Measuring accuracy	(see picture 2) $\pm 0.2^{\circ}C$ (0 ... 60°C)
Repeatability	$\pm 0.1^{\circ}C$
Resolution	0.1°C
Response time (T10-90%)	$< 10min$
Transfer accuracy	$< 0.05^{\circ}C/a$
Sensor type	PTAT

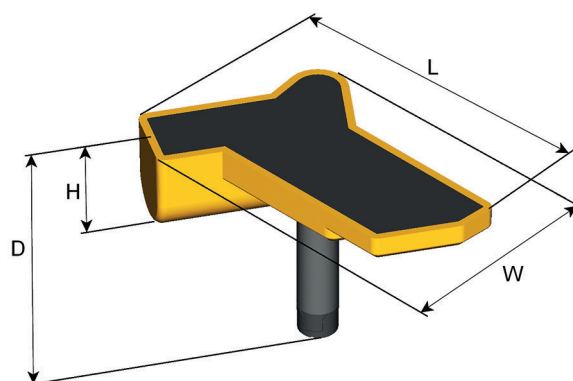


Electrical properties

Internal power supply	3.6V / 1.2Ah / 4.32Wh (Li-SOCl ₂)
Network connection	LoRaWAN
Transmitter power	25mW / 14dBm

Mechanical properties

External dimensions	(see picture 3)
L	86mm
W	55mm
H	23mm
D	$\geq 15mm$
Weight	38 ... 50g (D = 15 ... 70mm)
IP rating	IP68



Use and storage

Operating temperature range	-40 ... 85°C
Storage conditions	20 ... 30°C / 40 ... 60%RH

Must be kept away from sun light, dust, and chemicals and their vapours.



MANUFACTURING, SALES AND INFORMATION

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