

## SH4-WAN FOR STRUCTURES THAT ARE DIFFICULT TO ACCESS

Wiiste  
IoT

SH4-WAN is a wireless sensor for the measurement of relative humidity and temperature in walls, insulations, hollow-core concrete slabs, insulation space, behind a roof board and other fixed structures. SH4-WAN independently sends the measurements data to the internet, enabling the real time remote-monitoring.

The cable of the sensor is available in different sizes. SH4-WAN can be used on construction sites as a frost guard that alerts when the temperature drops too low. SH4-WAN also functions during power failures. The features of SH4-WAN include automatic alerts for temperature, relative humidity, and battery charge level. With SH4-WAN, the conditions in the building can be automatically monitored for the duration of the battery life (up to 10 years). After that, the data can be read with a handheld reader and transferred further to the Relia cloud service.

### Accurate W-Tip sensor

SH4-WAN features a new type of W-Tip sensor structure that guarantees highly accurate and fast results.

### Reading the results on a browser

The SH4-WAN climate meter sends the humidity and temperature data to the Relia cloud service in real time. The other features of the browser-based Relia service, which can be scaled for various data terminals, include data archiving, reporting, and sharing, as well as the design of measurements on layouts.

### 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.



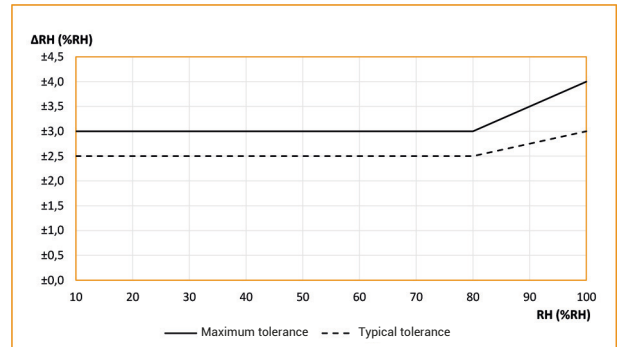
## SH4-WAN – FEATURES

- Works also during power failures and in sub-zero temperatures
- Wireless remote reading (LoRaWAN)
- Wireless on-site reading (SolidRH RD1)
- Selectable wire length

## TECHNICAL SPECIFICATION

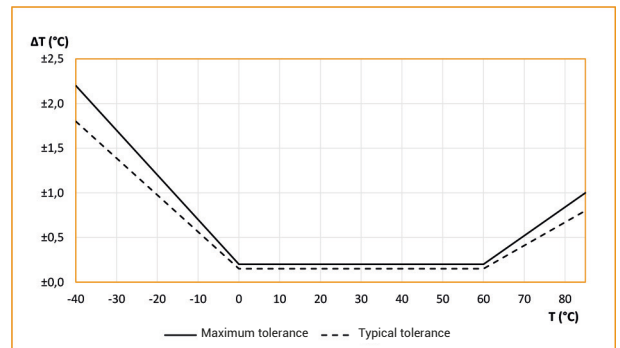
### Humidity measurement

Measurement range	10–100%RH
Measuring accuracy	(see Figure 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%)	$< 20$ s
Transfer accuracy	$< 0.5\%$ RH/a
Sensor type	Capacitive polymer



### Temperature measurement

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

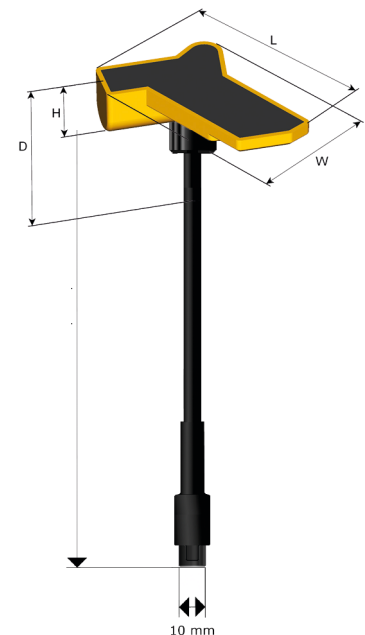


### Electrical properties

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

### Mechanical properties

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



### Use and storage

Operating temperature range	$-40 \dots 85^{\circ}\text{C}$
Storage conditions	20 ... $30^{\circ}\text{C}$ / 40 ... 60%RH

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



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