



TERACOM TSM400-1-TH 1 Wire Temperature and Humidity Sensor User Manual

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TERACOM TSM400-1-TH 1 Wire Temperature and Humidity Sensor



Short description

TSM400-1-TH is a temperature and humidity sensor that supports the 1-Wire protocol. A unique capacitive element is used for measuring relative humidity while the temperature is measured by a band gap sensor. Both sensors are seamlessly coupled to a 12-bit analog to digital converter. This results in superior signal quality. The TSM400-4-TH sensor is housed in a slim plastic enclosure. The bottom part of the enclosure is suitable for installation on standard flush-mounted/cavity wall boxes ø68mm, with installation openings on 61 mm.

Features

- LED indicator for status of communication
- Excellent long-term stability
- Firmware update with Teracom controller via the 1-Wire interface

Applications

- Environmental quality monitoring and assessment for offices.
- Humidity and temperature monitoring in building management systems.
- Smart ventilation systems.

Specifications

• Physical characteristics

Dimensions: 81 x 81 x 30 mm

Weight: 66 g

• Environmental limits

- **Operating temperature range:** -20 to 60°C
- **Operating relative humidity range:** 5 to 95% (non-condensing)
- **Storage temperature range:** -20 to 60°C
- **Storage relative humidity range:** 5 to 95% (non-condensing)
- **Ingress protection:** IP20

- **Power requirements**

Operating voltage range (including -15/+20% according to IEC 62368-1): 4.5 to 26 VDC
Current consumption: 5 mA@5VDC

- **Humidity measurements**

- **Accuracy (min):** ± 3.0 %RH (in 20 to 80 %RH range)
- **Accuracy (max):** ± 5.0 %RH (in 5 to 95 %RH range)
- **Resolution:** 0.1 %RH
- **Recommended operating range is 20% to 80% RH (non-condensing) over -10 °C to 60 °C**
Prolonged operation beyond these ranges may result in a shift of sensor reading, with slow recovery time.

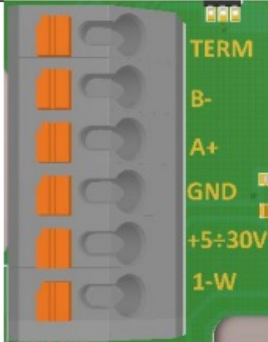
- **Temperature measurements**

- **Accuracy (min):** ± 0.4 °C (in -10 to $+60$ °C range)
- **Accuracy (max):** ± 0.6 °C (in -20 to $+60$ °C range)
- **Resolution:** 0.1 °C

- **Warranty**

Warranty period: 3 years

Pinout

	Pin	Description	UTP wires color
	1-W	1-Wire data	Green
	+5÷30V	Positive power supply	Orange
	GND	Ground (negative) supply	Green/White tracer Orange/White Tracer
	A+	Not used	
	B-	Not used	
	TERM	Not used	

Installation

It is strongly recommended to use UTP/FTP cables and daisy-chained (linear) topology for multiple sensors and keep the total cable length up to 30 meters.



“Star” topology can be used only as a last resort for up to 4 sensors and a total cable length of up to 10 meters.



Status indicator

The status of the device is shown by a single LED, located inside the box:

- If the LED blinks for a period of 1 second, the sensor works properly;
- If the LED blinks for a period of 3 seconds, there isn't communication with the controller;
- If the LED doesn't blink, there isn't a power supply.

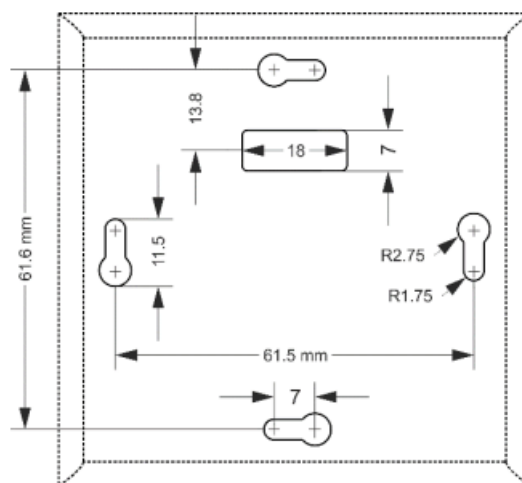
Installation tips

The location and the mounting position of sensors have a direct effect on the accuracy of the measurements. The tips below will ensure good measuring results:

- The sensor shall be installed about 1.2-1.4 m above the floor;
- To avoid solar radiation, the sensor should not be installed next to windows or directly in the sunlight;
- The sensors shall be installed in a place with sufficient air circulation.

1-Wire is a registered trademark of Maxim Integrated Products, Inc. It is strongly recommended to read Maxim's 1-Wire tips at <https://teracomsystems.com/wp-content/uploads/AN148.pdf>.

TSM400-1-TH sensor is intended for installation on a cavity wall box with 68mm diameter and 61 mm screw spacing.



Firmware update


The firmware of the sensor can be updated with any Teracom controller which supports a 1-Wire interface. For more details ask your dealer.

Recycling

Recycle all applicable material.
Do not dispose of regular household refuse.

TSM400-1-TH_R1.0 – September 2022

Documents / Resources

	<p>TERACOM TSM400-1-TH 1 Wire Temperature and Humidity Sensor [pdf] User Manual TSM400-1-TH, 1 Wire Temperature and Humidity Sensor, TSM400-1-TH 1 Wire Temperature and Humidity Sensor, Temperature and Humidity Sensor, Temperature Sensor, Humidity Sensor</p>
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