



# Teracom Product Name TSM400-1-TH Model Number TSM400-1-TH TSM400-1-TH 1 Wire Temperature and Humidity Sensor User Manual

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TSM400-1-TH 1-Wire temperature and humidity sensor Version 1.2 / March 2023



USER MANUAL

[www.teracomsystems.com](http://www.teracomsystems.com)

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## 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: 10 to 90% (non-condensing) \*
  - Long term drift typical: ±0.25 %RH/year, ±0.05 °C /year \*\*
  - Storage temperature range: -20 to 60°C
  - Storage relative humidity range: 10 to 90% (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: 10 mA@5VDC

- Humidity measurements

Accuracy (min):  $\pm 3.0$  %RH (in 20 to 80 %RH range)

Accuracy (max):  $\pm 5.0$  %RH (in 10 to 90 %RH range) \*

Resolution: 0.1 %RH

- Temperature measurements

Accuracy (min):  $\pm 0.4$  °C (in -10 to +60°C range)

Accuracy (max):  $\pm 0.6$  °C (in -20 to +60°C range)

Resolution: 0.1 °C

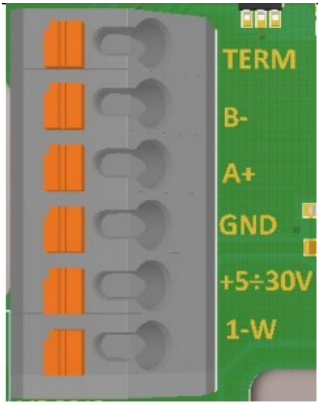
- Warranty

Warranty period: 3 years

\* 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.

\*\* Higher drift values might occur due to contaminant environments with vaporized solvents, out-gassing tapes, adhesives, packaging materials, etc.

## 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.

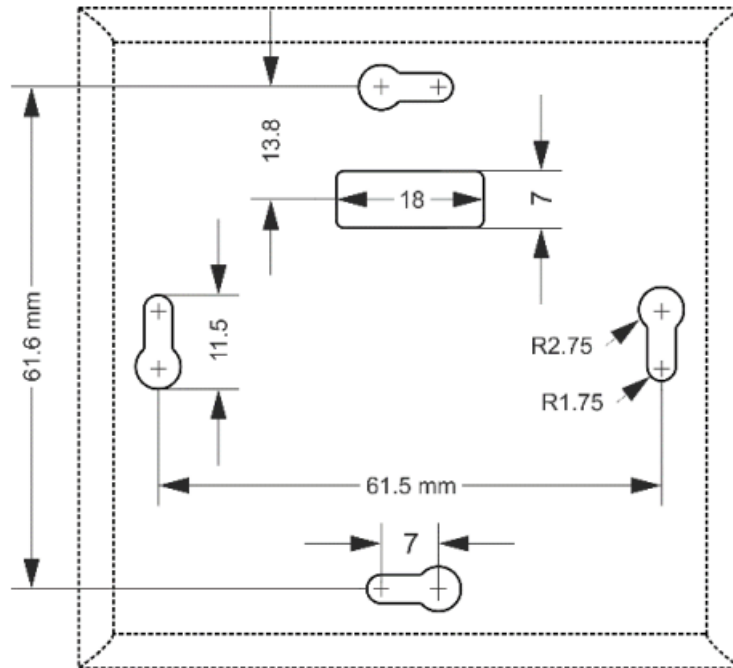
## Installation tips

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\_R1.2 – March 2023

## Documents / Resources



**[Teracom Product Name TSM400-1-TH Model Number TSM400-1-TH 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, Humidity Sensor