

TERACOM TSM400-1-CP 1-Wire Carbon Dioxide Multi-Parameter Sensor User Manual

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TERACOM TSM400-1-CP 1-Wire Carbon Dioxide Multi-Parameter Sensor



Product Information

Short description

- The TSM400-1-CP sensor is a temperature and humidity sensor that uses a 1-Wire interface to communicate with a controller.

Features

- Temperature and humidity measurement
- 1-Wire interface
- Linear topology for multiple sensors
- Recommended cable length up to 30 meters
- Can connect up to 4 sensors in star topology with a total cable length of up to 10 meters
- Status indicator
- Mounting tips for accurate measurements
- Firmware update capability
- Recyclable materials

Applications

- The TSM400-1-CP sensor can be used in various applications such as HVAC systems, environmental monitoring, and industrial control systems.

Product Specifications

- **Temperature measurement range:** -40°C to 85°C
- **Temperature measurement accuracy:** $\pm 0.5^{\circ}\text{C}$
- **Humidity measurement range:** 0% to 100% RH
- **Humidity measurement accuracy:** $\pm 3\%$ RH (10% to 90% RH), $\pm 5\%$ RH (0% to 10% RH, 90% to 100% RH)
- **Power supply:** 3V to 5.5V DC

Product Pinout

Description	A+	BTERM
1-Wire data	Green	Not used
Positive power supply	Orange	Not used
Ground (negative) supply	Green/White tracer	Not used

Product 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. If you want to connect more than one TSM400-1-CP sensor, please contact your supplier for technical guidance. For a single TSM400-1-CP sensor, the length of the cable between the controller and the sensor should not exceed 10 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 TSM400-1-CP sensor has a status indicator that shows the current status of the sensor.

Installation tips

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

- Mount the sensor in a place where it is not exposed to direct sunlight or other heat sources.
- Avoid mounting the sensor near air vents or other sources of airflow.
- Mount the sensor in an area where there is good air circulation.
- Avoid mounting the sensor in an area where it is exposed to moisture or water.

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.

Short description

TSM400-1-CP is a multi-parameter sensor that supports the 1-Wire protocol. The sensor measures the concentration of carbon dioxide and atmospheric pressure. Both basic sensor elements, for carbon dioxide and pressure, used in the device are digital. This ensures high measurement accuracy and longterm stability. The basic sensing element for atmospheric pressure is factory calibrated and it does not require any lifetime

recalibration. Automatic calibration is available for carbon dioxide measurements. TSH400-1-CP 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 61mm.

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
- CO2 pollution monitoring
- Smart ventilation systems

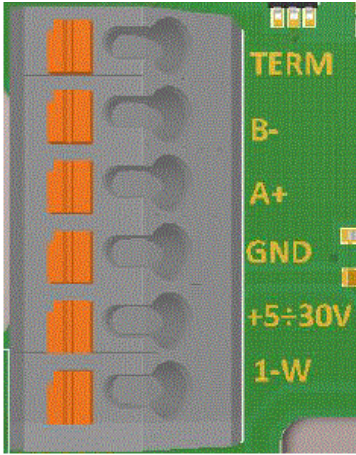
Specifications

- 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:** 25 mA@5VDC (Peak: 150 mA@5VDC)
- CO2 measurements
 - **Range:** 400 to 5000 ppm
 - **Accuracy:** ± (40 ppm + 5 %)
 - **Resolution:** 1 ppm
 - **Calibration:** Automatic, if the sensor is exposed to fresh air for more than 30 minutes.
- Pressure measurements
 - **Range:** 10 to 1200 hPa
 - **Accuracy (min):** ±1.5 (25°C, 750 hPa)
 - **Accuracy (max):** ±2.5 (-20°C to + 85°C, 300 to 1100 hPa)
 - **Resolution:** 1 hPa

Warranty

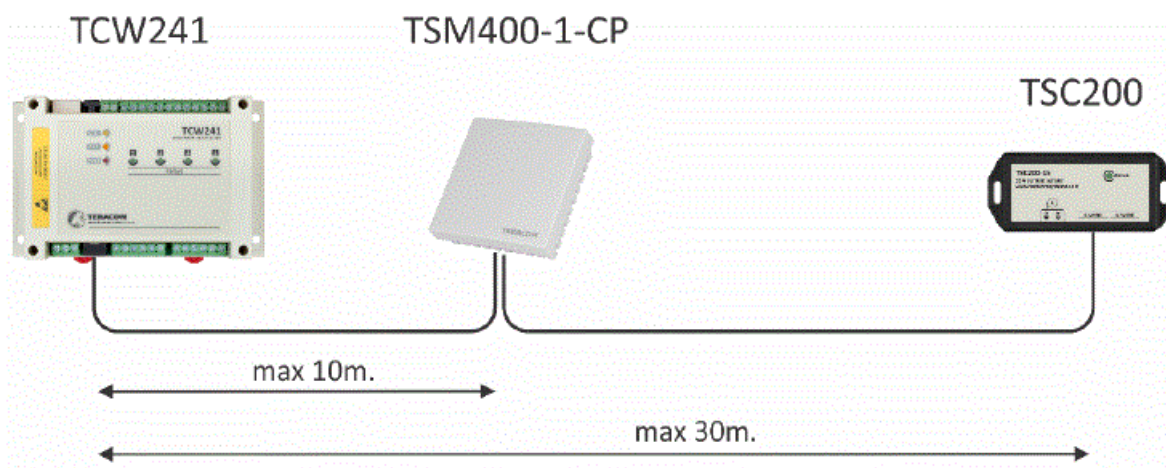
- **Warranty period:** 3 years

Pinout

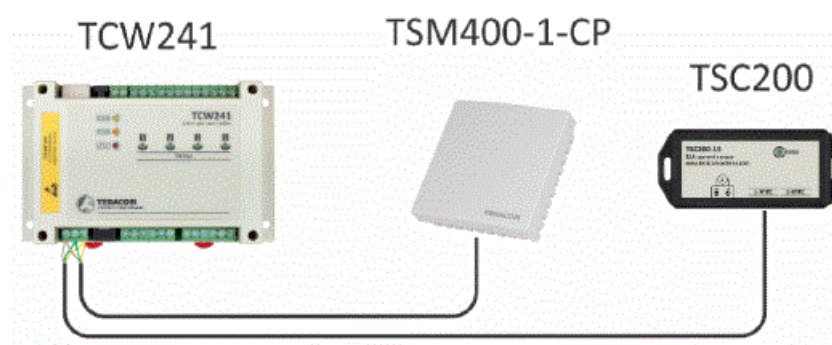
	Pin	Description	UTP wires color
	1-W	1-Wire data	Green
	+5÷30V	Positive power supply	Orange
	GND	Ground (negative) supply	Green/White tracer Orange/White Tracer
	A+	Not used	
	B-	Not used	
	TERM	Not used	

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.



Attention: Due to the high peak current, only one TSM400-1-CP sensor can be connected to a controller. The length of the cable between the controller and the sensor should not exceed 10 meters. If you want to connect more than one TSM400-1-CP sensor, please contact your supplier for technical guidance.



- “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.

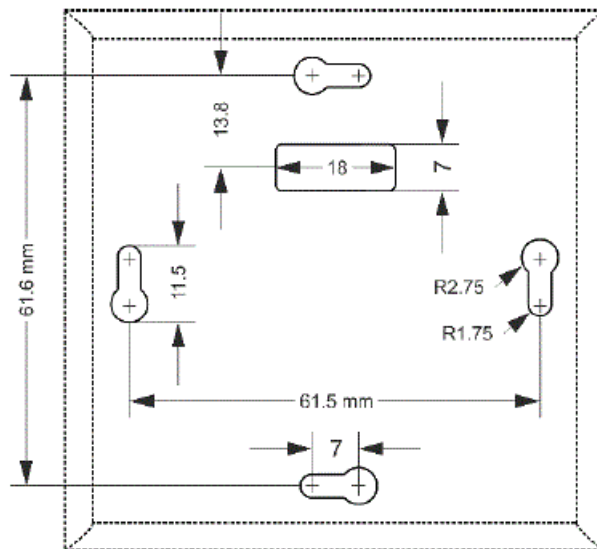
Status indicator

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-CP 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.


Contact

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- **PHONES:** (619) 616 7350
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Documents / Resources

	<p>TERACOM TSM400-1-CP 1-Wire Carbon Dioxide Multi-Parameter Sensor [pdf] User Manual</p> <p>TSM400-1-CP, TSM400-1-CP 1-Wire Carbon Dioxide Sensor, 1-Wire Carbon Dioxide Sensor, Carbon Dioxide Sensor, Sensor, TSM400-1-CP 1-Wire Carbon Dioxide Multi-Parameter Sensor , 1-Wire Carbon Dioxide Multi-Parameter Sensor, Multi-Parameter Sensor</p>
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Manuals+.