



control solutions

TERACOM



TSH230

Waterproof 1-Wire temperature and humidity sensor

Version 1.0 / June 2021

USER MANUAL

1. Short description

TSH230 is a waterproof temperature and humidity sensor with 1-Wire interface.

The sensor integrates basic elements plus signal processing and provides a fully calibrated digital output. A unique capacitive element is used for measuring relative humidity while the temperature is measured by a bandgap element. Both elements are seamlessly coupled to a 12-bit analog to digital converter. This results in superior signal quality.

The digital sensor is mounted in an IP65-rated enclosure with a sintered filter. This provides protection against dust and water jets. A cable gland with locknut and screwless terminal block allows easy cable installation.

2. Features

- 1-Wire interface;
- LED indicator for status of communication;
- Firmware update via the interface.

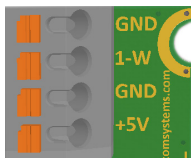
3. Applications

- Fleet management systems.
- Environmental quality monitoring and assessment.
- Humidity and temperature monitoring in building management systems.
- Humidity and temperature logging for mobile operator facilities, vineyards, greenhouses, etc.

4. Specifications

- Physical characteristics
Dimensions: 66 x 74 x 36 mm
Weight: 70 g
- Environmental limits
Operating temperature range: -20 to 60°C
Operating relative humidity range: 5 to 95% (non-condensing)
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.
Storage temperature range: -20 to 60°C
Storage relative humidity range: 5 to 95% (non-condensing)
Ingress protection: IP65
- Power requirements
Input Voltage: 4 to 6 VDC
Input Current: 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
- 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

5. Pinout



Pin Description

GND	Data ground
1-W	1-Wire data
GND	Power ground
+V	Positive supply

Corresponding UTP wires color

Green/White tracer
Green
Orange/White tracer
Orange

6. 1-Wire interface

1-Wire is a registered trademark of Maxim Integrated Products, Inc.

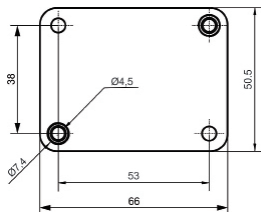
We strongly recommend read Maxim's 1-Wire tips at <http://www.maxim-ic.com/app-notes/index.mvp/id/148..>



7. Installation

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

- 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;
- Sensors shall be installed in a place with sufficient air circulation;
- For outdoor usage, the sensors should be installed with protection from direct rain.



8. Status indicator

The status of the device is shown by a single LED, located on the PCB:

- If the LED blinks on the period of 1 second, the sensor works properly;
- If the LED blinks on a period of 3 seconds, no communication with the controller;
- If LED doesn't blink, there isn't a power supply.

11. Recycling

Recycle all applicable material.

Do not dispose of with regular household refuse.

