

Data sheet

Temperature and humidity sensors TH109

Standard models

1. Features

The ruggedly designed temperature and humidity sensor head TH109 have been conceived for the use in the industry as well as in the building control technologies. It excels with the following features

- Measurement range for relative humidity: 20 to 90 % \pm 3 %, output: 0..5 VDC
- Measurement range for temperature: - 20 to 75 °C, \pm 0.3 °C at 0°C, output PT1000.
- Plastic or Stainless steel execution with a cable of 2m length.
- Exchangeable filter unity.

For special OEM applications the sensors can be calibrated and adjusted corresponding to the requirements of the customer.

2. Applications

The application field of these robust temperature and humidity sensors is very manifold. It is used most frequently in the following fields:

- Climatic and heat technologies
- Gardening and farm-technologies
- Building control technology
- Drying technologies

3. Description

The high quality sensors TH109 are available with plastics or stainless steel housing. Both models guarantee a high mechanical stability. In the stainless steel execution the sensor electronics are watertight protected, so that the highest industrial requirements on measurement precision, reproducibility and long term stability are fulfilled even under the most extreme operation conditions. The measurement of the relative humidity is performed with a capacitive sensor element of the newest generation which guarantees the highest precision and long term stability as well as an excellent chemical resistivity.

- OEM solutionsd



4. Order Information

Article No.	Identification
0555 1302	Humidity sensor in Plastic housing, output 0.5 VDC, length: 120 mm
0555 1303	Temperature and humidity sensor in plastic housing, output 0.5 VDC, Temperature: Pt1000, passive, length: 120 mm
0555 1304	Humidity sensor in stainless steel housing and stainless steel filter, output : 0.5 VDC, length: 170 mm
0555 1305	Temperature and humidity sensor in stainless steel housing and stainless steel filter, output: 0.5 VDC, Temperature: Pt1000, passive, length: 170 mm
0555 1306	Humidity sensor in stainless steel housing with HD-PE-filter, output: 0.5 V DC, length: 170 mm
0555 1307	Temperature and humidity sensor in stainless steel housing with HD-PE-filter, output 0.5 VDC Temperature: Pt1000, passive, length: 170 mm

5. Technical Data

Feature	Value
Measurement principle	Humidity: newest generation of Capacitive Polymer Temperature: resistor measurement with a Platin element
Measurement ranges	Humidity: 20% to 90 %, RH without condensation Temperature: -20 °C to 75 °C
Accuracy	Humidity ± 3 % in the whole measurement range Temperature: class B, $\pm 0,3$ °C at 0 °C, $\pm 0,7$ °C at 75 °C
Protection filter	HD-Polyethylene-filter, Pore size: 25 μ Stainless steel filter, Pore size: 40 μ m
Diameter of the measuring coin point	12 mm
Length of the housing	Plastic housing : 120 mm Stainless steel housing: 120 mm
Housing material	Plastic: ABS Stainless steel: 1.4571
Connecting plug	2m cable with free ends
Admissible working temperatures	-20 °C to +60 °C, up to 75°C for a short time
Storage temperature	-20 °C bis +60 °C
EMV-Noise emission	EN 61000-6-1 EN 61000-6-3
Voltage supply	8 to 12 Volt DC
Weight	About . 80 g to 110g (depending on the model)
CE Labelling (EMV)	IP65, excepting filter

Water precipitation on the filter or the sensor element can corrupt the response performance. Dirty filter should be rapidly exchanged.

5.1. Calibration

The sensors are all controlled before delivery and calibrated with ascription to the national Standards of the Physikalisch technischen Bundesanstalt PTB. Calibration certificate of ISO 9000 are available. The sensors have good long time stability and are in clean atmospheres maintenance-free. There is no need of new re-calibration.

For the control of the measurement accuracy through the end user we deliver on command reference cells with determined values of humidity. In order to assure the specification requirements we recommend such control shall be done in periodical intervals.

5.2. Accessories

Assembly accessories such as compression couplings or wall holder can be delivered on command.

For field use we recommend also the use of a PE-filter in combination with climatic protection housing. Please contact us in case of need.

5.3. Connection

The load of the VDC output shall not fall below 10 kOhm. The output impedance is about 50 Ohms. For the connection shielded coaxial cable shall be used. The shield must be earthed.

5.4. Plug pin configuration

Humidity sensor,

Article: 0555 1302, 0555 1304, 05551306

Analog output: 0 to 5 VDC

Color	Function	Description
brown	+UB	8 to 12 VDC
black	-UB	0 VDC
Red	free	
Orange	free	
Yellow	Feuchte	0 to 5 VDC
green	free	

Temperature / Humidity sensor,

Article 0555 1303, 0555 1305, 0555 1307

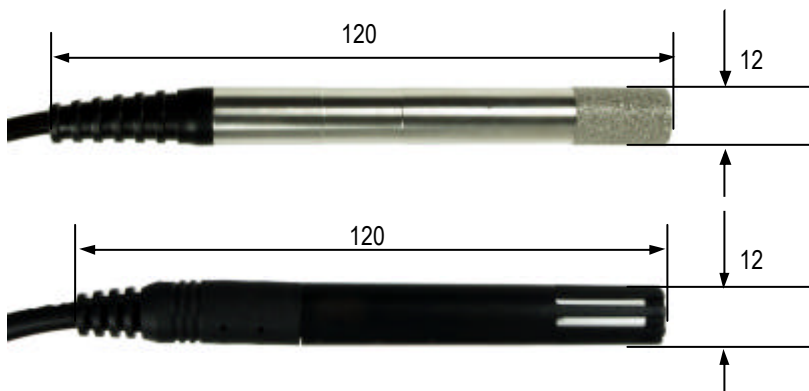
Analog output: 0 to 5 VDC

Temperature output : Pt1000

Color	Function	Description
brown	+UB	8 to 12 VDC
black	-UB	0 VDC
Red	free	
Orange	free	
Yellow	Humidity	0 to 5 VDC
green	Temperature	Pt1000

The Outputs Humidity and temperature shall be always related to the 0 V DC.

6. Sketch



The technical information given in this documentation has been verified and controlled carefully. They are thought to inform the user about the product and its applications possibilities. The data given here have not to be taken as an insurance of some properties. They have to be carefully investigated through the user relatively to the intended application