



USER MANUAL

8092

Humidity-Temperature Sensor



Features

- Precision measuring instrument for high-quality use in meteorology and industry
- Capacitive humidity measuring element
- Low maintenance
- Special resistance to air pollutants
- High long term stability
- For automatic weather stations in many climatic zones

Function

The sensor 8092 is a precision measuring instrument for measuring relative humidity and air temperature. The compact sensor is characterized by power-saving electronics and high measuring accuracy. The high-quality capacitive measuring element is reliably protected against air pollutants by a membrane filter.

The combined sensor 8092 is suitable for demanding applications with high accuracy requirements in meteorology and industry. If handled properly, the sensor will provide years of trouble-free operation and long-term stability, ensuring reliable measurements.

The sensor can be calibrated using calibration and adjustment software.

Warranty

Note the loss of warranty and exclusion of liability in the event of unauthorized access to the system. Modifications or interventions in the system components may only be carried out by qualified personnel with the express permission of LAMBRECHT meteo GmbH.

The warranty does not include:

1. Mechanical damage due to impact from outside (e.g. ice chipping, stone chipping, vandalism)
2. Effects or damage caused by power surges or electromagnetic fields that go beyond the standards and specifications referred to in the technical data.
3. Damage caused by improper handling, such as the use of incorrect tools, incorrect installation, incorrect electrical installation (e.g. reverse polarity) etc.
4. Damage that can be attributed to operation of the devices outside the specified conditions of use.



Putting into operation

For climate measurements, the sensor must be mounted at a representative place. The sensor can be installed in any position. The sensor should be protected from splash water and rain. The sensor shelter 8141.6 is recommended as a suitable weather and radiation shelter. Condensation and splash water do not damage the sensor, but lead to incorrect measurements until the filter is completely dry.

When used in closed rooms, avoid close contact with radiators, windows, and mounting on external walls. The probe should be protected against water splashes and rain. A suitable weather and protection screen, e.g. screen 8141.6 is recommended. It is recommended to unscrew the protective filter carefully only for functional testing. Make sure that the highly sensitive sensor element is not touched.

When remounting the sensor, it must be taken into account that the complete functionality of the sensor is only restored after it is completely dry.

In clean air, the sensor is very low-maintenance. Dust and other solid particles do not damage the humidity sensor element, but with increased dust infestation the dynamic behavior can be impaired.

If cleaning is necessary, the filter can be carefully unscrewed and washed out. The measuring element can also be cleaned of loose dirt by carefully blowing it off or carefully rinsing it with distilled water.

Damaging influences

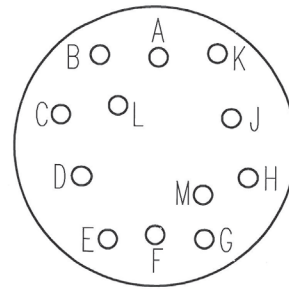
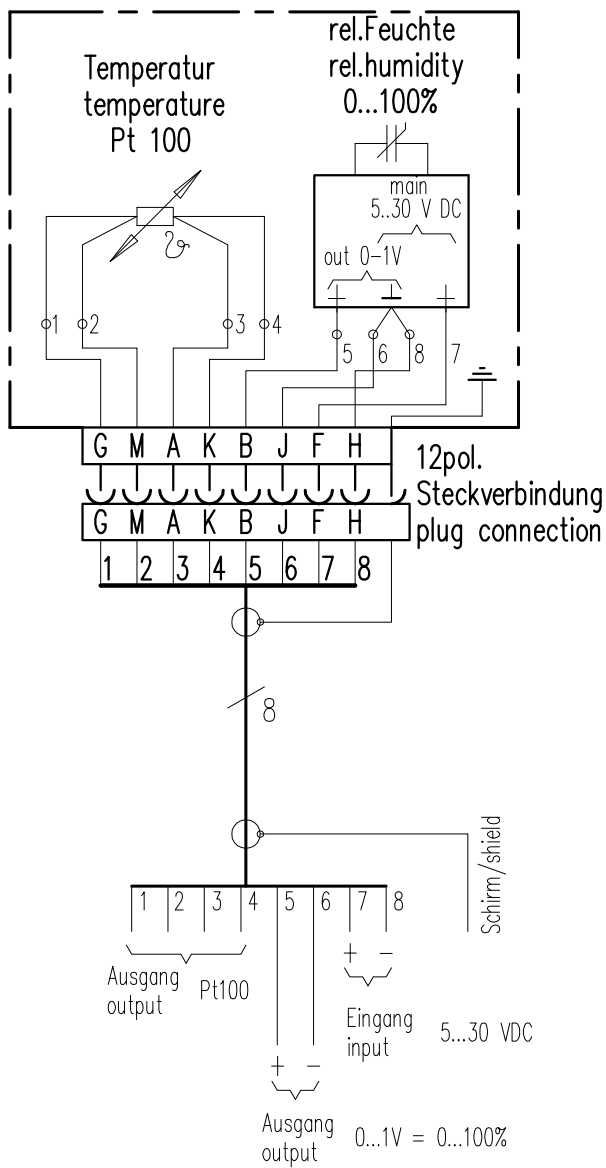
Depending on the type and concentration, aggressive and solvent-containing substances can cause faulty measurements and failures. Precipitation that forms a water-repellent film over the sensor (this applies to all humidity sensors with hygroscopic measuring elements) is harmful, such as resin aerosols, paint aerosols, smoking substances.

Electrical connection

! Incorrect voltage supplies and overloading of the outputs can destroy the sensor!

The sensor 8092 should be connected to an external power supply or signal processing with the open cable end (see wiring diagram).

Anschlußbild / wiring diagram



| Kabelbelegung / cable design | | | |
|------------------------------|-----------|-------------------------------|------------------------------|
| Kont. pin | Ader core | AWG Farbcode AWG colorcode | Aus-Eingänge In - outputs |
| G | 1 | sw - blk | J+ |
| M | 2 | br - brn | U+ |
| A | 3 | rt - red | U- |
| K | 4 | or - ora | J- |
| B | 5 | ge - yel | + Ausg. output |
| J | 6 | gn - grn | - 0...1V |
| F | 7 | bl - blu | + Versorg. supply |
| H | 8 | vio- vio | - 5...30 VDC |
| | ⊥ | GE/GN | Schirm / shield |

⊥ Gehäusemasse und | housing ground and
 ⊥ Elektronikmasse | electronic ground
 galvanisch getrennt | electrically isolated

Measurements

The sensor is adjusted after delivery and requires no further inspection after installation.

The sensor is ready for operation after only half a second after applying the supply voltage.



Before a reliable measurement can be carried out, the measuring elements and the medium to be measured must be in temperature and humidity equilibrium.

The necessary adjustment time, which can last up to 30 minutes, depends upon several factors:

- Size of the humidity and temperature deviation of probe and medium before start of measurement
- Change of the measured values during the adjustment time

The humidity measurement delivers a better picture of the progress of acclimatization since it reacts much more quickly and more sensitively than the temperature measurement. The 1/10 percent display is therefore very suitable as a trend display. If the display oscillates about mean value, then adjustment is completed.

Sources of error

Humidity measurements are very sensitive to various influences:

TEMPERATURE ERRORS

Due to too short adjustment time, sunshine during the measurement, heating, cold outer wall, air draft (e.g. fans), radiating hand, and/or body heat etc..

HUMIDITY ERRORS

Due to steam, water splashes, dripping water or condensation on the measuring element, etc.. However, reproducibility and long-term stability are not affected, even if the sensor has been exposed to high humidity or saturation with water vapor for a long time.

CONTAMINATION

Contamination of the humidity sensor can be largely avoided by using a corresponding filter. The filters must be cleaned or replaced periodically depending upon the degree of contamination of the measuring site.



The sensor is insensitive to chemicals, when they occur in normal concentrations (MAK values = maximum workplace exposure). At higher concentrations or possibilities of contact with liquid chemicals, the manufacturer must always be consulted!

Maintenance and service

TEMPERATURE

The probe is adjusted before delivery. A temperature readjustment is normally not required.

HUMIDITY

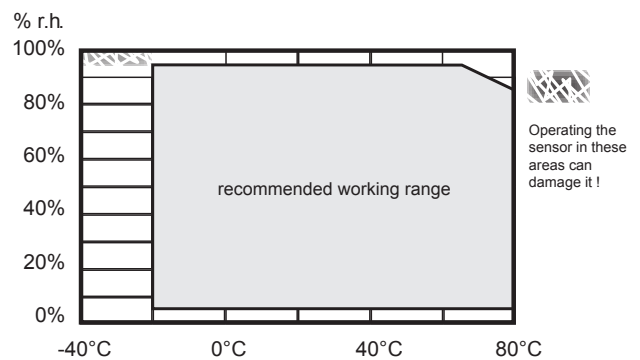
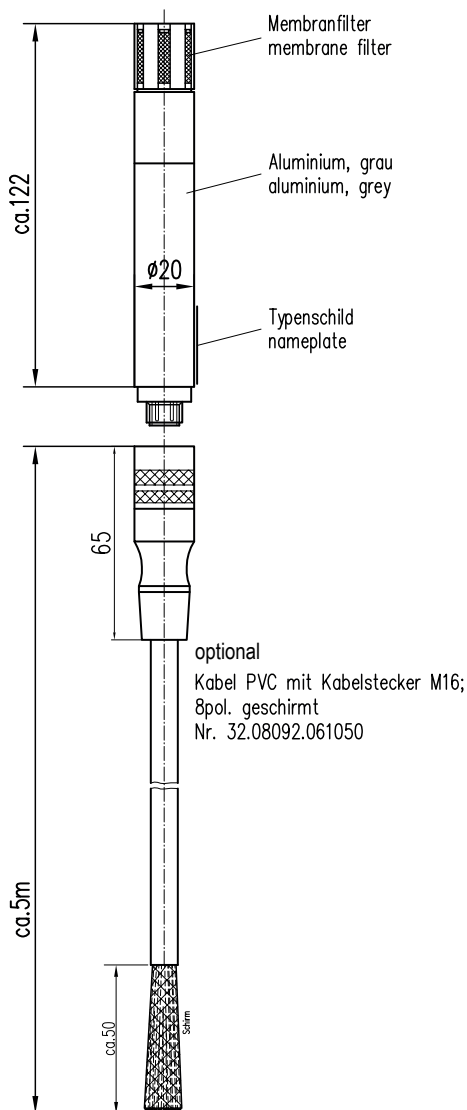
The probe is adjusted before delivery that the results in optimum accuracy over the full measuring range. To maintain this accuracy, we recommend that you inspect the sensor at least once a year.

CONTAMINATION

Contaminated filters can cause measuring errors and prolong the adjustment time. Depending upon the degree of contamination of the filter, this must be cleaned or if necessary replaced periodically. **In order not to damage the sensors, unscrew the filter for cleaning.**

Clean the filter with soapy water, alcohol or a cleaning agent suitable for removing contamination and rinse thoroughly with water. Do not screw the filter back onto the probe until it is completely dry.

Dimensioned drawing



Accessory

Sensor shelter (8141.6)
Id-No. 00.08141.600000

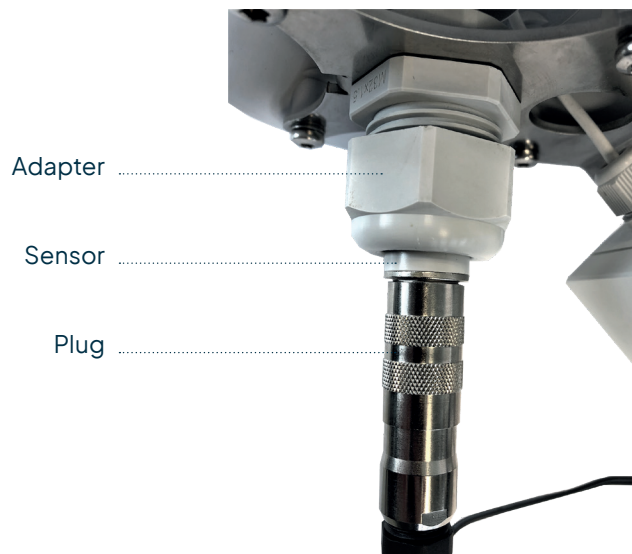
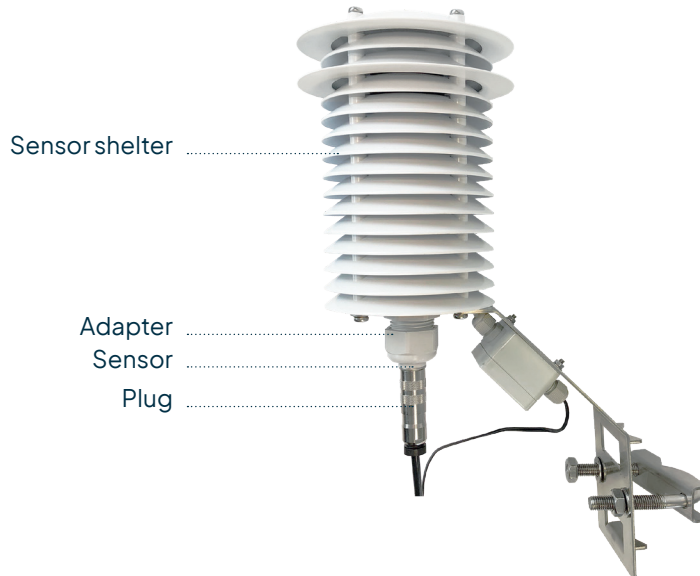
To avoid the effects of radiation and to protect the sensor against dirt, wind, and precipitation as well as for mounting on the mast.



Example image of a sensor shelter

MOUNTING THE SENSOR IN THE SENSOR SHELTER

The sensor must be mounted with the adapter in the sensor shelter so that the plug protrudes at the bottom (see photos).



Disposal

LAMBRECHT meteo GmbH is recorded and registered at the Stiftung Elektro-Altgeräte Register ear under:

WEEE reg. no. DE 45445814

In the monitoring and control instrument category, type of device: "Monitoring and control instruments for exclusively commercial use."

Within the EU



The device must be disposed of in accordance with European directives 2002/96/EC and 2003/108/EC (waste electrical and electronic devices). Waste devices must not be disposed of with household garbage! For environmentally friendly recycling and disposal of your waste device, please contact a certified disposal company for electronic waste.

Outside the EU

Please observe the regulations applicable to the proper disposal of waste electronic devices in each country.



Technical data

HUMIDITY-TEMPERATURE-SENSOR 8092

| | |
|----------------------------------|---|
| Id-No. | 00.08092.330402 |
| Measuring element Humidity | Capacitive |
| Measuring element Temperature | Pt100 1/3 DIN (DIN EN 60571); IEC 751 Class B ($\pm 0.1^\circ\text{C}$) |
| Range of application Humidity | 0...100 % r. h. |
| Range of application Temperature | -40...+85 °C |
| Measuring range Humidity | 0...100 % r. h. |
| Measuring range Temperature | -40...+85 °C |
| Accuracy Humidity | $\pm 1,5$ % r. h. at: 10...90 % r. h. ; at 23 °C < 10 % r. h. > 90 % r. h. ± 2 % r. h. Temperature influence TK (unequal 23 °C): < 0.02 % r. h. /K |
| Accuracy Temperature | ± 0.3 °C at -40...+85 °C |
| Long-term stability | Typical under normal conditions < 1 % r. h./year |
| Response time Humidity | < 10 s (without filter); at 1.5 m/s wind: < 1.5 min (with filter) |
| Min. air velocity | ≥ 0.5 m/s |
| Output signal Humidity | 0...1 VDC = 0...100 % r. F.; min. load resistance ≥ 2.0 k Ω |
| Output signal Temperature | Pt100 (4-wire circuit) |
| Supply voltage | 5...30 VDC |
| Current consumption | < 3 mA |
| Sensor protection | Membrane filter for outdoor applications; $\varnothing 20$ x 25 mm; M18 x 1 |
| Housing | Aluminum, lacquered, grey; IP 65; Sensor filter area IP30 |
| CE/EMC | EN 61326-2-3 |
| Protection class | Measuring head IP 54; plug IP 67 |
| Weight | Approx. 0.3 kg |

ACCESSORY (PLEASE ORDER SEPARATELY)

| | |
|------------------------|---|
| Id-No. 32.08092.061050 | Cable 5 m with cable socket |
| Id-No. 00.08141.600000 | Sensor shelter with natural ventilation |

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