



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
- Signal output humidity: 0...1 V (linear 0...100 %)
- Temperature measuring element: Pt100 1/3 DIN
- Signal output temperature: 4-wire-circuit Pt100
- For automatic weather stations in many climatic zones

Function

The sensor 8092.3 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 8092.3 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.

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 with a humidity standard. 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 behaviour 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, etc.

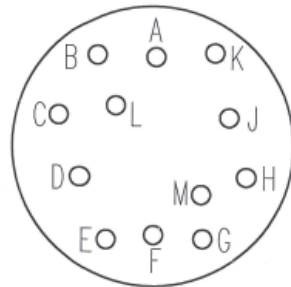
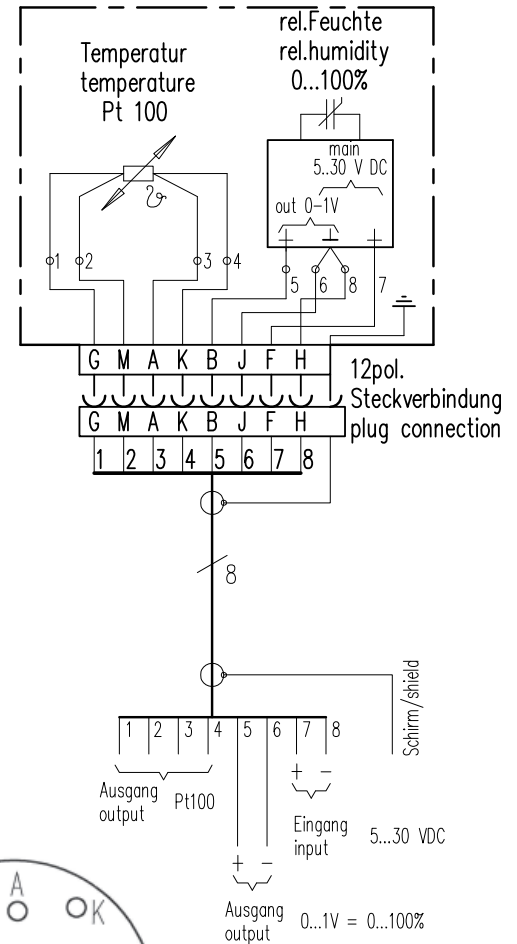
Electrical connection



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

The sensor 8092.3 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
⊥ Elektronikmasse
galvanisch getrennt

housing ground and
electronic ground
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 vapour for a long time.
- **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!

Warranty

Please note the loss of warranty and non-liability by unauthorised manipulation of the system. You need a written permission of LAMBRECHT meteo GmbH for changes of system components. These activities must be operated by a qualified technician.

The warranty does not cover:

1. Mechanical damages caused by external impacts (e. g. icefall, rockfall, vandalism).
2. Impacts or damages caused by over-voltages or electromagnetic fields which are beyond the standards and specifications in the technical data.
3. Damages caused by improper handling, e. g. by wrong tools, incorrect installation, incorrect electrical installation (false polarity) etc.
4. Damages which are caused by using the device beyond the specified operation conditions.

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. Only use original humidity standards for checking.



The humidity standards are not normally dangerous to humans, but can irritate sensitive skin. In the case of contact with the skin or the eyes, the solution must be washed out immediately and thoroughly with plenty of water. The humidity standards must not be consumed!

The calibration device for calibration and adjustment and the required humidity standards are available on request.

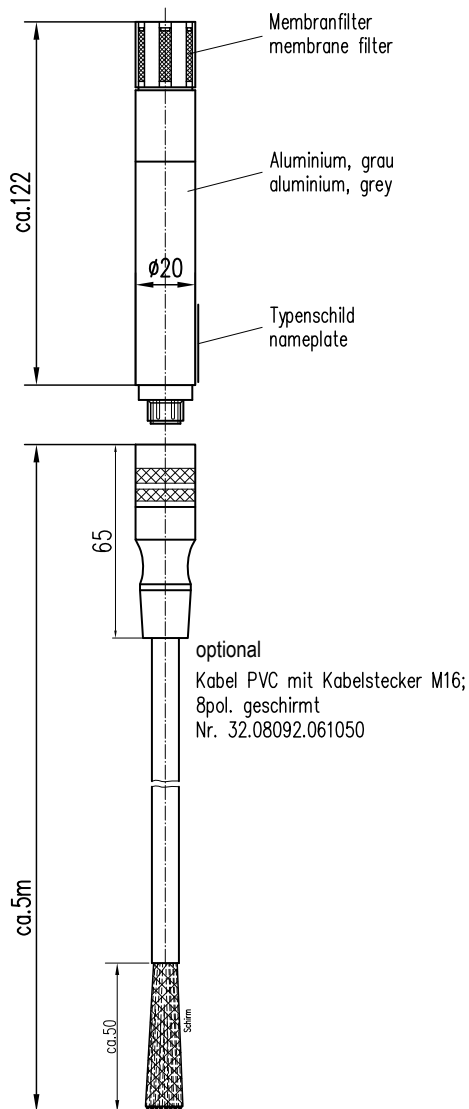
Contamination

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.

Dimensional drawing



Accessories

Protection screen (8141.6)

Id-No. 00.08141.600000

For the protection of the sensor against influences of radiation, wind and temperature as well as for the mounting at a mast.



Example figure of a protection screen

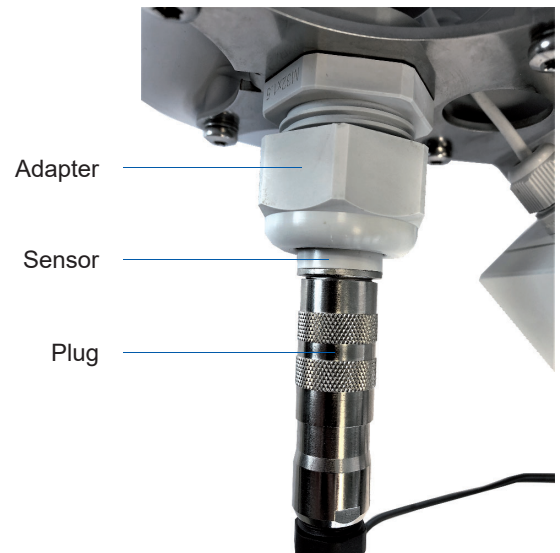
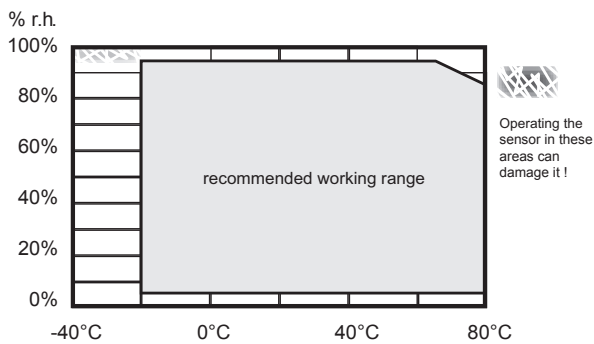
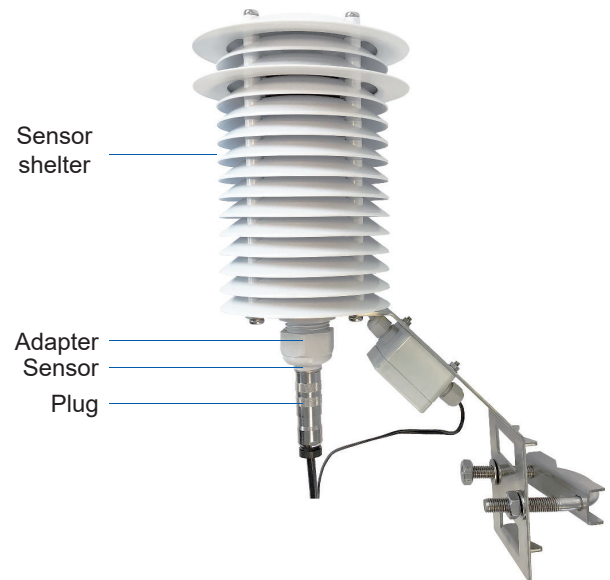
Cable 5 m with cable socket

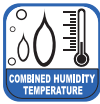
Id-No. 32.08092.061050

Further accessories on request, e. g. Humidity standard

Mounting of the sensor in the shelter

The sensor must be fixed in the shelter using the adapter so that the plug protrudes from the bottom (see photos).





Technical data

(8092.3) Humidity-Temperature Sensor

Id-No. 00.08092.330402

Measuring elements

Humidity: Capacitive
Temperature: Pt100 1/3 DIN (DIN EN 60571)
IEC 751 Class B (± 0.1 °C)

Ranges of application

Humidity: 0...100 % r. h.
Temperature: -40...+85 °C

Measuring ranges

Humidity: 0...100 % r. h.
Temperature: -40...+85 °C

Accuracies

Humidity: ± 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
Temperature: ± 0.2 °C at -27...+70 °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 signals

Humidity: 0...1 VDC = 0...100 % r. h. • Min. load resistant ≥ 2.0 k Ω
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: Aluminium · 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



Quality System certified by DQS according to
DIN EN ISO 9001:2015 Reg. No. 003748 QM15

Subject to change without notice.

8092.3_b-de.indd

20.18