# Technical information on digital humidity sensor FHxD 46-Cx

## Storage, operation and transport of capacitive humidity probes
## Influence of the environment on the humidity measurement

In order to be able to measure the ambient humidity, the capacitive sensor elements have permanent contact with the environment (regardless of whether the sensor is measuring or just being stored).
This has the consequence that all in the environment present

- Gases
- Pollutants
- Evaporation from packaging
- Very high or very low humidity
- UV radiation
- Heat, cold
- Dust or dirt

can lead to changes in its characteristic curve.
For this reason, humidity sensors should be calibrated at regular intervals. A factory adjustment can usually bring the sensor within its tolerance limits.

## Specification of humidity measurement accuracy for FHxD 46-Cx

The same sensor element has been used for FHxD 46-Cx digital humidity sensors since the introduction of this sensor type.

The accuracy of the sensor element specified in the technical documentation of the sensor manufacturer refers only to its characteristic curve. Humidity sensors also exhibit hysteresis behavior. The proportion of hysteresis is also documented in the technical documentation of the sensor manufacturer. The overall accuracy of the sensor is made up of the specifications for the accuracy (characteristic curve) and hysteresis. This value also serves as the tolerance limit for conformity assessments.

For humidity measurement with FHxD 46-Cx applies the specification, published in the data sheet on https://www.ahlborn.com (version as of 06.10.2022).
The specification applies to new sensors and is also used for recalibration of used sensors.


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# Handling instructions FHxD 46-Cx

• Protection against electrostatic discharge (ESD)
• Use only in ESD-protected areas (Electrostatic Protected Area, EPA for short)
• Outside EPAs Transport in ESD packaging (see point Packaging)
• No contact with volatile chemical substances (solvents and other organic compounds)
• Particularly high concentrations and long periods of contact with these must be avoided
• Protection from dust and other contaminants

## Change of the characteristic curve of the sensor by:

**Selection of organic compounds (partially irreversible):**
• Ketene
• Acetone
• Ethanol
• Isopropanol
• Toluene (solvent)

Components of:
• Epoxy resins
• Adhesives
• Bonding agents
- These in turn are components of packaging materials that can outgas

**Selection of inorganic compounds (partially irreversible):**
• HCl (Hydrogen chloride)
• H2SO4 (Sulfuric acid)
• HNO3 (Nitric acid)
• NH3 (Ammonia)
• High concentration H2O2 (Ozone)
• Bases with pH >9

• Contact with detergents
• Poor ventilation of the measuring environment (avoidance of high concentrations of volatile substances)


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## Packaging and storage

• Temperature: 10°C - 50°C
• Humidity: 20 - 60%rH
• Metallized PE film as packaging (Ströbel „Topshield“ Shielding bags and sachets as reference)
• Untreated paper, cardboard and plastic boxes (PE, PET, PP) also recommended
• Do not use antistatic PE bags (light blue, pink and light pink color)
• Avoid stickers in contact with sensor or keep size minimal
• Avoid packaging with strong odor (indicator of harmful additives)

## Reconditioning

If the sensor is exposed to extreme conditions and solvent vapors, it may be possible to recondition it. This procedure can eliminate the offset that has occurred.

Procedure:
1. Heating: 85°C at <5%rH for >10h
2. Re-humidification: 20 - 30°C at approx. 75%rH for 12h (can be prepared with saturated NaCl solution).
A new calibration is mandatory to confirm the data


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