

Digital sensors for humidity, temperature, dew point FHAD46x for measuring the equilibrium moisture content in building materials

10/2013 • We reserve the right to make technical changes.

Measuring the equilibrium moisture content

A material's equilibrium moisture content is that level of relative humidity prevailing in the ambient atmosphere at which the material neither gains nor loses moisture.

All construction materials may - to a greater or lesser degree - attract water vapor from or emit water vapor to the ambient air. They are hygroscopic; i.e. they attempt to establish an equilibrium in terms of moisture content with respect to the ambient air. The construction material and the ambient air, depending on their respec-

tive temperatures, establish an interactive balance between the adsorption of and the emission of water vapor from / to one another. Each material thus has, depending on temperature and on atmospheric humidity, a certain moisture content level (measured in water as a percentage of overall weight).

In the state of equilibrium the relationship between the water content and the equilibrium humidity of a material can be displayed graphically as a curve, the so called moisture sorption isotherm. The sorption

isotherm for the material in question indicates per atmospheric humidity value the corresponding water content value at a given constant temperature. If the composition or quality of the material changes then its sorption behavior - and thus its sorption isotherm - also changes. Given the great complexity of sorption processes these isotherms cannot be determined by calculation; they have to be recorded experimentally.

Digital sensors for humidity, temperature, air pressure FHAD46-0, uncovered sensor element, with ALMEMO® D6 plug.



FHAD460
Uncovered sensor element: Smallest design, short response time

Description and technical data see page 08.06

Digital sensor for temperature, atmospheric humidity, and atmospheric pressure FHAD46-2 Version in plastic, with slotted sensor cap with ALMEMO® D6 plug



FHAD462
Sensor element enclosed in slotted sensor cover, compact design, short response time



FHAD462 Option with plug-in extension tube



FHAD462L00

Description and technical data see page 08.06

DAkKs or factory calibration KH9xxx, temperature, humidity, and KD92xx, atmospheric pressure, for digital sensor (see chapter Calibration certificates).

DAkKs calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.