



Maintenance instructions

for humidity measuring instruments with plastic measuring element.

Description of the measuring element

The Polyga® humidity measuring element consists of several synthetic fabric bands each with 90 individual fibres with a diameter of 3 µm each. In their untreated state, the synthetic fibres are not hygroscopic - their hygroscopic properties are acquired by means of a special process which allows the synthetic fibres to absorb moisture. The molecular structure of the individual fibres is arranged lengthways. When water is absorbed, the molecular chains alter, the outward result being a change in length. A loss of water has a converse effect on the fibre. If the fibre is in equilibrium with the air humidity, there is neither absorption nor a loss of water. The length at this point serves as a gauge for the relative humidity.

If the measuring element is exposed to an air humidity of 100%rh, a film of water forms on the surface of the element (dew point). The physical effect is one as if the measuring element had been immersed in water. The measuring element is saturated. An ideal fixed point is thus attained for adjusting or controlling the sensors. The measuring element is waterresistant. Once administered to the Galltec measuring element, the hygroscopic properties remain stable, the sensitivity remaining until it becomes destroyed by extraneous influences. Regeneration as with hair measuring elements is not necessary, but does not cause any harm.

Influence of dirt

In clean air the humidity measuring element is maintenance free. Aggressive media and media containing solvents can result in faulty measurements or damage the sensing element. Like with almost all humidity sensors, deposits are damaging. These deposits eventually form a water-impermeable film on the surface of the sensors. Consequently, such sensors cannot be used for wood drying, for example, because resin aerosols contained in the surrounding air are deposited on the measuring element, depending on the type of wood to be dried. The same is also true for paint drying installations which contain paint aerosols in the surrounding air.

The water resistance of the Galltec humidity sensor permits cleaning in water. This is an important advantage when the sensors are used in extreme atmospheres.

Cleaning instructions

for humidity sensors, hygrometers in duct design and all shank instruments. FG80..., TFG80..., HG80, HG80-2.

The humidity measuring instruments possess a perforated sensor tube. The humidity measuring element and the temperature measuring element are located inside the sensor tube. The humidity measuring element is located axially, while the temperature measuring element is located at the side between the perforation bores at the top or bottom.

Measuring instruments with Pt100 glass measuring resistors can be immersed in water. Other temperature sensors, in particular semiconductor sensors or customer-specific temperature sensors should not come into contact with water. In cases of doubt, please inquire. The measuring elements are designed for use in unpressurized air (gases).

The measuring accuracy depends on the degree of soiling of the element. The humidity measuring element in particular loses its hygroscopic characteristics if the surface is covered by grease, soot, smoke residue, paint, resins etc. Proper functioning can be restored by cleaning the elements, provided they have not been damaged by acids, alkalis or other aggressive substances.

Cleaning procedure for duct devices

1. Immerse the sensor tube in a vessel containing clear water (20°C) and flush out the dirt residue by gently moving the tube around for some seconds. In case of deposits containing fat it is recommended to add a mild-action detergent to the water.

Do not brush or treat with any other cleaning utensils. Only the sensor tube should be immersed for some seconds - not the housing.

The sensor tube is open to the housing interior (0.8mm hole)

2. As mild detergents are known to contain chemical substances, rinse carefully after cleaning. Cleaning residue will impair the measured result.

3. Air drying. Where a measuring element is moistened with water, the device indicates 100% relative humidity. If necessary, it is possible to carry out sensitive recalibration at the adjusting spindle at the end of the sensor. This should only be done where there are large deviations. Slight movement of the adjusting spindle of a wet element causes the measured value in the dry area to be badly out. Here, there is an intensifying effect of the linearisation (factor 6). Indications of 98..100% relative humidity at the wet element are adequate.

The accuracy in the dry area must be determined under normal climatic conditions.

The measuring element should not be dried with warm or hot air (hair dryer).

Long cleaning should be avoided, short immersion is sufficient.

Check at 100%RH

Dip the probe tube completely into clear water briefly (1-2 seconds). The end value is set after approx. 10 minutes. This must be close to 100%RH.

The hygroscopic properties of the sensor change if it is immersed in water too long. However, the original measured values return after a certain period of time (in some cases up to a few months). Therefore, avoid cleaning it too long or dipping it too long in water.

Cleaning instructions for room devices

for humidity sensors in room design, FG120..., TFG120..., HG120 (-2), HGMini and devices with internal measuring element.

The above-described characteristics also apply to these devices.

1. Unscrew cover cap. Clean the cord shaped measuring element with a soft paint brush and clean water. Do not use cleaning agent, because this cannot be flushed out.

It is important that no water can reach the other components, particularly micro-switches, terminals, PC boards and potentiometers.

2. Air drying.
Do not use warm or hot air (hair dryer).

Affects recalibration. See also the section for duct equipment headed Cleaning Instruction.

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Further detailed information is contained in the description "HUMIDITY SENSOR IN ACCORDANCE WITH THE ABSORPTION PRINCIPLE".