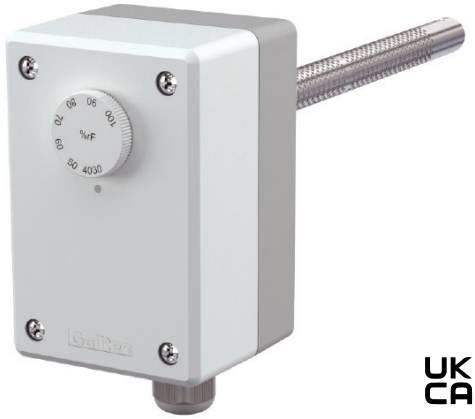


Product info sheet Humidistat

with Polyga®- humidity measuring element **HG80**
with one or two changeover contacts **HG80-2**
with inner rotary knob **HG80i/-2i**
or set point protection **HG80vs**

Application

The humidistat type HG80 is used as an on-off controller to control the relative air humidity in air ducts of air conditioning units and climatic cabinets, and to control air humidifying and dehumidifying. Other areas of use are storage of foodstuffs and luxury foods, cooling rooms for fruit and vegetables, greenhouses for gardening use, the textile industry, the paper and printing industry, film industry and hospitals.

Technical Data

measuring element ..... Polyga®-measuring element, water resistent, washable
measuring accuracy
for measuring range > 50 % RH ..... ± 3.5 % RH
for measuring range < 50 % RH ..... ± 4 % RH
medium temp. coefficient
rel. to 23 °C ..... ≤ ± 0.2 % RH/K
typ. time constant t_{63} at v = 2 m/sec ..... 120 sec
adjustment ..... at average air pressure 430 m NN
measuring medium ..... air, pressureless, non-aggressive
control range ..... 40...90 % RH
switching differential ..... 4...8 % RH
switching distance between
HG80-2 microswitches, adjustable ..... 0 ... + 15 % RH
life time ..... > 100.000 breaking cycles

microswitch with silver contact

max. breaking capacity
alternating current
ohmic load ..... 15 A 250 V AC
inductive load (power factor > 0,8) ..... 2 A 250 V AC
direct current, exp.
..... 0.25 A 250 V DC
..... 0.5 A 125 V DC
min. switching current ..... 100 mA[1)]

microswitch with gold contact

max. breaking capacity ..... 1 A 125 V AC
min. switching current ..... 1 mA[1)]

[1)] not relevant when switching at high-resistance loads (> 10 kOhm) for example logical levels.

Please observe the notes on voltage.

allowable storage temperature ..... - 30 ... + 60 °C
allowable operating temperature ..... 0 ... 60 °C
allowable air speed ..... 8 m/sec
with gauze protection (order no. 20.014) ..... 15 m/sec
with PTFE filter (order no. 23.063) ..... 15 m/sec
housing ..... ABS light grey
type of protection (external rotary knob) ..... IP 50
type of protection (inner rotary knob HG80i, HG802i) IP64
sensor length, material ..... 220 mm, high-grade steel
fixing ..... slots in the housing base for duct mounting
(ord. no. 20.009) ..... console for wall mounting
mounting position ..... sensor vertically downwards or horizontally
connecting terminals ..... for conductor cross sections 1.5 mm²
cable connection ..... via twist nipple M20 x 1.5
weight HG80 ..... ca. 360 g
HG80-2 ..... ca. 390 g

Description of the Humidistat

The humidity measuring element, produced by Galltec under the name Polyga®, consists of several synthetic fabric bands each with 90 individual fibres with a diameter of 3 µm. A special process gives the fibre hygroscopic properties. The measuring element absorbs and desorbs humidity. The swelling effect, which is predominantly in a lengthways direction, is carried via a suitable lever system to a microswitch with an extremely small switching path. The measuring element reacts quickly and precisely to the change in air humidity. By adjusting the setpoint value control knob, the lever system is engaged so that when the set air humidity is reached the microswitch is activated.

In the case of the humidistat type HG80-2, a second microswitch is positioned parallel to the first microswitch. After the housing cover has been removed, the second set value can be finely adjusted at the microswitch lever using a screwdriver. The switch point of the second microswitch is connected to the switch point of the first microswitch. The switch distance (neutral zone) can be set from 0 % RH to + 15 % RH.

The fan shaped measuring element is protected by a perforated sensor tube and is exposed to the housing. The humidistats are designed for pressureless systems. The mounting position should be chosen such that condensed water cannot get into the interior of the housing. The preferred mounting position is with the „sensor vertically downwards“ or „sensor horizontal“ (see diagram on the reverse). In the mounting positions described above, a blanking plate in the sensor tube with a 0.8 mm diameter hole will prevent water getting in.

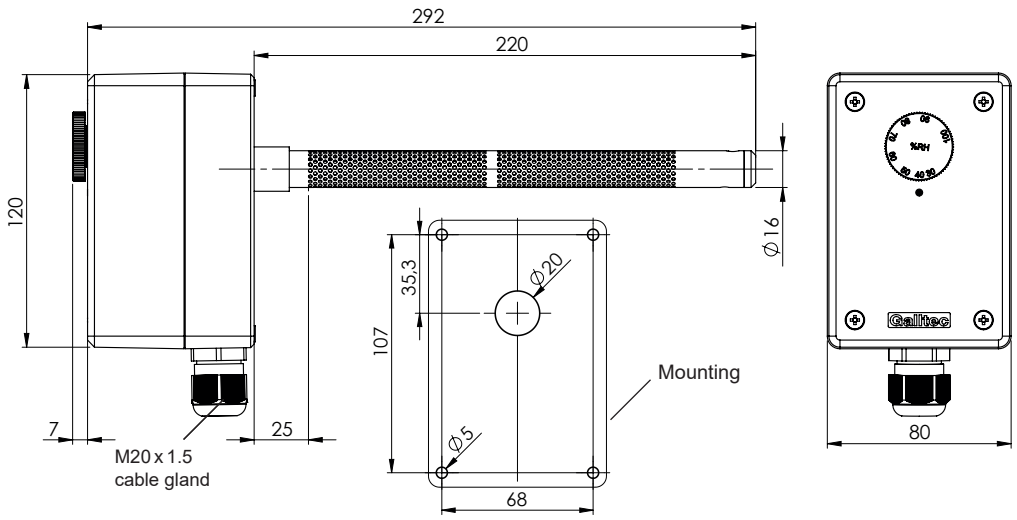
Applied directives / standards

low-voltage directive 2014/35/EU
EMC directive 2014/30/EU
DIN EN 60730-1
DIN EN 60730-2-13
DIN EN 45545-2 (HL3) For installation in the interior of rail vehicles, a technical cabinet in accordance with EN 45545-2 4.2. h.) is required

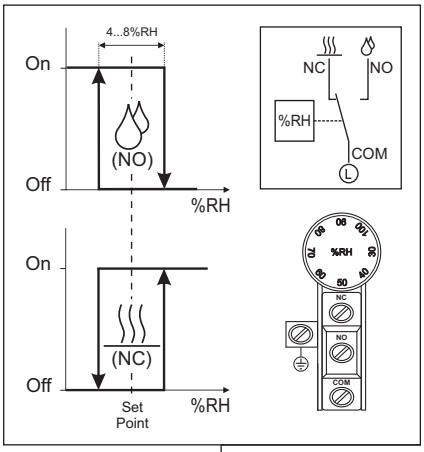
Notes on voltage

The measurement location of the humidity controller must be selected such that there is no build-up of condensate on or in the device. There is a risk of voltage arcing in the event of water condensation on the microswitch or connecting terminals which might destroy the humidistat. Particularly operating with a voltage higher than 48V may endanger people. The humidity controller must be used below 95 % RH.

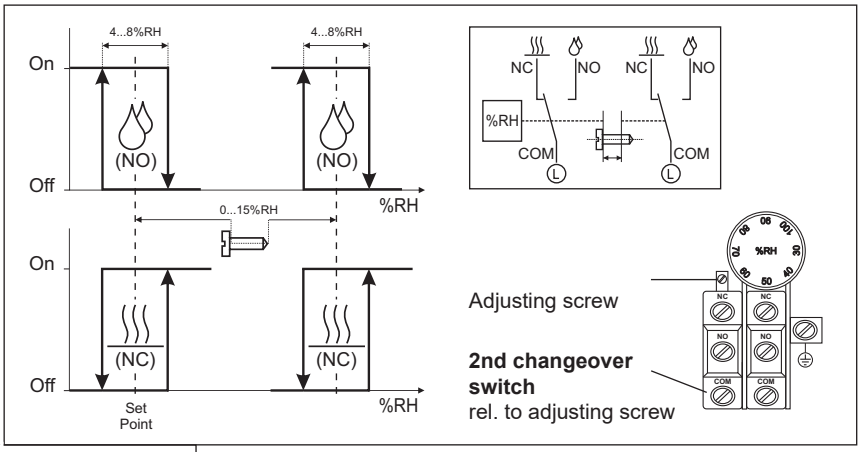
Dimensions diagram



HG80



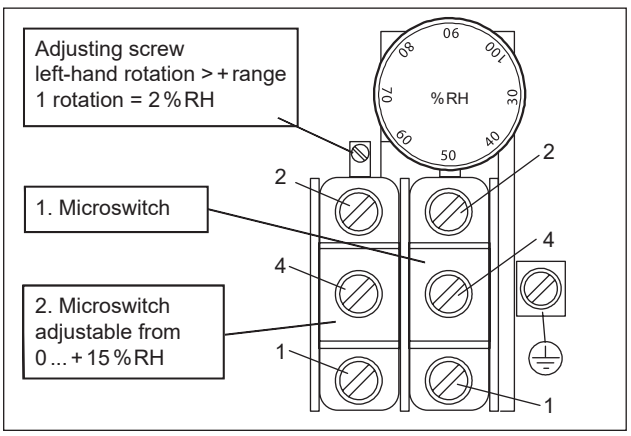
HG80-2



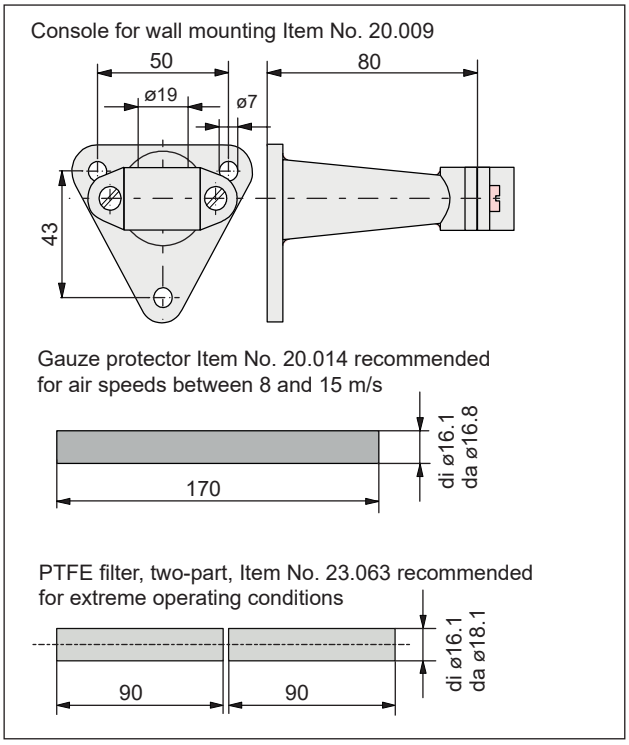
The electrical connection must only be carried out by properly qualified personnel

Adjusting the 2nd setpoint value

The humidistats HG80-2(i) are set by the factory such that the 2nd setpoint value is 6 %RH higher than the 1st setpoint value.
The neutral zone (distance between the 1st and 2nd setpoint value) can be adjusted after removing the housing cover using a screwdriver. If turned to the left, the 2nd setpoint value goes up (from +0 %RH to +15 % RH relative to the 1st setpoint value).
The neutral zone can be read using the rotary knob.



Accessories - Dimensions



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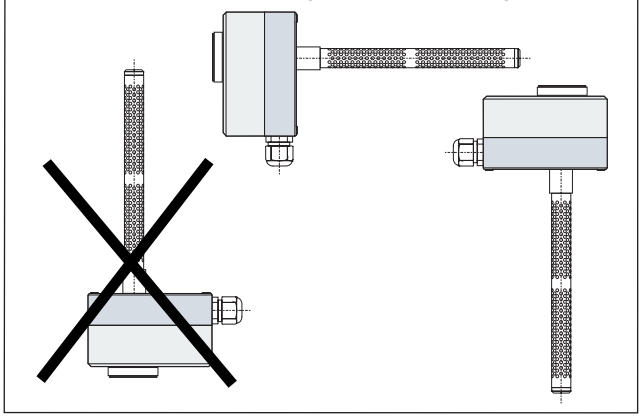
Mounting

- The humidistats must not come into direct contact with water (e.g. splashed water when cleaning the climatic chamber etc.)
- The mounting location should be chosen so that a representative measurement of the air humidity can be guaranteed, i.e. the humidity readings at the mounting location should correspond to those in the room as far as possible.
- The humidistat should be exposed to the flow of air.

Operating information

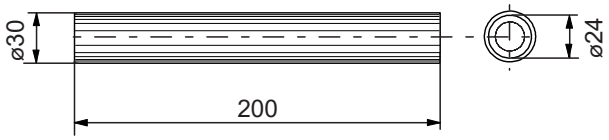
Note that, with restrictions in the upper range of operation, the possible tolerances (measurement accuracy, switching difference and temperature coefficient) should be observed when adjusting the switch point.

Preferred mounting positions
Condensed water must not get into the housing interior.



Exterior mounting

protector tube for external mounting Item No. 20.011



Calibration

Equipment with Galltec humidistats is correctly set by the factory at a room temperature of 23 °C and 50 %RH, relative to the average air pressure of 430 m NN.

If, however, subsequent adjustment should be necessary, the following procedure should be observed.

- Ensure that the ambient humidity and the ambient temperature are constant.
- If possible, use a psychrometer for checking (no checking equipment with capacitive sensors).
- Leave the equipment to be checked for at least *1 hour in a* **constant** *checking climate.*
- The adjuster screw is at the end of the sensor - fixed with screw securing lacquer. After removing the lacquer, the adjuster screw can be moved. A right-hand rotation means that the measured value goes down, and with a left-hand rotation the measured value goes up. After calibration, the adjuster screw should again be secured.

Important

The water absorption capacity of the air is influenced, amongst other things, by the temperature. This is a physical law (which can be seen from the hx diagram of Mollier). The higher the air temperature, the greater the volume of water vapour that can absorbed up to saturation point (100 %RH). If a hygrostat is now calibrated at fluctuating air temperature, there is an irregular, non-homogeneous measured medium and there are automatically calibration errors. The table below shows the influence of the air temperature on air humidity. If, for example, calibration occurs at an air temperature of 20 °C and 50 %RH, and at a temperature fluctuation of just ±1 °K, then there will be a humidity fluctuation in the measured medium (air) of ±3.2 %RH.

	10 °C ± 1 °K	20 °C ± 1 °K	30 °C ± 1 °K	50 °C ± 1 °K
10 %RH	± 0.7 %RH	± 0.6 %RH	± 0.6 %RH	± 0.5 %RH
50 %RH	± 3.5 %RH	± 3.2 %RH	± 3.0 %RH	± 2.6 %RH
90 %RH	± 6.3 %RH	± 5.7 %RH	± 5.4 %RH	± 4.6 %RH

NOTE
Contact with the inner partsof the humidistat nullifies the warranty.

Installation advises

On installation ensure that there is sufficient overcurrent protection (e. g. electrical fuse). Also a separation device (e. g. plug or switch) has to be installed.

Further detailed informations you will find in "humidity sensor accordance with the absorption principle" (Polyga® fibres) & maintenance instructions.

Accessories

Order no.	Description
20.009 	wall console of plastic, for mounting sensors ø 20 mm with mounting sleeve 00.502 also suitable for sensor tubes ø 15 mm
20.008 	fixing flange for duct mounting of HG80 and FG80 *optional attachment for a quicker removal of the sensor*
23.063 	PTFE filter, two-part, recommended for extreme operating conditions
20.014 	protective tube made of gauze recommended for air speeds between 8 and 15 m/s
20.022 	ventilated sensor tube with fan 24 V DC for device types HG80 and FG80
20.011 	plastic protection tube for device types HG80 and FG80

Maintenance instructions

for humidity measuring equipment with Polyga®humidity measuring element.

Impact of dirt

The measuring element is maintenance-free in pure ambient air. Depending on their type and concentration, aggressive media containing solvents can cause incorrect readings or cause the humidistat to fail. Substances deposited on the measuring element (e. g. resin aerosols, paint aerosols, smoke deposits etc.) are harmful as they eventually form a water-repellent film. The water-resistant property of the Galltec measuring elements allows cleaning to be carried out in water. Solvents cannot be used for this purpose. A light-duty detergent is recommended, but any residue should always be washed out thoroughly.
A special process ensures that Galltec sensors have good long-term stability. Regeneration is not necessary, but is also not harmful.The water-repellent property of the Galltec® humidity measuring element allows cleaning to be carried out in water. An important benefit when the sensors are used in extreme atmospheres.

Cleaning instruction

The measuring elements are designed for use in pressureless air (gases). The measurement accuracy depends on the degree of pollution of the element. The humidity measuring element, in particular, loses its hygroscopic properties if the surface is covererd with grease, soot, smoke deposits, paint, resinous substances etc. By cleaning the elements, their function can be reproduced, but only if no damage is caused by acids, alkaline solutions or other aggressive substances.

Cleaning process

1. **Disconnect the device from the power supply!**

2. Dip the sensor tube into a receptacle containing clean water (20 °C) and, with a gentle rotating motion, disperse the dirt deposits. If the dirt contains grease deposits, it is recommended that a mild detergent be added to the water.
   Do not brush or treat with any other cleaning utensils. Only the sensor tube should be immersed - not the housing.

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

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

4. Where a measuring element is moistened with water, the device indicates 100 % RH. 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 % RH at the wet element are adequate.
   The accuracy in the dry area must be determined under normal climatic conditions.

5. Air drying
   The measuring element must not be dried using warm or hot air (hair dryer).
   Cleaning should be carried out for no longer than some seconds.

This information is based on current knowledge and is intended to provide details of our products and their possible applications. It does not, therefore, act as a guarantee of specific properties of the products described or of their suitability for a particular application. It is our experience that the equipment may be used across a broad spectrum of applications under the most varied conditions and loads. We cannot appraise every individual case. Purchasers and/or users are responsible for checking the equipment for suitability for any particular application. Any existing industrial rights of protection must be observed. The perfect quality of our products is guaranteed under our General Conditions of Sale.
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