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Hygrostats (hygrometric)

- For easy 2-state control of relative air humidity
- For indoor and air duct mounting
- With potential-free change-over contact(s)
- No voltage supply required (passive operation)
- Measuring element is maintenance-free when operated in normal clean ambient air

Brief description

Hygrostats of the 907032 series use the hygroscopic properties of specially prepared plastic fibres to detect relative air humidity. Once prepared, the hair measuring element is capable of absorbing moisture. The changing length is the externally measured effect that is transmitted to a micro switch with extremely small change-over path via a lever system.

Values set via the set point value rotary knob also act as an intervention to the lever system such that a micro switch is actuated when the set air humidity is reached. The change-over contact can be operated as N/C or N/O contact (humidification/dehumidification) depending on the application.

Hygrostats in duct version are also available with a double change-over contact in addition to the standard version. The switching point of the second micro switch is directly coupled to that of the first micro switch, however, it can be precisely set between 0 to 15 % rel. humidity (neutral zone) on the micro switch lever by means of a screwdriver after removing the case lid.

All indoor and duct versions are optionally available with a covered set point value setter (fitted beneath the case lid). This can almost fully exclude misadjustment of the switching point.

Application

Hygrostats are preferably used as simple 2-state controllers to control the relative air humidity in conditioning cabinets and air ducts as well as to control air humidifiers and dehumidifiers in the building services engineering. Further application areas are, for example, storage for foodstuffs and luxury food, cold rooms for fruit and vegetables, glasshouses for garden centers, textile, paper and print industry as well as hospitals.

The high water resistance of the measuring element is particularly advantageous. The duct version, for instance, can be used permanently in high moisture areas, even up to a complete saturation. Moreover, in normal circulated air the measuring element is almost maintenance free.

A further advantage is that this indoor and duct version with hair measuring element does not require any operating voltage. Thus, an easy installation without any power current in the vicinity is possible.



Indoor version
Basic type 907032/10



Duct version
Basic type 907032/20

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Technical data

Humidity

	Indoor version	Duct version
Sensing element	Plastic hair measuring element (hygrometric) Measuring element is water resistant and almost maintenance-free, the duct version can be washed.	
Scale range	30 to 100 % rel. humidity	
Working/setting range	35 to 95 % rel. humidity	
Hysteresis	approx. 4 % rel. humidity (micro switch related to 50 % rel. humidity)	
Switching gap	-	0 to 15 % rel. humidity (with 2 micro switches)
Measuring accuracy at 23 °C	± 3.0 % rel. humidity at > 40 % rel. humidity ± 5.0 % rel. humidity at < 40 % rel. humidity	± 3.5 % rel. humidity at > 50 % rel. humidity ± 4.0 % rel. humidity at < 50 % rel. humidity
Average temperature coefficient	-0.2 % rel. humidity/K (related to 20 °C and 50 % rel. humidity)	
Medium	Air, atmospheric pressure, non corrosive	
Admissible air speed	max. 15 m/s	max. 8 m/s, with wind protection max. 15 m/s
Response times	1.5 min; $t_{0.5}$ at $v = 2$ m/s	
Compensation time	20 to 40 min; depending on the air flow	

Electrical data

	Indoor version	Duct version
Micro switch	Switching voltage ≤ AC 250 V	
Switching capacity - with silver contact	Maximum load AC 250 V and 0.1 to 5 A at ohmic load for dehumidification 0.1 to 2 A at ohmic load for humidification 0.1 to 1 A at inductive load with $\cos \phi = 0.7$ Maximum load AC 48 V and 1 to 100 mA	Minimum load AC 125 V and 100 mA
- with gold contact (optional)		-
Contact rating		15 A/AC 230 V with ohmic load ($\cos \phi = 1$) 2 A/AC 230 V with inductive load ($\cos \phi = 0.7$) 0.25 A/DC 230 V with direct current
Operating life	100.000 switching cycles	
Electromagnetic compatibility	Directive 2006/95/EC DIN EN 60730-1, Revision 12/05 DIN EN 60730-2-13, Revision 09/02	

Information about the switching voltage

Select the humidity controller measuring location such that no condensate will form on or in the device. This particularly applies when the voltage exceeds 48 V. A higher voltage bears the risk that sparkovers could appear on the micro switch or the connection terminals due to condensate and, thus, destroy the controller. If the voltage remains below 48 V, the humidity controller can be used up to 100 % rel. humidity.

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Construction

	Indoor version	Duct version
Case	PC plastic	ABS plastic with attached stainless steel measuring probe
Cable entry	via rear opening	via cable screw connection M 20x1.5
Contacts	via connection terminals for cable cross section up to 1.5 mm ²	
Protection rating	IP30D	IP54 (external set point value setter) IP64 (internal set point value setter)
Ambient temperature	-30 to +60 °C	-30 to +60 °C -40 to +80 °C (on the measuring probe)
Operating temperature	0 to 60 °C	0 to 60 °C
Installation position	any, the ventilation slits should preferably run at right angles in relation to the air flow	Probe tube vertically downward or horizontal; Fastening directly through openings in the case or optionally by means of a fastening flange.
Weight	approx. 60 g	approx. 700 g

Maintenance instructions

Humidity measuring element

The hygrometric measuring element is maintenance-free when operated in normal clean ambient air. However, aggressive media or those containing solvents may cause faulty readings and failure depending on the type and concentration.

As for almost all humidity measuring elements, condensation forming a water repellent film on the measuring element is damaging such as, e.g. resin aerosol, lacquer aerosol and smoke substances.

Avoid direct sun radiation.

Indoor version

Cleaning and adjustment of the measuring element is only possible in the factory.

Duct version

The measuring element can be cleaned with water due to its water resistance. Do not use strong solvents. When using mild detergent, thoroughly rinse the measuring element afterwards. Furthermore, only the plastic measuring element and the stainless steel sheath can be cleaned with water but not the case head.

Calibration

Due to a special aging process, the humidity measuring elements have good long-term stability. Regeneration as known from hair measuring elements is not required.

The hygrostats are factory calibrated at a room temperature of 23 °C and 50 % rel. humidity. They can be checked (only duct version) using the humidity probe checks supplied in the accessories (33 %, 53 % or 76 % rel. humidity). Furthermore, the hygrostat displays 100 % rel. humidity when the measuring element is wetted with water. If readjustment is necessary, use a screwdriver to sensitively turn the setscrew provided at the sheath tip. Note that small setscrew adjustments on the wet measuring element results in large measured value adjustments in dry zones.

Drying

Never dry the humidity measuring element after cleaning using warm or hot air, e.g. by means of a hairdryer.

Note

Any manipulations of the internal components will lead to warranty claims becoming null and void.

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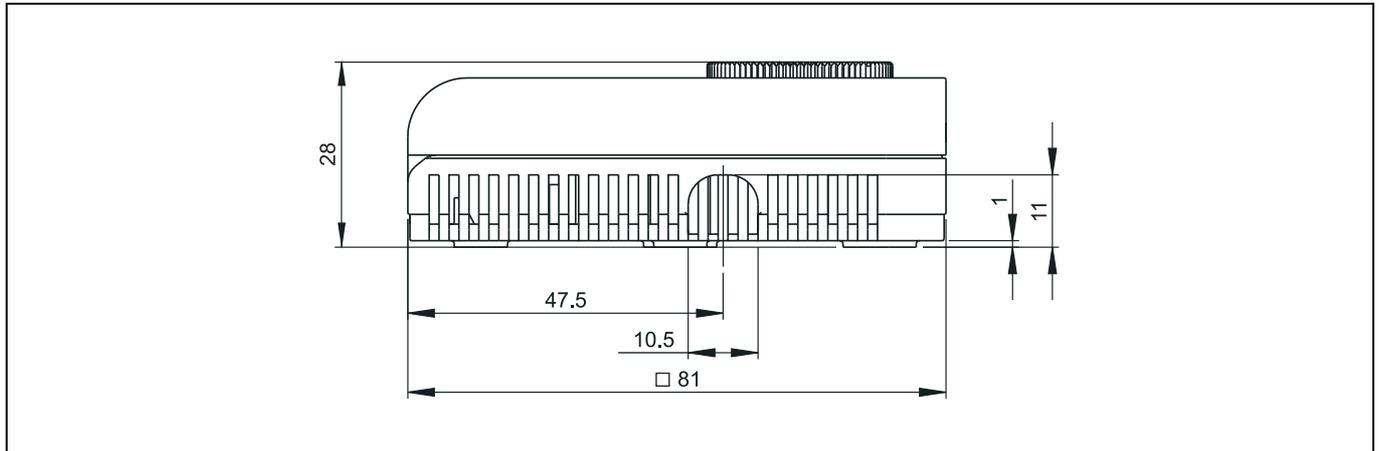
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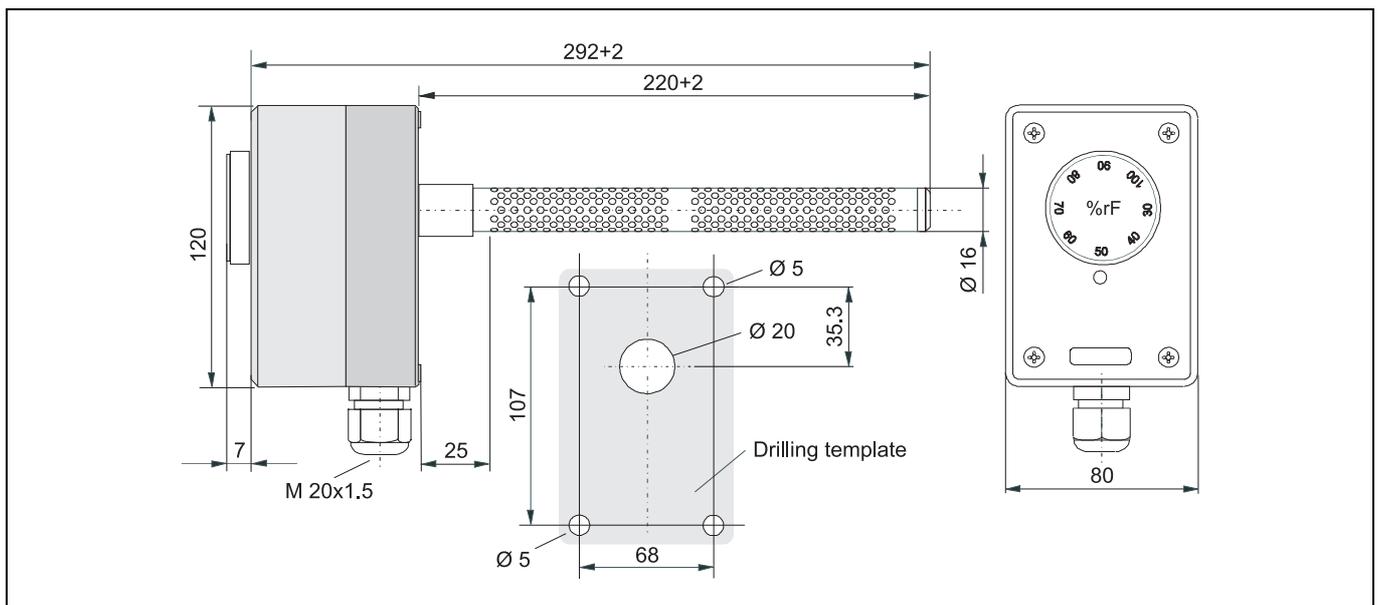


Dimensions

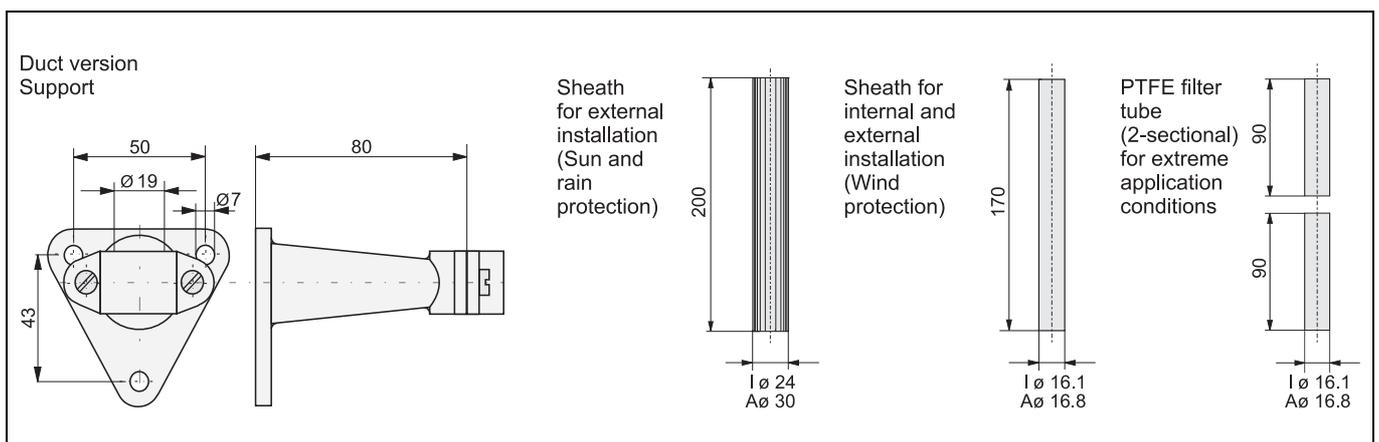
Indoor version



Duct version



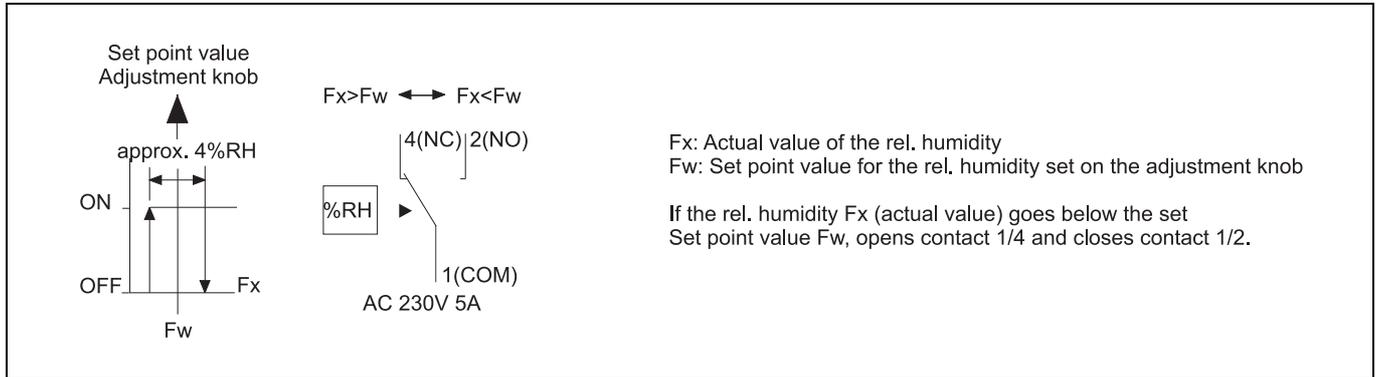
Accessories



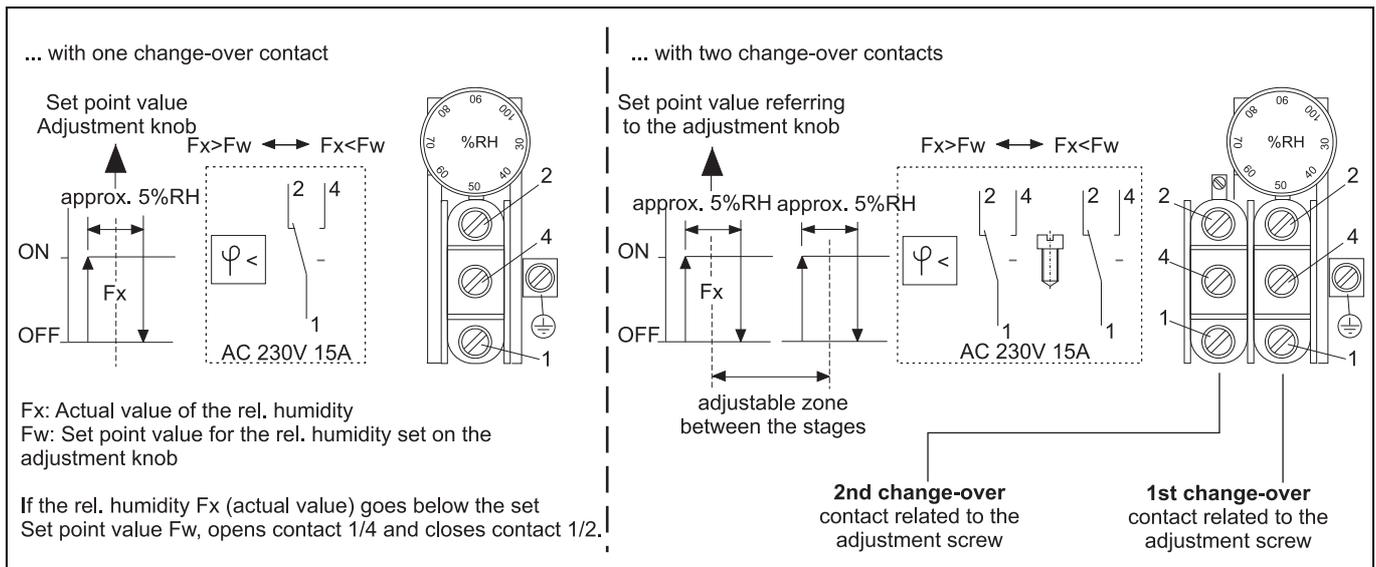


Wiring diagrams

Indoor version



Duct version



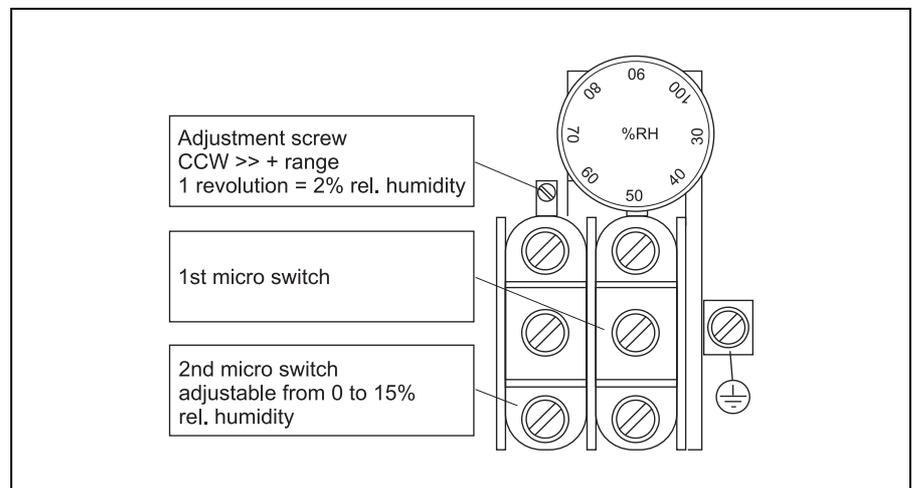
Setting the 2nd set point value

The duct version 907032/20-203/000 is factory-set such that the second set point value exceeds the first set point value by 6 % rel. humidity.

The neutral zone (gap between the first and second set point value) can be set by means of a screwdriver once the case lid is removed.

When turning counter-clockwise, the second switching point can be increased between 0 and 15 % rel. humidity (in relation to the first set point value).

The neutral zone can be determined by turning the rotary knob.



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Order details

		(1) Basic type
	907032/10	Hygrostat indoor version
	907032/20	Hygrostat duct version
		(2) Output, micro switch
x	201	1x change-over contact (silver) AC 250 V/5 A
x	202	1x change-over contact (silver) AC 250 V/15 A
x	203	2x change-over contacts (silver) (switching gap to the first contact 0 to 15 % rel. humidity)
x	204	1x change-over contact (gold) AC 48 V/1 to 100 mA
		(3) Extra codes
x x	000	no
x x	928	with covered set point value setter (internal)

Order code - /

Order example 907032/10 - 201 / 000

Accessories

Article	Part No.
Stand (black plastic) for duct version	60/60171300
Sheath as sun and rain protection (outdoor mounting) for duct version	90/00321186
Sheath as wind protection (indoor and outdoor mounting) for duct version	90/00323439
PTFE filter tube (2-sectional) for extreme application conditions for duct version	90/00491789
Oval fastening flange (hot-dip galvanized steel) for duct version	60/60677200
Humidity probe check 33 % rel. humidity (magnesium chloride) for duct version	90/00332758
Humidity probe check 53 % rel. humidity (magnesium nitrate) for duct version	90/00332759
Humidity probe check 76 % rel. humidity (sodium chloride) for duct version	90/00332760

Stock versions

Order code	Part No.
907032/10-201/000	90/00556970
907032/10-201/928	90/00556971
907032/20-202/000	90/00556972