C2Ai
Instrumentation et régulation des fluides

Hygrostat

REF. UF217

CE

APPLICATION AND USE

The hygrostat type UF217 is used as an on-off controller to control relative air humidity in air ducts of air conditioning units and climatic cabinets, and to control air humidifiers and dehumidifiers. Other areas of use are food storage, cooling rooms, greenhouses, the textile industry, the paper and printing industry, film industry and hospitals.
UF217 can be used in almost all applications in which air humidity control or monitoring is needed.

TECHNICAL CHARACTERISTICS

Measuring range (scale range)	30...100%rh
Measuring accuracy	
for measuring range>50%rh	±3.5%rh
for measuring range<50%rh	±4.0%rh
Setting range (operating range)	35÷100%rh
Measuring medium	pressureless, non-aggressive air
Switching difference (microswitch)	ca 3÷6%rh
Max. voltage	250 V AC

!!!Caution: 250V only on condition that there is no buildup of condensate in the measuring head - otherwise voltage arcing may result.

Breaking capacity of the changeover contact	
ohmic load (cos φ=1)	15A , 230VAC
inductive load (cos φ=0,7)	2A , 230VAC
Contact material	silver
Allowable ambient temperature	-30T60°C
Allowable working temperature	T60°C
Medium temp. coefficient	-0,2%/K (at 20°C and 50%rh)
Allowable air speed	8m/sec
Time constant T63 at v=2m/sec	120 sec
Sensor length and material	220mm, high-grade steel
Fixing	slots in the housing base for duct mounting
Mounting position	sensor vertically downwards or horizontal
Connecting terminals	for conductor with 1.5mm^2 cross-section
Cable connection	via M20x1,5 twist nipple
Housing	light grey ABS
Protection degree	IP 54
Weight	0.7 kg

EMC 89/336 standard conformity:
EN50081-1 for emission / EN50082-1 for immunity

MOUNTING

The hygrostats 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 as far as possible to room conditions. The hygrostat should be exposed to air flow.

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 switching point.

OPERATING

The humidity measuring element UF217 consists of several synthetic fabric bands each with 90 individual fibres with a diameter of 0.003mm. 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 set value control knob, the lever system is engaged so that when the set air humidity is reached the microswitch is activated.
The fan shaped measuring element is protected by a perforated sensor tube and is exposed to the housing.
The hygrostats are designed for pressureless systems.
The mounting position should be chosen to avoid condensed water getting inside the housing. The preferred mounting position is with the „sensor vertically downwards“ or „sensor horizontal“ (see diagram on reverse). In the mounting positions described above, a blanking plate in the sensor tube with a 0.8mm diameter hole will prevent water getting in.

MAINTENANCE

The UF217 is maintenance-free in pure ambient air. Aggressive media containing solvent can cause measuring errors or failure, depending on type and concentration. As with almost all humidity measuring elements (and these include particularly the capacitive measuring elements and fibre measuring elements), deposits, which eventually form a water-repellent film over the sensor are harmful. Such sensors and hygrostats cannot be used for example during wood drying as, depending on the type of wood to be dried, resin aerosols in the surrounding air are deposited on the measuring element. The same applies to lacquer drying equipment, where there are paint aerosols in the surrounding air, and to smoke deposits.

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Cleaning instructions

The humidity measuring element 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 (e.g. solvents).
The water-resistant property of the measuring elements allows cleaning to be carried out in water. A mild detergent is recommended, but any residue should always be washed out thoroughly.
A special process ensures that sensors have good long-term stability.

Cleaning process

1. Dip the sensor tube into a receptacle containing clean water (at 20°C) and, with a gentle rotating motion, disperse the dirt deposits. If the dirt contains grease deposits, we recommend to add a mild detergent to the water.

Do not brush or treat with any other cleaning tools. Only the sensor tube should be immersed - not the housing.

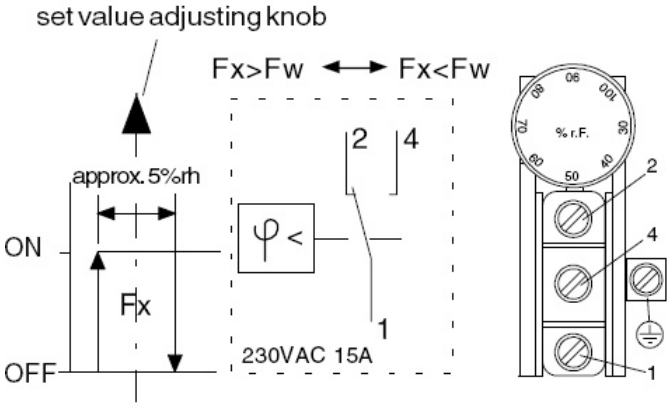
The sensor tube is open to the housing interior (0.8mm hole)

2. As mild detergents are known to contain chemical substances, rinse carefully after cleaning. Cleaning residue will impair the measured result.
3. Air drying with cool air (ambient temperature)

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

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

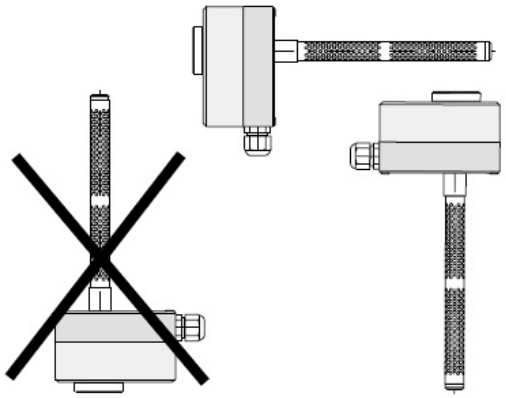
WIRING



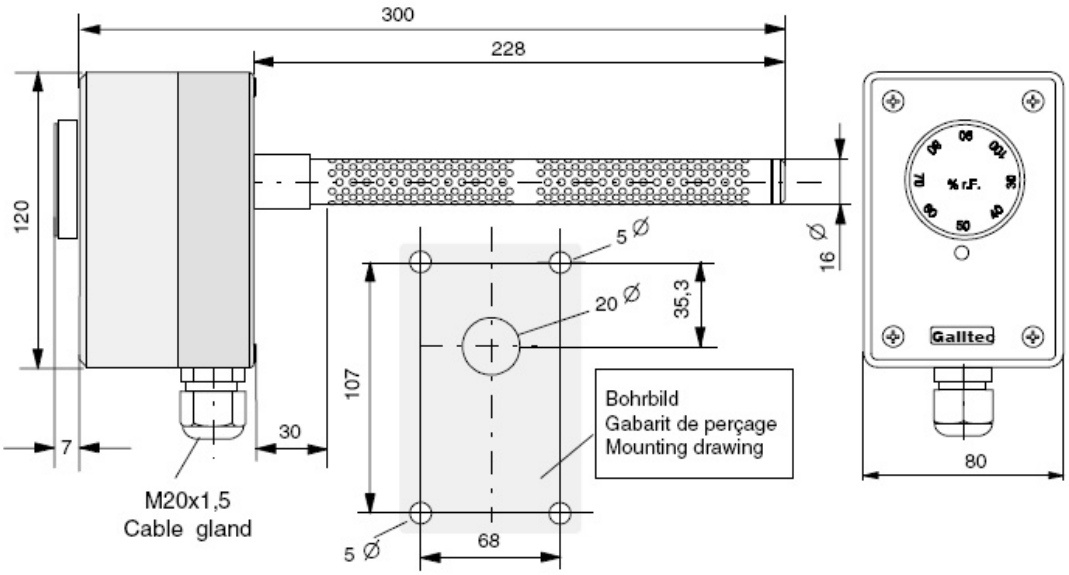
Fx air relative humidity (process value)
Fw humidity adjusted at a set value
If the relative humidity Fx falls below the adjusted set value Fw, then contact 1/2 opens and contact 1/4 closes.

MOUNTING POSITION

Condensed water must not get into the housing.



DIMENSIONS (mm)



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