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MEASUREMENT AND CONTROL

Data Sheet 90.7032

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## Hygrostats (hygrometric)

- for on-off control of relative humidity
- in air ducts, climatic cabinets, storage and cold rooms
- for controlling humidifying and de-humidifying plant
- for duct, wall and C-rail mounting

Specially prepared plastic fibres are used as the sensing element in hygrostats. The hygroscopic properties of the fibres produce a proportional change in the length of the sensing element with changes in relative humidity.

The length change is transmitted through a precision mechanism to a microswitch with an extremely small switching displacement. Movement of the setting knob shifts the mechanism so that the microswitch is operated when the relative humidity setting is reached.

The duct version is also available with two changeover contacts.  
The contact spacing is adjustable within the range 3 — 18 % rH.

### Technical data

**Sensing element**  
plastic, hygrometric

**Range (scale)**  
30 — 100 relative humidity (% rH)

**Working range (adjustment range)**  
35 — 100 % rH

**Accuracy**  
± 3.5 % above 50 % rH at 23 °C  
± 4.0 % below 50 % rH at 23 °C

**Medium**  
air, atmospheric pressure, not corrosive

**50 % response time**  
90 sec approx. at  $v = 2 \text{ m / sec}$

**Switching differential**  
(microswitch) 3 — 6 % rH approx.  
contact spacing with two switches  
3 — 18 % rH

**Switch rating**  
duct version:  
resistive load 15 A at 230 V AC  
inductive load 2 A at 230 V AC  
(p.f. = 0.7)  
DC circuit 250 mA at 230 V DC  
low-voltage circuit 100 mA at 24 V AC

indoor and compact version:  
resistive load 5 A at 230 V AC  
inductive load 0.2 A at 230 V AC  
(p.f. = 0.8 min.)

**Switching voltage**  
up to 80 % rH 250 V AC max.  
up to 100 % rH 24 V DC max.

**WARNING:**  
250 V only if it can be ensured that there is no condensation inside the hygrostat head, otherwise flash-over must be expected.

**Electromagnetic compatibility**  
interference immunity EN 50 082-2  
interference emission EN 50 081-2

### Construction

**Case**  
duct version:  
ABS plastic  
with stainless steel shaft  
indoor / compact version:  
high impact strength plastic, light grey

**Permitted ambient temperature**  
duct version:  
- 40 to +80 °C on shaft  
- 20 to +60 °C on case  
indoor / compact version:  
- 20 to +60 °C

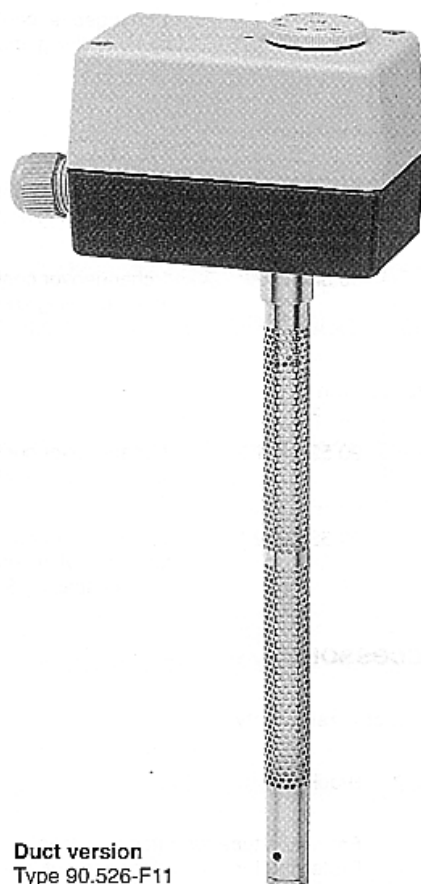
**Permitted air velocity**  
duct version:  
8 m / sec max.  
(with gauze protection: 15 m / sec max.)  
indoor / compact version:  
15 m / sec max.

**Protection**  
duct version:  
IP54  
indoor/compact version:  
IP20

**Operating position:**  
unrestricted, preferably probe vertically downwards. On indoor / compact version the ventilation slots preferably at right angles to the air flow.

**Installation**  
direct case mounting, or bracket for duct version, also C rail mounting (Type 90.526-F07)

**Weight**  
duct version:  
700 g approx.  
indoor / compact version:  
300 g approx.



**Duct version**  
Type 90.526-F11  
Type 90.526-F12



**Compact version**  
Type 90.526-F06  
Type 90.526-F07



**Indoor version**  
Type 90.526-F01

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## Models

### Indoor version

Item	Type	Output	Switch rating	Mounting	Sales No.
1	90.526-F01	1 changeover contact for humidifying and de-humidifying	5 A 230 V AC	wall mounting	90 / 90590520 ●

### Compact version

2	90.526-F06	1 changeover contact for humidifying and de-humidifying	5 A 230 V AC	wall mounting	90 / 90590509 ●
	90.526-F07	1 changeover contact for humidifying and de-humidifying	5 A 230 V AC	C rail mounting	90 / 90590510 ●

### Duct version

3	90.526-F11	1 changeover contact for humidifying and de-humidifying	15 A 230 V AC	duct or bracket mounting	90 / 90590523 ●
	90.526-F12 *	2 changeover contacts for humidifying and de-humidifying contact spacing 3 — 18% rH	15 A 230 V AC	duct or bracket mounting	90 / 90590546 ●

## Accessories

### for duct version only

4	Bracket		90 / 60171300 ●
	Protection tube for outdoor installation (sunlight and rain protection) Protection tube for indoor and outdoor installation (wind shield)		90 / 00321186 90 / 00323439
	Humidity Sensorcheck 33 % rH Humidity Sensorcheck 55 % rH Humidity Sensorcheck 76 % rH		90 / 00332758 90 / 00332759 90 / 00332760

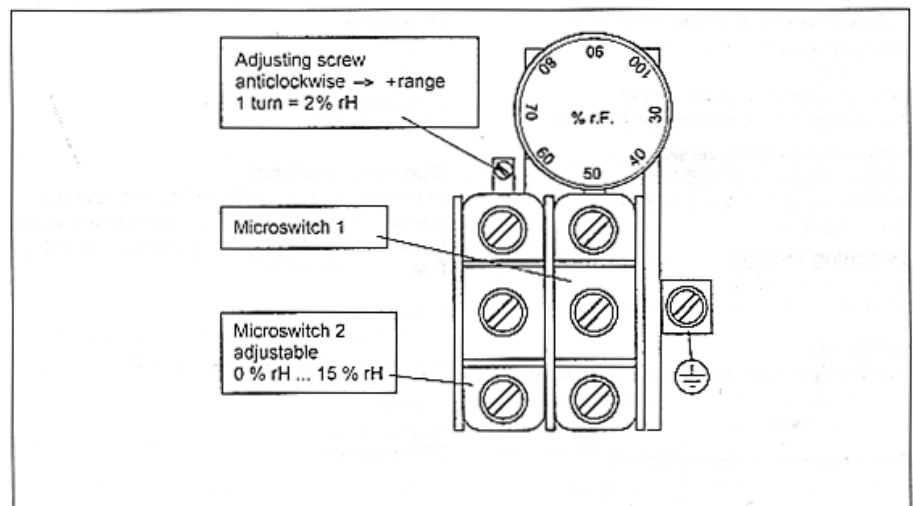
### \* Adjustment of second setpoint

The hygrostat Type 90.526-F12 is set at the factory so that setpoint 2 is 6 % rH higher than setpoint 1.

The neutral dead zone (spacing between setpoints 1 and 2) can be adjusted with a screwdriver after removing the housing cover.

Anticlockwise rotation shifts setpoint 2 upwards from 3 — 18 % rH (referred to setpoint 1).

The neutral zone can be determined by rotating the setting knob.



● Available from stock

## Maintenance notes

### Humidity sensor

The hygrometric sensor requires no maintenance in normally clean air. Corrosive media or those containing solvents may cause faulty readings or complete failure depending on type and concentration. As with nearly all humidity sensors, any deposits forming a water-repellent film on the sensor are liable to result in faulty operation; these include resin aerosols, paint aerosols, smoking substances etc.

Direct sunlight should be avoided.

### Indoor/compact version

Cleaning and adjustment of the sensor can only be carried out at the factory.

### Duct version

The special sensor is water-resistant and can be cleaned with water. Strong solvents must not be used. When using a gentle domestic detergent the sensor must then be rinsed thoroughly. Only the plastic sensor and the stainless steel protection tube may be rinsed with water, not however the case head.

### Calibration

The humidity sensing elements have a good long-term stability through the use of a special ageing procedure. The regeneration known from hair sensors is therefore not required in this case.

Hygrostats are factory-calibrated at 23 °C ambient temperature and 50 % rH. Checking (duct version only) is possible using the Sensorchecks available as accessories.

In addition, the hygrostat indicates 100 % rH when the sensor is wetted with water. If any readjustment should become necessary this can be done by very gently turning the adjusting screw at the tip of the protection tube. Note that slight movement of the adjusting screw when the sensor is wet produces a very appreciable change of the measurement in the dry range.

### Drying

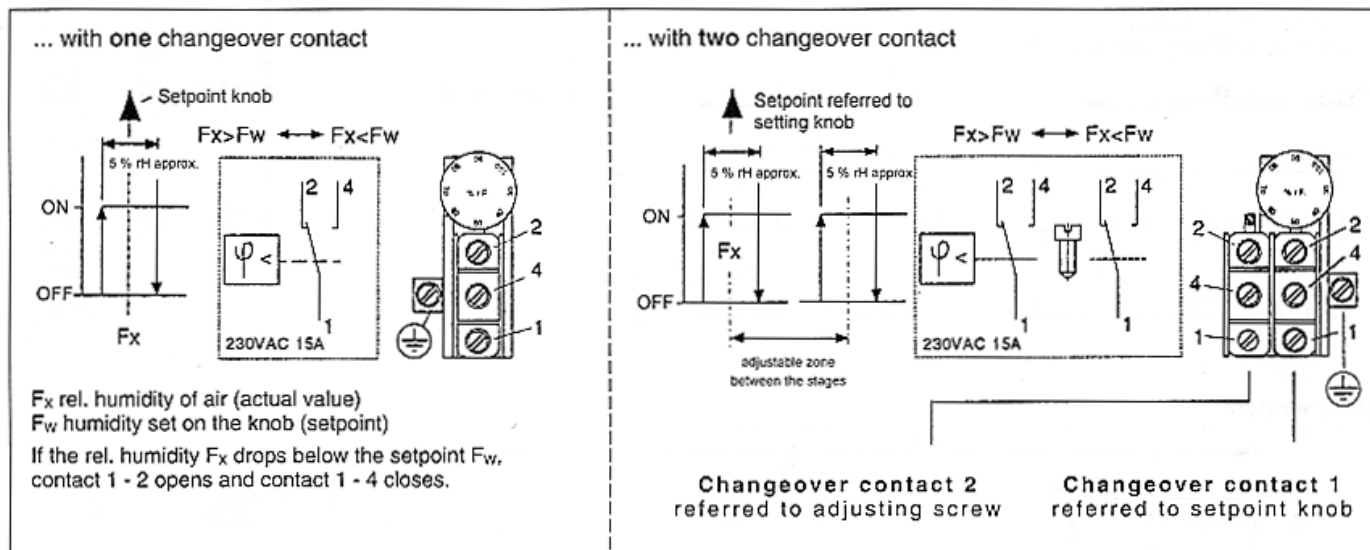
After cleaning the humidity sensor must not be dried with warm or hot air, for example by using a hair drier.

### WARNING:

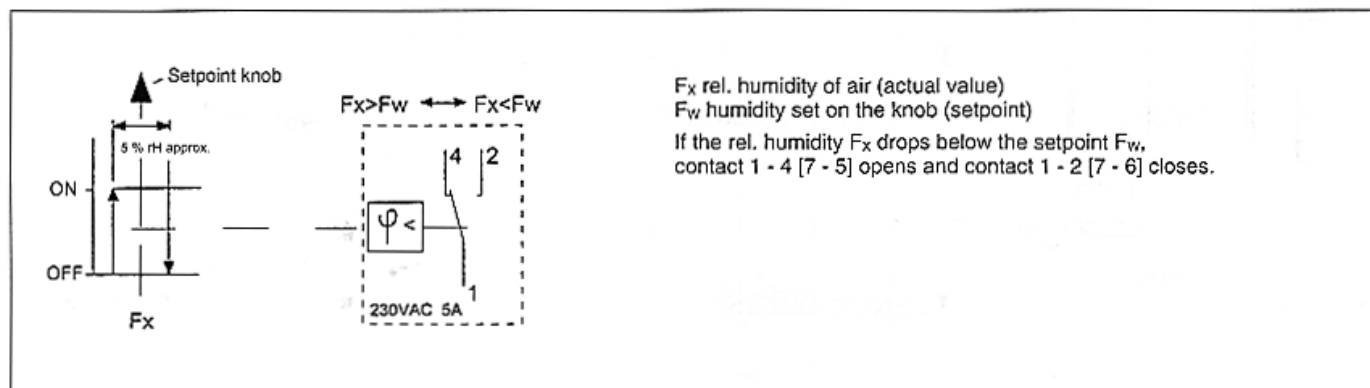
Contact with internal parts invalidates any warranty claim.

## Connection diagrams

### Duct version



### Indoor / compact version



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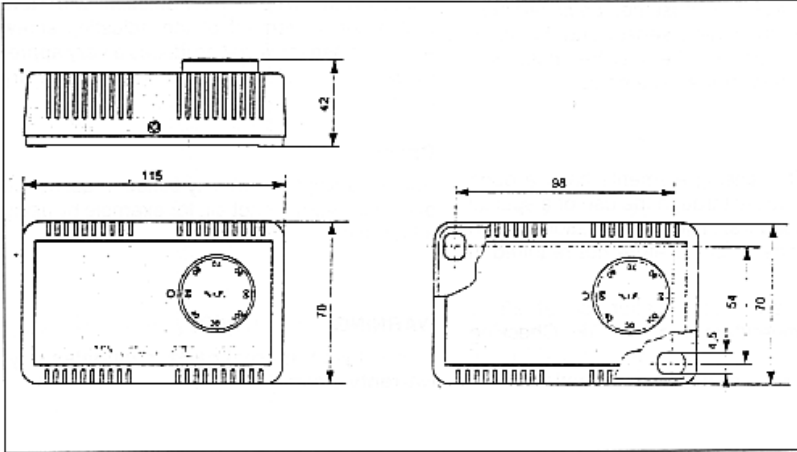
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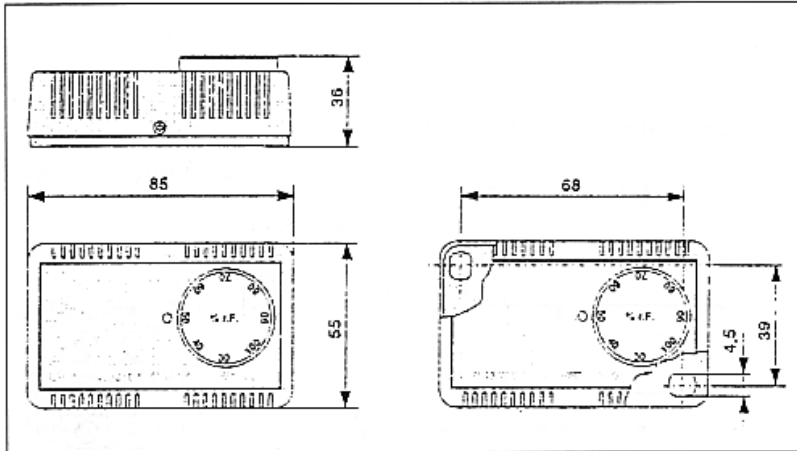
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**Dimensions**

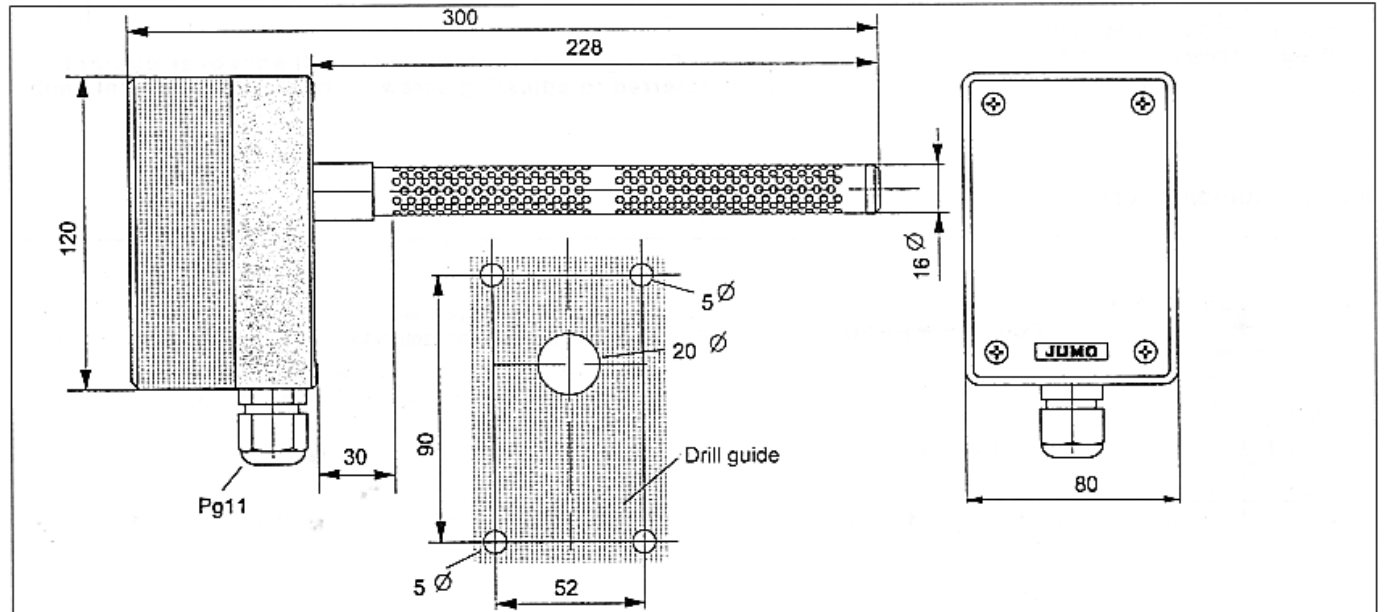
**indoor version**



**Compact version**

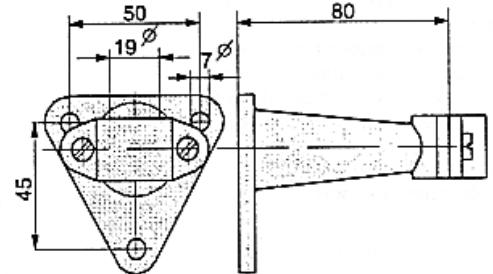


**Duct version**



**Accessories**

**Bracket**



**Protection tube (1)**  
 for outdoor installation  
 (sunlight and rain protection)

**Protection tube (2)**  
 for indoor and outdoor  
 installation (wind protection)

mm	inch
4.5	0.18
5	0.20
7	0.28
16	0.63
16.1	0.634
16.8	0.661
19	0.75
20	0.79
24	0.94
30	1.18
35.3	1.39
36	1.42
39	1.54
42	1.65
45	1.77
50	1.97
54	2.13
55	2.17
68	2.68
70	2.76
80	3.15
85	3.35
98	3.86
115	4.53
120	4.72
170	6.7
228	9.0
300	11.8

