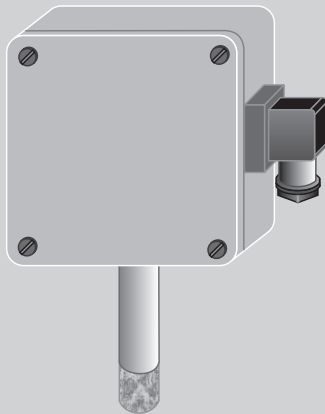




Humidity transmitter

Two-wire technology



Humidity and humidity combined with temperature

Wall- or duct mounting

Conformity error $\pm 2\%$ rH / $\pm 0,5K$

Electrical connection via plug

Rugged

PROFILE

Humidity is presented in various methods, as relative value in % rH, (ratio of the moisture distributed in the air to the total carriable maximum of moisture in air), or absolute as dew point temperature (°C) respective g H₂O / Nm³ dry air¹⁾. Humidity transmitters are especially designed for monitoring of relative humidity [rH] in air conditioning systems as also within industrial processes. The used two-wire technology features easy installation because supply and signal are united and running via the same pair of cables.

Combined humidity and temperature measurement with a second sensing element (-Pt100-) provide not only for storage and air conditioning special features by simplified mounting and wiring.

DESCRIPTION

Relative humidity is detected by means of a Polymer capacitor, whose capacity changes with effect to the moisture contained in the surrounding air. The capacitive change is calibrated in relative humidity and transformed into the standardised 4...20 mA signal. This capacitor is, like the Pt100 in the combi-version, mounted inside a supporting tube with sinterfilter, which

protects against mechanical damage and external impurities.

The two-wire electronics (separate for moisture and for temperature) is mounted inside the housing. Electrical connection is performed with an angled standardised connector.

Fixing holes in the housing for wall mounting are accessible after removing the lid. A special adaptor features mounting the sensor in a duct.

TECHNICAL DATA

INPUT

Humidity, relative
Capacitive thinfilm Polymer-sensor

MEASURING RANGE

Standard sensor

0...100 % rH (inclusive condensation)

Nominal range: 30...80 %

Conformity error: $\leq 2\%$ rH

Hysteresis: $\leq 1\%$ rH

Response time: ≤ 45 s

Operative range: 0...70 °C

High-humidity sensor

0...100 % rH (inclusive condensation)

Nominal range: 11...90 % rH

Conformity error: $\leq 2,5\%$ rH

Hysteresis: $\leq 0,5\%$ rH

Response time: ≤ 45 s

Operative range: -30...+140 °C

Temperature sensor

Pt100 DIN, Class B

Standard range: 0...70 °C

other ranges, e.g. -30...+40 °C, on request.

OUTPUT

Standard current signal: 4...20 mA

Load

$$R_{Load} = \frac{U_{Supply} - U_{MIN}[V]}{0,02[A]} - R_{Lead} [\Omega]$$

Characteristic

Humidity respectively temperature, linear

Conformity error: see input data

Hysteresis: see input data

POWER SUPPLY

DC-voltage: $\geq 12 \dots 30$ VDC

(separate for humidity and temperature)

Effect of supply: $\leq 0,1\%$ / 10 V

Permissible ripple: $\geq 0,5 V_{pp}$

Behaviour with mains failure

Loss of function

ENVIRONMENTAL CONDITIONS

Temperature limits

Operation

Standard sensor: 0...70 °C

High-temperature/- humidity sensor
-30...140 °C

Electronics: 0...70 °C

Nominal temperature: 25 °C

Storage: -20...+70 °C

¹⁾ Nm³ Standard-cubic-meter

Relative humidity: 0...98 %, condensation

Temperature effect: 0.4 % / 10 K

Long-term effect: at standard atmosphere: 2 % rH/year

ELECTROMAGNETIC COMPATIBILITY

Meets EN 50 081-2 and EN 50 082-2

GENERAL

Dimensions

in mm	wall sensor	duct sensor
Electronics	82 x 55 x 118	82 x 55 x 118
Sensor	14, l = 50	14, l = 220 ¹⁾

USED MATERIALS

Housing: ABS

Sensor tube: Al anodized

Filter insert: Bronze, Ni coated

Adaptor: Poliamide reinforced

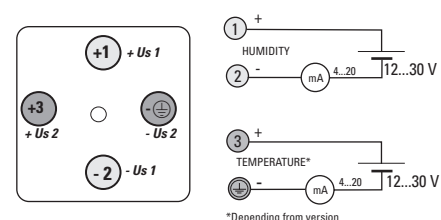
Radiation protector: Stainless steel

Mode of protection: IP 65

Electrical connection

Angled connector to DIN 43 650 for cable max. 1.5 mm², 4.5 or 7 mm

Fig. 1 electrical connections



Weight

Wall sensor: 0.25 kg

Duct sensor: 0.3 kg

Radiation protector: 0.35 kg

Mounting

Wall sensor: wall

Duct sensor: with adaptor on duct³⁾ or with extra mounting jig at wall.

Outdoor mounting only with radiation protector.

Mounting position

Sensor vertical up to horizontal.

Accessories

Instructions 9499 040 5261x

ORDERING-DATA²⁾

Description	Order-no.
Standard-Sensor	9407-291-000 . 1
Humidity wall	0
Combi-wall ⁵⁾	1
Humidity duct	2
Combi-duct ⁵⁾	3
High Humidity/Temp. Sensor²⁾	
Humidity wall special	4
Combi-wall special ⁵⁾	5
Humidity duct special	6
Combi-duct special ⁵⁾	7
length to specification¹⁾	. 2
Optional accessories	
Adaptor ³⁾	9407-291-00081
Radiation protector ⁴⁾	9407-291-00091

Fig. 2 Dimensions wall mounting

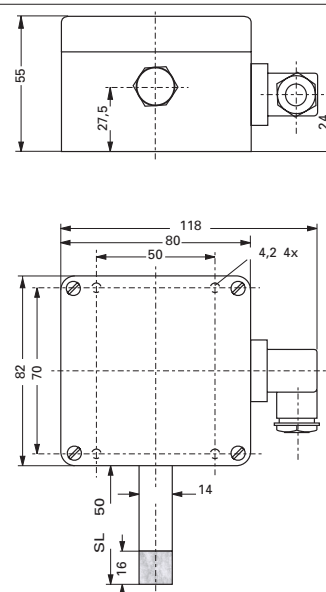


Fig. 3 Dimensions duct mounting

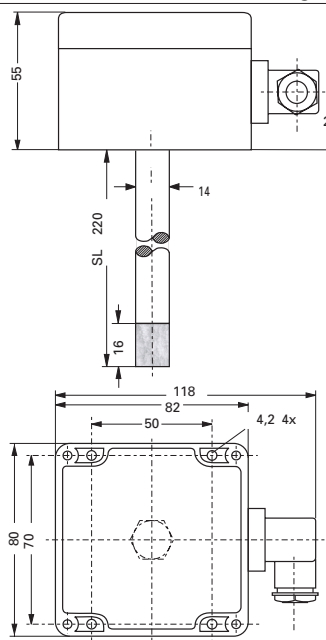
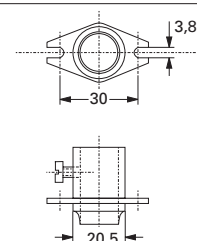


Fig. 4 Dimensions duct adaptor



¹⁾ Other length 300, 400 or 500 mm to specification

²⁾ Specify operating range, e.g. 0...40 % rH or 70...100 % rH, if not standard. Also indication of operating level (e.g. 68% rH) should be given.

³⁾ Mounting adapter (flange) is included in delivery.

⁴⁾ Configured only in factory, dimensions on request.

⁵⁾ Combi= combination of humid.& temp. Separate supply necessary!



Deutschland

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