

EGH 110...112: Duct transducer for relative humidity and temperature

How energy efficiency is improved

Accurate recording of air humidity for energy-efficient control of HVAC systems and monitoring energy consumption.

Areas of application

Measurement of relative humidity and temperature in air ducting.

Features

- Measurement using fast, capacitive sensor
- Active measured value acquisition
- Insensitive to flow speeds and normal contamination
- EGH 111 and EGH 112 offer temperature measurement using an Ni1000 temperature detector

Technical description

- Housing lid made of yellow thermoplastic
- Accuracy $\pm 10\%$ rH (re-adjustable)
- EGH 110 automatically converts the output signal from 0(2)...10 V to 0(4)...20 mA with a load of $< 500 \Omega$
- 30 mm \varnothing sensor tube made of black, glass-fibre-reinforced thermoplastic
- Immersion depth: 50 to 156 mm

Type	Humidity range % rh	Humidity output for 0...100% rh	Temperature range °C	Temperature output	Weight kg
EGH 110 F002	0...95	0(2)...10 V ¹⁾	–	–	0.43
EGH 111 F002	10...95	0...10 V	–20...70	Ni1000	0.43
EGH 112 F002	10...95	0...10 V	0...50	0...10 V	0.43

Power supply		Permissible amb. temp	– 20...70 °C
EGH 112	24 V, $\pm 20\%$, 50...60 Hz	EGH 110	– 20...80 °C
EGH 110, 111	24 V \sim , $\pm 20\%$	Permissible amb. humidity	5...95% rh
Power consumption	approx. 1.5 VA	EGH 110	0...100% rh without condensation
Output signal		Type of protection (head)	IP 40 (EN 60529)
EGH 110 ¹⁾	0(2)...10 V, Load $> 500 \Omega$	with Pg 11 screw fitting Pg 11	IP 54
EGH 111, 112	0...10 V, Load $> 5 k\Omega$	Protection class	III (IEC 60730)
Resistance curve	DIN 43760 (Ni1000)	Wiring diagram	EGH 110 A03116
Temperature influence		EGH 111	A02167
EGH 110, 112	$\pm 0.05\%$ rh/K	EGH 112	A02168
EGH 111	-0.15% rh/K	Dimension drawing	M02200
Time constant in air (3 m/s)		Fitting instructions	EGH 110 MV 505248
humidity	approx. 24 s	EGH 111, 112	MV 505249
temperature	approx. 2 min		
Max. flow speed	10 m/s		

Variants

EGH 111 F001 Cover in pure white (RAL 9010)

EGH 112 F001 Cover in pure white (RAL 9010)

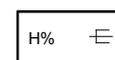
Accessories

0370560 011 Cable screw fitting Pg 11, of plastic, for cable $\varnothing 9...11$ mm

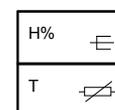
1) When the load is $< 500 \Omega$, the unit switches over automatically to 0...20 mA (or 4...20 mA)



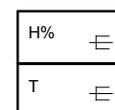
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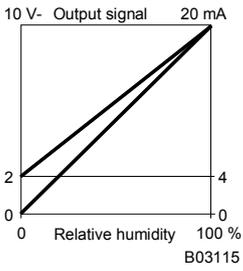


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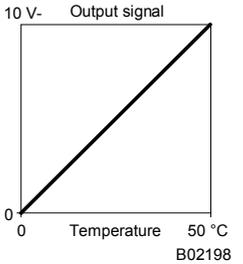
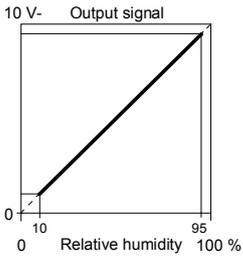


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EGH 110



EGH 111, 112



Operation

Humidity measurement

The relative humidity is registered with a fast-acting, capacitive sensor and converted by a measuring amplifier into the linearised standard signal.

Temperature measurement

EGH 111: with Ni1000 temperature sensor; curve as per DIN 43760.

EGH 112: the temperature 0...50 °C is converted into the standard signal 0...10 V-

Engineering and fitting notes

In installations which may be susceptible to dew formation, the transducer should not be fitted with the sensor tube facing upwards. The curve's good linearity and constance make it unnecessary to calibrate the measuring span. For test measurements, the zero point can be varied by ± 10 %rh. The measurement system requires practically no maintenance and is unaffected by either flow speed or contamination. Calibration at the factory.

Notes for the user

Generally speaking, humidity sensors are subject to accelerated ageing if they are employed in very contaminated air or aggressive gases. Under such conditions, the sensor may drift prematurely. It is possible to compensate for this drift by ±10% using the H10% rh adjuster if accurate measurements are required.

If the sensors are used in very contaminated air, a premature re-calibration or, if necessary, the replacement of the complete sensor is not covered by the general warranty provisions.

Further technical information

Humidity EGH 110

Accuracy at 55% rh, 23 °C	± 3% rh
Hysteresis (average)	< 2% rh
Reproducibility Δ 30% rh	± 1,5% rh
Output voltage	max. 13 V-

Complies with:

EMC Directive 2004/108/EC EN 61000-6-1/ EN 61000-6-3

Humidity EGH 111, EGH 112

Accuracy at 55% rh, 23 °C	± 3,5% rh
Hysteresis (average)	< 3% rh
Reproducibility Δ 30% rh	± 2% rh
Output voltage	max. 13 V-

Temperature Ni1000

Accuracy at 20 °C	± 0,25 K (1/2 DIN)
Self-heating (sensor)	0,29 K/mW

Temperature 0...10 V-

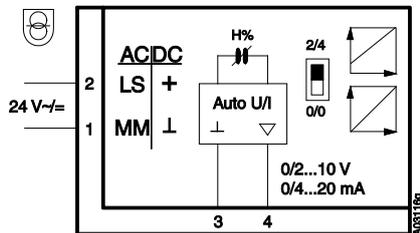
Accuracy at 20 °C	± 0,8 K
Output voltage	max. 13 V-

Complies with:

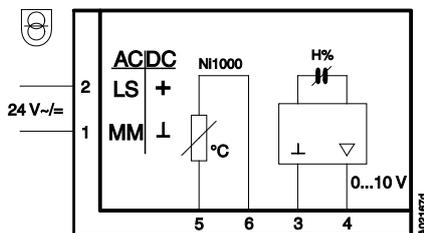
EMC Directive 2004/108/EC EN 61000-6-1/ EN 61000-6-2
EN 61000-6-3/ EN 61000-6-4

Wiring diagram

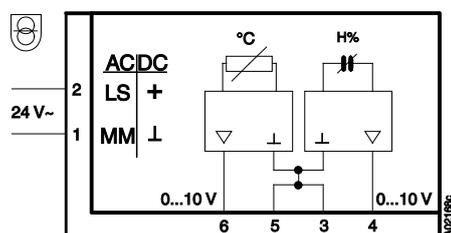
EGH 110



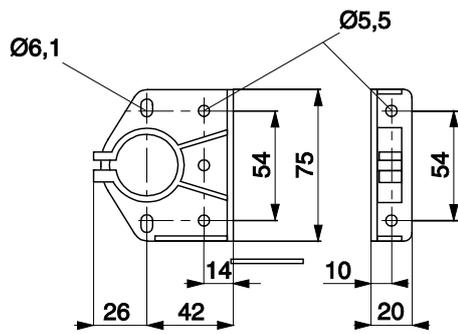
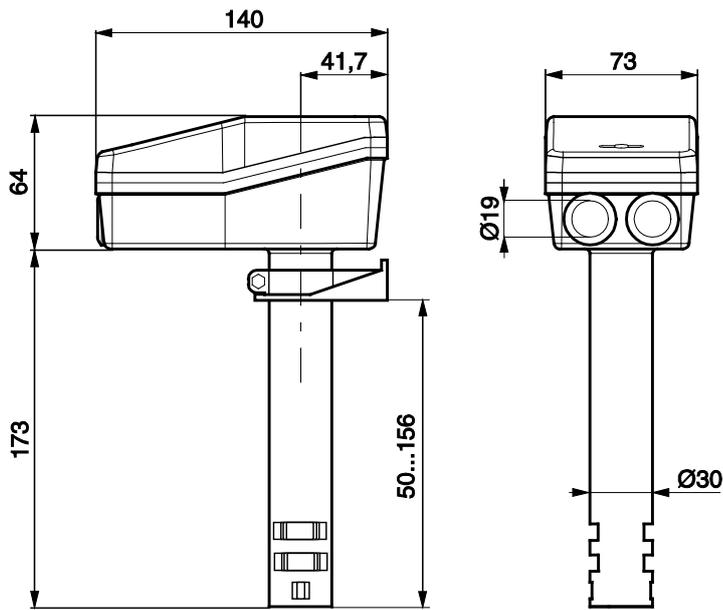
EGH 111



EGH 112



Dimension drawing



M02200c