EGH 601: Outside transmitter for humidity and temperature

2.1

How energy efficiency is improved

Precise measurement of air humidity and temperature for energy-efficient control of HVAC installations

Features

- · Active measurement of relative and absolute humidity, enthalpy, dew point and air temperature
- Measurement via fast capacitive sensor
- Converts the measured values into a continuous analogue signal (2 \times 0...10 V)
- Filter unit made of stainless steel mesh
- · Suitable for surface or wall mounting
- Cable inlet via a removable cable gland
- Mounting set and mounting base included
- Can be used in damp and dusty environments (type of protection IP65)

Technical data

Power supply		
	Power supply	15…24 VDC (±10%) or 24 VAC (±10%)
	Power consumption	Typ. 0.4 W (24 VDC), 0.8 VA (24 VAC)
Parameters		
Relative humidity	Measuring range	0100% rh, no condensation
,	Measuring accuracy	±2% between 1090% rh (typ. at 21 °C)
Absolute humidity	Measuring range	050 g/m³ (factory setting) switchable to 080 g/m³
Enthalpy	Measuring range	085 kJ/kg
Dew point	Measuring range	050 °C (factory setting) Switchable to -20+80 °C
Temperature	Measuring range	-2080 °C (factory setting) Switchable to 050, -1535 or -4060 °C
	Measuring accuracy ¹⁾	±0.3 K, typ. at 21 °C (factory settings)
Ambient conditions		
	Ambient temperature	-2070 °C
	Humidity (non-condensing)	85% rh
Inputs/outputs		
	Output signal	2×010 V (factory setting), min. load 10 k Ω , switchable to 2×05 V
Construction		
000000000	Colour	Pure white
	Housing material	Polycarbonate (PC) UL94-V0, UV-re- sistant
	Filter unit material	Stainless steel, wire mesh
	Cable inlet	M20 for cables with Ø 4.59 mm, re- movable
	Connection terminals	Plug-in connector, removable, max. 2.5 mm ²
	Dimensions W × H × D	85 × 118 × 45 mm (with sensor tube, without cable gland)
	Sensor tube length	53 mm
	Weight	190 g



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¹⁾ The specified measuring accuracy only applies to the measuring element. The actual accuracy also depends on the cable length

Standards, direc	tives			
		Type of protection	IP65 (EN 60529)	
CE conformity ad	ccording to	EMC Directive 2014/30/EU	EN 60730-1, EN 61000-6-1,	
			EN 61000-6-3	
		RoHS-D 2011/65/EU &	EN IEC 63000	
		2015/863/EU		
Overview of type	pes			
Туре	Description			

EGH601F702 Outside transmitter for relative and absolute Humidity, enthalpy, dew point, temperature

Description of operation

In addition to the air temperature, the EGH 601 outside transmitter outputs either the relative humidity, absolute humidity, enthalpy or dew point. The configuration is carried out using jumpers in the device. Humidity measurement: An electronic measuring element measures the value and a measuring amplifier converts it to a 0...10 V standard signal. The signal can be picked up at output AOU1.

Enthalpy measurement: The heat energy per kg of air is calculated from the air humidity and the temperature.

Dew point measurement: The dew point temperature is also calculated from the relative air humidity (rh) and the temperature.

Temperature measurement: Four measuring ranges are available. The configuration is carried out using jumpers in the device. The measured value is converted into the 0...10 V standard signal and can be picked up at the output AOU2.

Intended use

This product is only allowed to be used in HVAC building systems for control and regulation purposes. Other uses require the prior consent of the manufacturer.

The "Description of operation" section and all product instructions in this data sheet must be observed.

Modifying or converting the product is not permitted.

Improper use

The product is not suitable for security applications, for example for use in fire protection systems or in medical facilities.

The product must not be used if a malfunction could cause direct or indirect dangers to people. animals, and material goods, for example, in ventilation systems in livestock farming or in food cooling systems.

Engineering and fitting notes



Note

Only qualified electricians and HVAC specialists are permitted to fit and connect the device.



Damage to device!

▶ The device may only be connected when the power cable is disconnected from the electrical supply.

The transmitter can be connected to controller and display systems. The device types are interchangeable within the specified measuring accuracy.

It is advisable to select the measuring ranges for absolute humidity, dew point and temperature measurement so that the transmitter operates in the middle of those measuring ranges.

The line resistance of the signal cable must be taken into account during planning and commissioning. When there are long cables, the line resistance may have to be compensated in the downstream electronics.

The measurement current heats up the measuring element and thus affects the accuracy of the measurement. The measurement current should therefore not be higher than specified in the technical data.

The housing can be opened and closed without tools using a hinged cover. Optionally, the cover can be secured with the supplied screw and screw cover. IP65 protection is also guaranteed without screwing on the cover.

Scope of delivery

- Outside transmitter with M20×1.5 cable gland and connection terminal (removable)
- 7 jumpers (already plugged in)
- · Mounting base made of polycarbonate, pure white
- Mounting set: 2 dowels, 2 countersunk head and 2 raised head screws, cover screw and suitable screw cover
- Fitting instructions

Fitting position

Do not mount the outside transmitter with the cable gland facing upwards. The transmitter could be damaged by the ingress of condensate or dripping water.



Place of installation

The EGH 601 is suitable for direct mounting on the wall. A fitting height of 1.5 to 2 metres above the ground is recommended.



Note

Incorrect fitting can lead to incorrect measuring results. The place of installation must also be chosen carefully to ensure reliable measurement. Observe the fitting instructions.

Avoid:

- · Poorly insulated exterior walls and fireplaces
- · Heat sources such as lamps, heat pumps and air conditioning units
- · Doors, windows and return air dampers
- · Direct sunlight, precipitation from snow and rain
- · Areas with stagnant air, such as in corners and niches of buildings, under balconies and canopies

The transmitter should be at least 1.5 to 2 metres away from doors and windows and should be shaded all day.

When fitted in an exposed position, protect it from sun and rain.

Fitting

The housing can be opened and closed without tools using a hinged cover. Optionally, the cover can be secured with the supplied screw and screw cover. IP65 protection is also guaranteed without screwing on the housing cover.

Electrical connection

The removable cable gland and the removable connection terminal allow the wiring to be carried out away from the sensor. This makes wiring easier, especially in hard-to-reach places and when replacing a faulty sensor.

The cable inlet should be from below. If only a lateral cable inlet is possible, route the cable in a U-shape so that precipitation can drip off the loop and does not get into the transmitter housing.

When laying the cables, remember that electromagnetic fields (EMC interference) can affect the measuring accuracy. Therefore always use shielded signal cables and avoid laying them parallel to power cables.



The measuring range is changed by reconnecting the jumpers while the device is de-energised; see the connection diagram and fitting instructions.

Offset adjustment

The active components of the sensor electronics have an electrical power loss that affects the ambient temperature measurement. The power loss depends on the operating voltage and must be taken into account in the temperature measurement.

If the operating voltage is fixed and constant (± 0.2 V), fixed offset values can be set using two trim potentiometers (P1/P2) on the board.

P1²⁾: Offset for relative humidity (±5% rh), absolute humidity (±3 g/m³), enthalpy (±3 kJ/kg) and dew point (±3 K).

The value measured depends on the setting of jumpers 1 and 2 ("ModeA")

• P2³⁾: Temperature offset (±3 K)

If the transmitter is operated with a variable operating voltage, the offset must be set in the system.

The offset is set at the factory for an operating voltage of 24 VDC. The expected measurement error of the output signal is smallest at this voltage. Other operating voltages lead to a larger or smaller offset error due to the different power loss of the sensor electronics.

Notes for users

Under normal operating conditions the EGH 601 is very durable. However, humidity sensors are subject to increased ageing if they are used in very contaminated air or aggressive gases and chemicals. The factors affecting the device depend on the concentration of the aggressive media and can lead to permanent drift or damage to the sensor.

The general warranty does not apply if the device stops operating correctly due to very contaminated air.

Maintenance and cleaning

Over time, the air flow at the measuring head can cause dirt and dust particles to accumulate on the filter that protects the measuring element, thus impairing the function of the sensor.

Under normal ambient conditions, SAUTER recommends yearly maintenance to retain the specified accuracy.



Cleaning the filter

- 1. Disconnect the device from the power supply.
- 2. Remove the filter hood from the sensor tube, see figure.

Do not turn the hood or press on the sides.

Make sure that the mesh insert does not fall out and that the measuring element and electronics are not touched or damaged.

- 3. Blow out the filter with oil-free, filtered compressed air or nitrogen and/or rinse it with distilled water. Replace very dirty filters.
- 4. Attach the filter hood with the mesh insert to the sensor tube without touching or damaging the measuring element.

²⁾ Water drop symbol on the board

³⁾ Thermometer symbol on the board

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Additional information

Fitting instructions P100020672

Connection diagram



Terminal	Function
UB+	1524 VDC (±10%) or 24 VAC (±10%) SELV
GND	ММ
AOU1	Relative humidity 010 V (factory setting)
AOU2	Temperature 010 V (factory setting)

👻 The terminal designations are marked on the circuit board.

Terminals S+ and S- are not assigned

Disposal

When disposing of the product, observe the currently applicable local laws.

More information on materials can be found in the Declaration on materials and the environment for this product.

Dimension drawing

All dimensions in mm.

EGH 601



Mounting base



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