



Room Sensor

QFA65.1

for relative humidity and temperature

Operating voltage AC 24 V
Signal output DC 0...10 V for relative humidity
Signal output LG-Ni 1000 (passive) for temperature
Accuracy of ± 3 % r.h. within comfort range

Use

In ventilating and air conditioning plants to acquire

- relative humidity and
- temperature

in rooms.

The QFA65.1 is used as a

- control sensor and
- measuring sensor for building automation systems or indicating units.

Ordering

When ordering, please give name and type reference.

Equipment combinations

All systems/units that are capable of acquiring and handling the sensor's DC 0...10 V output signal.

Mode of operation

Relative humidity

The sensor acquires the relative humidity with the help of a capacitive humidity sensor whose electrical capacity changes in function of the relative humidity of the ambient air. An electronic circuit converts the sensor's signal into a continuous DC 0...10 V signal, which represents 0...100 % relative humidity.

Temperature

The sensor acquires the temperature with a nickel sensing element (LG-Ni 1000) whose electrical resistance changes in function of the temperature of the ambient air.

Mechanical design

The room sensor has been designed for wall mounting. It is suitable for use with most commercially available recessed conduit boxes. The cables can be introduced from the rear (concealed wiring) or from below or above (surface-run wires) through knockout openings.

All terminals are protected against false wiring.

The unit consists of two major sections: Casing and baseplate. Both snap together but can be detached again. The casing accommodates the temperature and humidity sensing elements. The baseplate carries the connecting terminals.

Engineering notes

The transformer used must be suitable for safety extra low voltage (SELV). It must have separate windings and be suited for 100 % duty.

The transformer must be sized and fused in compliance with local safety regulations. When sizing the transformer, the power consumption of the QFA65.1 must be taken into account.

For the connection of the sensor, refer to the data sheets of the units with which the sensor is used. The maximum permissible line lengths should be observed.

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The humidity sensor must be connected to a measured value input (U...) of the measured value module (PTM1.2U10)

The temperature sensor must be connected to a measured value input (B...) of the measured value module (PTM1.2K1K or PTM1.4R1K).

Fitting notes

Location:

On an inner wall of the space to be air conditioned. Not in recesses, shelves, not behind curtains, not opposite or near heat sources.

The unit must not be exposed to spot lights or direct solar radiation.

The end of the conduit at the sensor must be sealed to prevent false measurements due to draughts through the conduit.

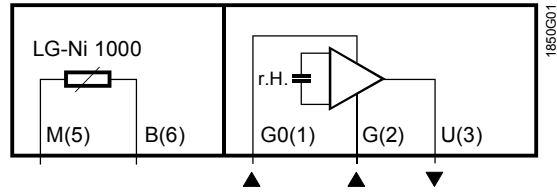
Installation instructions are printed on the packing.

Technical data

Humidity sensor	Range of use	10...95 % r.h.
	Measuring accuracy at 20 °C	
	20...90 % r.h.	±5 % r.h.
	40...60 % r.h.	±3 % r.h., (typical)
	Time constant	≤2 min
	Output signal, linear	DC 1...9 V $\hat{=}$ 10...90 % r.h.
	Output current	±1 mA max.
	Perm. line lengths	
	Copper cable 0.6 mm dia.	50 m
	Copper cable 1 mm ²	150 m
	Copper cable 1.5 mm ²	300 m
	If the required line length exceeds 300 m, it needs to be shielded.	
Temperature sensor	Range of use	0...50 °C
	Sensing element	LG-Ni 1000
	Measuring accuracy at 20 °C	±0.6 K
	Time constant	8 min (depending on air movement and thermal coupling to the wall)
	Perm. line lengths	see to section "Engineering notes"
Allgemeine Fühlerdaten	Operating voltage (SELV)	AC 24 V ±20 %
	Frequency	50 or 60 Hz
	Power consumption	0.35 VA
	Environmental conditions	
	Operation to	IEC 721-3-3
	Climatic conditions	class 3K3
	Temperature	0...50 °C
	Humidity ¹⁾	5...85 % r. h.
	Transport to	IEC 721-3-2
	Climatic conditions	class 2K3
	Temperature	-25...+70 °C
	Humidity	<95 % r. h.
	Mechanical conditions	class 2M2
	Protection standard of casing	IP 30 to IEC 529
	Insulation class	III to EN 60 730
	Electromagnetic compatibility	
	Immunity	EN 50 082-1
	Emissions	EN 50 081-1
	CE conformance to	EMC guideline 89/336/EEC
	C conformity as per	
	Australian EMC Framework	Radio communication act 1992
	Radio Interference Emmission Standard	AS/NZS 3548
Connecting terminals for	2 x 1.5 mm ² or 1 x 2.5 mm ²	
Materials and colors		
Housing front	ASA + PC, NCS S 0502-G (white)	
Botton section of housing	ASA + PC, NCS 2801-Y43R (grey)	
Base	PC, NCS 2801-Y43R (grey)	
Sensor (entirely)	silicon-free	
Weight	approx. 0.1 kg	

1) The permissible ambient humidity may reach 95 % r.h. for short periods of time

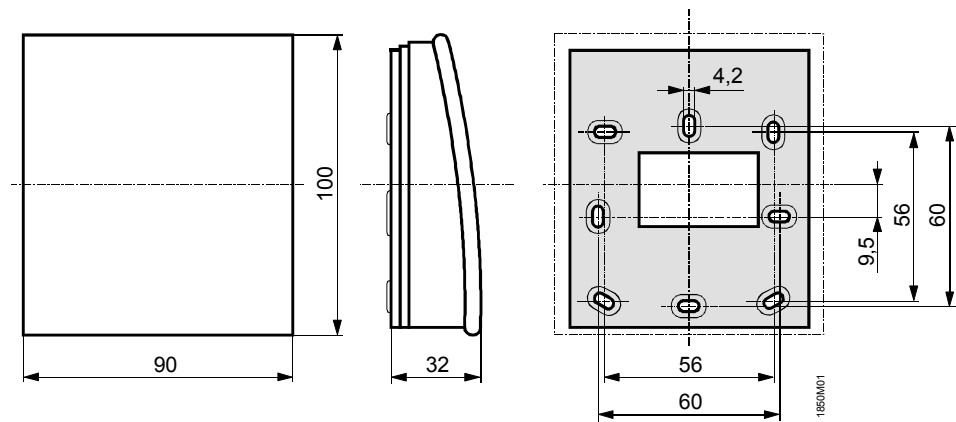
Internal diagram



- G (2) System potential AC 24 V
- G0 (1) System and relative humidity measuring neutral
- U (3) Measuring signal DC 1...9 V for 10...90 % r.h.
- B (6) Measuring signal LG-Ni 1000 (passive) for temperature
- M (5) Temperatur sensor measuring neutral

Notes: The number in parentheses corresponds to the terminal label on the terminal block.

Dimensions



Dimensions in mm