

# Sensor for relative humidity of air and air temperature

## Operating Instruction 431409

### Application

For electrical transmission of relative humidity of air and air temperature, with a capacitive sensor for measurement of relative humidity and a platinum resistor PT 100 for measurement of air temperature. The outgoing digital signal can be used for meteorological purposes or as input signal for control and regulation applications.

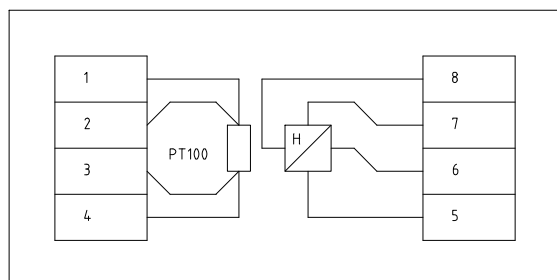
### Construction and Mode of Operation

With a PT 100 in four wire connection and a capacitive sensor with electronic signal conditioning the air temperature and actual humidity of air will be transformed into a proportional standardised electrical output. The water resistant housing of the sensor will protect the electronic against the influence of the weather. Condensation at the sensor element will not result in damaging the sensor but until the sensor is total dry false measurements occur.

### Technical Data

measuring range	: -30 ... 70°C, 0 ... 100 %
accuracy temperature	: PT100 1/3DIN, $\pm(0,10K+0,0017 \times  t )$ with t as measured temperature in °C (-30...70°C, at air speeds / 0,5 m/s)
accuracy humidity	: $\pm 2 \%$ r.h. (25°C, 5 ... 95 %)
temperature error humidity:	RH = indicated humidity / (1.0546 - 0.00216 * T) with T = temperature in °C
settling time	: approx. 5min
electronic output	: PT100 four wire, 0...1000Hz TTL (For level adaption an external pullup resistor is necessary. Guidline is 20 kOhm for wires up to 100m. In case the sensor is connected to a combilog no pullup resistor is needed.)
operating voltage	: 8 ... 28 V DC
operating current	: typ. 12 mA
mounting	: clamping diameter 12 mm, on vertical walls with two mounting holes diameter 4 mm
operating temperature	: -40 ... 80 °C
protection grade	: IP 54
recommnaended cable	: LiYCY 6 x 0.2 mm <sup>2</sup>

### Connection Cart



Position	color	Connection
1	violett	PT100-1
2	blue	PT100-1
3	red	PT100-2
4	black	PT100-2
5	white	V+ 8...28V DC
6	brown	ground
7	yellow	output 0...1000Hz
8	green	output ground

The Fischer company reserves the right, to make changes/improvements to their products and specifications at any time without prior notice.



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