innovative Sensor Technology
physical · chemical · biological

HYT939P P14 Assembly

RH/T Module

For continuous humidity and temperature monitoring

Benefits & Characteristics

- Ready-to-use, factory calibrated sensor for continuous humidity temperature measurement
- Assembled into compact screw-in housing for an air-tight installation with minimal insertion depth
- Resistant to condensation and temperature changes
- For a long lifespan in industrial applications

Applications

- Industrial drying
- Air supply and gas filtration systems
- Storage and indoor climate control
- Process control, incl. monitoring of optical equiment sensitive to humidity/condensation

A compact and ready-to-use sensor for continuous and highly accurate measurement of relative humidity and temperature. System integration is made easy by a digital interface and small screw-in housing. Custom calibration and assembly options upon request.

Optional:

PTFE filter for particle and VOC retention when required for extended exposure under harsh industrial conditions:

156489 RH/T module

156390 RH/T module with PTFE filter

Technical Data

	Humidity	Temperature
Accuracy	±1.8 %RH at 23 °C (0 to 90 %RH) See figure 1 for typical accuracies in the measuring temperature range. Custom specific alternatives available.	±0.2 °C (0 to 60 °C)
Reproducibility	±0.2 %RH	±0.1 °C
Resolution	0.03 %RH	0.015 °C
Response time T_{63}[1]	< 10 s	< 10 s

	Humidity	Temperature
Long-term drift	< 0.5 %RH/a (at 23 °C 0 %RH to 10 %RH in synthetic air) Exposure to VOCs can lead to higher values. Please find more details in HYT application note.	< 0.05 °C/a
Measurement principle	Capacitive polymer humidity sensor	
Measuring temperature range [2]		0 °C to +60 °C
Measuring humidity range [2]	0 - 90 %RH (For usage in condensing environment please refer to HYT application note	
Hysteresis	< ±1 %RH at 25 °C	
Operating voltage	2.7 V to 5.5 V	
Current consumption (nominal)	< 22 µA at 1Hz measuring rate; 850 µA max.	
Current consumption (sleep)	< 1 µA	
Digital interface	I²C, address 0x28 or alternative address	
Operating voltage (limits)	-0.3 V to 6 V	
Storage conditions	-5 to +30 °C, < 30 %RH	
Operating range [3]	-40 to +80 °C, 0-100 %RH	
Housing material	Stainless steel 1.4571	
Process connector	M14 x 1.5	
Cable [4]	4x AWG 26, 500 mm	

1) The response time is often measured for increasing humidity steps, whereas physics predicts that decreasing humidity leads to generally far longer response times for capacitive humidity sensors. iST thus measures response times always for decreasing humidity values, since this is the worst case.

2) In the specified range the modules measure according to typical accuracies demonstrated in figure 1. At T > 60 °C and/or high humidity over a long period of time, an offset in the %RH signal can occur.

3) Specifies the temperature range the modules work without permanent damage. Operation/storage above +60 °C can lead to an offset of the %RH signal.

4) The maximum bending radius of the cable is for single bending 5 x outer diameter (4.1 mm) and for repeated bending 20x outer diameter (4.1 mm). Bending closer than 50 mm to the housing is discouraged and might harm the cable or potting material. The cable must not be streched or pulled.

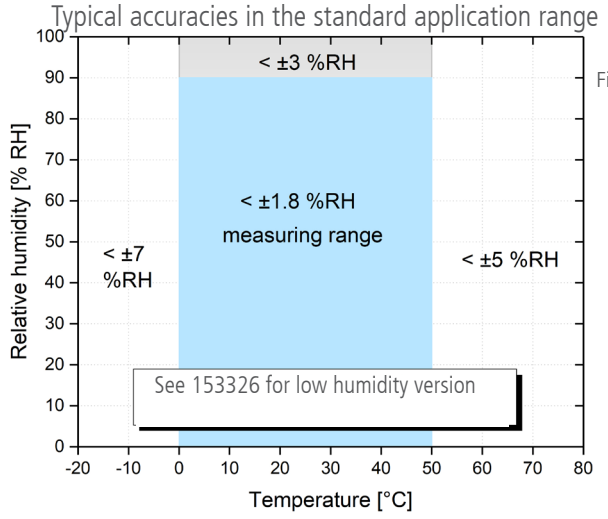
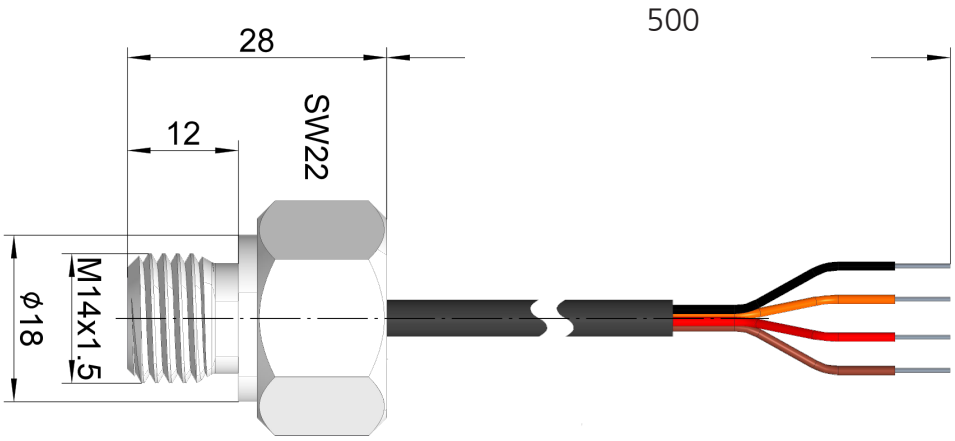


Figure 1: Typical accuracies of the % RH measurement

Technical Data



Pin Assignment

Insulation Color	Assignment
Black (SW)	SDA
Orange	SCL
Brown	GND
Red	VCC

Additional Documents

	Document name
Application Note	AH_E

Order Information

	RH/T module	RH/T module with PTFE filter
Product description	HPM.HYT.939p.P.0.SK.SA.S	HPM.HYT.939p.P.0.SK.SA.S
Order code	156389	156390

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