

Digital humidity sensor HYT939

Description



Humidity measurement	
Humidity measuring range ²	0 ... 100% RH see figure 3
Humidity accuracy ¹	±1,8% RH (0...90% RH) see figure 1
Hysteresis (50% RH)	< ±1% RH
Humidity resolution	0,02% RH
Linearity error	< ±1% RH
Response time t ₆₃	< 10 sec with metal filter
Tk Residual error (50% RH)	0,05% RH/K (0...60 °C)
Long term drift	< 0,5% RH/a
Measuring principle	Capacitive polymer humidity sensor
Temperature measurement	
Temperature measuring range	- 40...+125 °C
Temperature accuracy	±0,2 °C (0...60 °C) see figure 2
Reproducibility	±0,1 K
Response time t ₆₃	< 10 sec with metal filter
Temperature resolution	0,015 °C
Long term drift	< 0,05 K / a
Measuring principle	PTAT (integrated)
Operating data	
Operating voltage	2,7...5,5 V
Current consumption (Nominal)	< 22 µA at 1 Hz measuring rate, 850 µA maximum
Current consumption (Sleep)	< 1 µA
Einsatztemperatur	-40...125 °C
Application temperature	0...100% RH
Humidity application range	I ² C, address 0x28 or alternative address
Limits	
Operating voltage	-0,3...6,0 V
Storage temperature	-20...+50 °C

Characteristic features

- Measuring range 0...100% RH, -40...125 °C
- Accuracy ±1.8% RH, Temperature ±0.2 °C
- On request: version that is resistant to pressure up to 16 bar
- Precisely calibrated and temperature compensated
- Chemical resistant, dew formation resistant
- Sealed TO 39 housing with glass grommet and Sinter filter
- Low Hysteresis, compensated Linearity error and Temperature drift
- Operating voltage 2.7...5.5 V
- I²C, address 0x28 or alternative address
- RoHS conformance
- Dimensions 5.2 x 9,0 mm

Application

- Medical systems
- Autoclaves
- Pressure dew point measurement
- Drying systems
- Laboratories

Features

The humidity sensor HYT939 is characterized by its high chemical resistance and thus optimal for extremely sophisticated, industrial applications. It measures a wide humidity and temperature range and stays very stable at high humidity. Further advantages are the excellent humidity and temperature accuracy and stability.

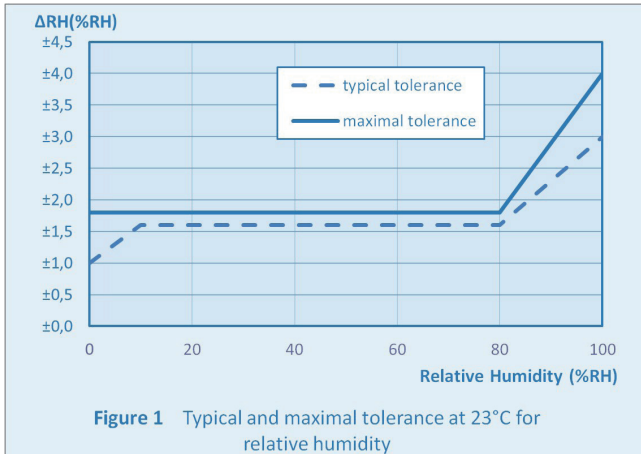
The sensor is mechanically robust, interchangeable without adjustments and calibrated and temperature compensated.

Connecting to a bus with up to 128 probes is possible.

A pressure-resistant version up to 16 bar is also available, please see ordering option on page 2.

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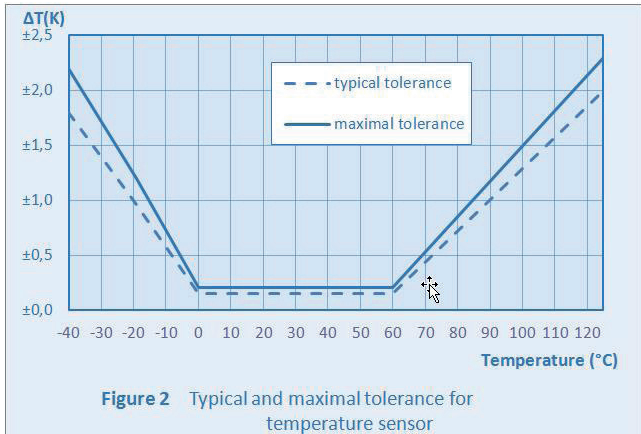
Relative humidity accuracy



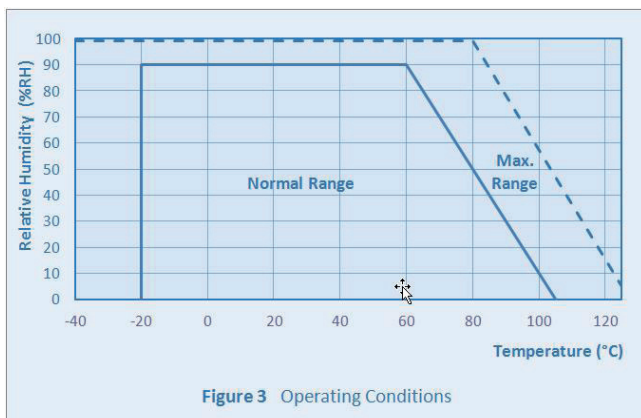
¹ The accuracy is tested at 23 °C and 3.3 V operating voltage in the direction of rising humidity. The accuracy does not include Tk-Residual error, residual linearity error or Hysteresis effect.

² The maximum dew point is brought down to 80 °C.

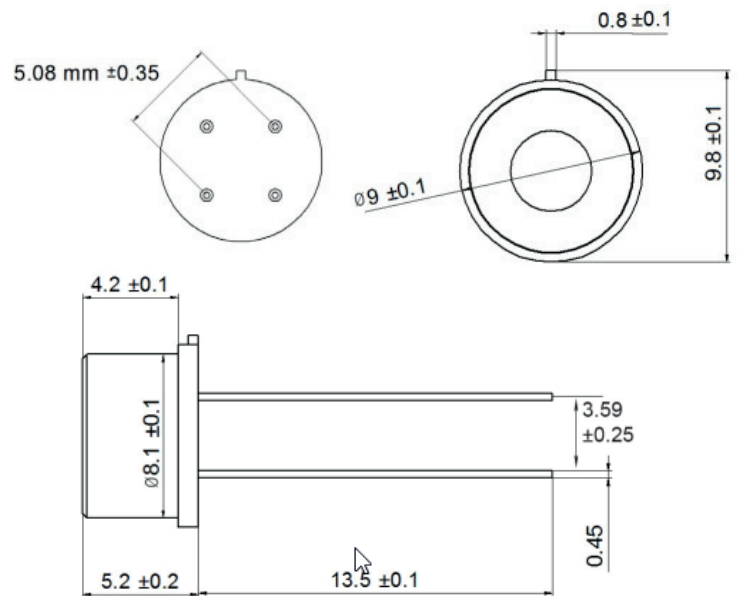
Temperature measurement accuracy



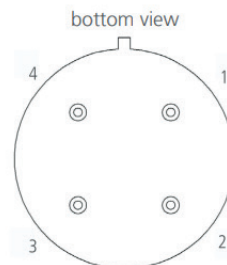
Humidity application range



Mechanical dimensions



Pin assignment



Pin	Assignment
1	SCL
2	VCC
3	GND
4	SDA

Ordering information

Article	
Leakproof TO39 housing with glass grommet and sinter filter	Art.-No.: 0381 0015
This version is not pressure resistant up to 16 bar	
Welded, hermetically sealed TO39 housing with glass grommet and sinter filter is constructed for compressed air systems up to 16 bar.	Art.-No.: 0381 0939
Option	
Humidity/ temperature system with USB interface	Art.-No.: 0567 0001