

Digital humidity and temperature probe with I²C interface

Description



Performance characteristics

- Combined temperature- and humidity measurement
- Measuring sensor in stainless steel housing with sintered filter
- Resolution 0.03 % RH, 0.015 °C
- Accuracy ± 2 % RH, ± 0.2 °C
- I²C interface

Application areas

- Monitoring of storage rooms
- Quality assurance
- Plant engineering
- Air conditioning

Technical data

Humidity measurement	
Measuring range humidity	0...100 % RH
Accuracy	± 2 % RH (at 23 °C)
Temperature measurement	
Measuring range temperature	-40...+125 °C
Accuracy	± 0.2 °C at 0...+60 °C
Module	
Resolution	14 Bit
Operating voltage	2.7...5.5 V DC
Current consumption	typ. <22 μ A at 1 Hz measuring rate, 850 μ A maximal
Interface	I ² C, adress 0 x 28 or alternative adress
Dimensions	\varnothing 12 x 150 mm
Sintered filter	\varnothing 12 x 20 mm, stainless steel 1.4404
Connection	RJ12 plug, 6 pole
Cable connection	AWG28, PVC insulated, AD 5,0 mm
Cable length	3 m, other cable length on request
CE conformity	2014/30/EU
Electromagnetic compatibility	EN 61326-1:2013

Description

The digitale humidity/temperature probe with I²C interface has been specially developed for use with the „Hytelog Multisensor“ humidity/temperature measuring system. The wide measuring ranges from -40 to +125 °C and 0 to 100 % RH enable use in a wide variety of application areas, e.g. in the hot air flow systems.

The high-quality stainless steel housing is equipped with a fine-pored V2A protective filter, which above all offers protection against coarse dust and mechanical damage. The temperatureresistant connectioncable is hard-wearing and conforms to industrial requirements. The humidity/temperature probe can be used stationary or in portable systems by means of a compression fitting. These two options are also offered by humidity/temperature measuring system with USB interface and software, to which up to three humidity/temperature probes can be connected.

Attention

Extreme mechanical and improper stress must be avoided at all costs.

The product cannot be used in potentially explosiv areas or in medical technology applications.

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I²C interface

The communication corresponds to the I²C protocol. All technical specifications of the protocol and the commands can be found in the „Protocol description I²C“. The documentation is available on request or can be downloaded from our website.

The sensor can be addressed via the standard address 0 x 28 (or alternative address). Up to four bytes can be read via this address. If the temperature is not required, it is sufficient to read only the first two bytes.

Data		
0 x 28	Byte_0	MSB Humidity
	Byte_1	LSB Humidity
	Byte_2	MSB Temperature
	Byte_3	LSB Temperature

Scaling the measured values

The I²C values are transmitted from the sensor as 16 bit values. The first two bits are status bits with the following meanings:

Bit15: CMode Bit, if 1 – element is in command mode

Bit14: Stale Bit, if 1 – no new value has been created since the last read

In order to mask the two status bits in a 16-bit value, they are logically linked with 3FFF and AND. The remaining 14 bits represent the measured value. The masked data must now be scaled into a physical unit of measurement:

The following scaling applies to the measured values:

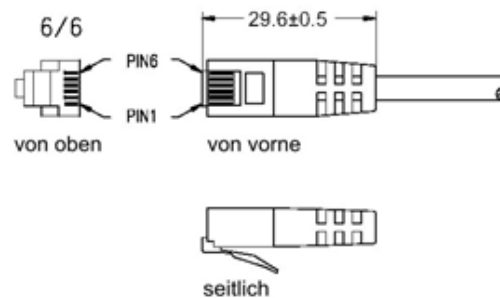
Humidity channel			
Numerical value	0x	0000...3FFF	
via I ² C interface	dec.	0...16383 (I2C)	
Physical value		0...100 % RH	
Scaling		% RH (I2C) [%] = (100/(2 ¹⁴ -1))xI2C	

Temperature channel			
Numerical value	0x	0000...3FFF	
via I ² C interface	dec.	0...16383 (I2C)	
Physical value		-40...+125 °C	
Scaling		T(I2C) [°C] = (165/(2 ¹⁴ -1))xI2C-40	

Pin assignment of the plug

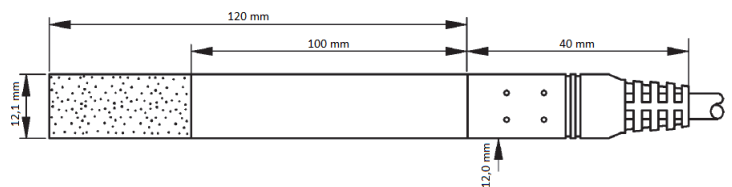
RJ45	Colour	Function	
1	black	VDD	Operating voltage 2.7...5.5 V
2	brown	GND	Mass
3	red	SDA	Serial data I2C
4	orange	SCL	Serial tact I2C
5	yellow	GND	Mass
6	green	---	not used

Connection assignment



Dimensions

- Probe in stainless steel housing Ø 12 x 100 mm with protective filter and connection cable



Order numbers

Humidity/temperature probe with I2C interface	Article number
Cable length 3 m, address 0x28	0636 0011
Cable length 3 m, address 0x29	0636 0011-09
Cable length 3 m, address 0x2A	0636 0011-10

Accessories

Article	Article number
Humidity/temperature measuring system with USB interface (Hytelog Multisensor)	0567 0001
Humidity/temperature measuring system Hytelog Multisensor-Set (incl. 0567 0001 and 0636 0011)	0570 0001
Clamp connection	0554 0099