

I2C TEMPERATURE AND HUMIDITY PROBE FOR OEM APPLICATIONS WITH M8 CONNECTOR

I2C-M8-TRH SERIES



DESCRIPTION

Based on the Sensirion SHT31, this is a precision temperature and humidity field interchangeable probe with a M8 4-pin waterproof IP67 connector. It communicates using the well-established I²C protocol used with some of our products that are equipped with an external connector. It is also possible to use this probe with a wide variety of microcontrollers and single-board computers such as the Raspberry pi, Arduino and similar products that support the I²C communication protocol.

The I²C probe has dust, moisture and splash-proof filters for uses in harsh environments.

APPLICATIONS

- OEM
- Prototypes
- Scientific research
- Building automation
- Engineering and R&D

LENGTH'S OPTIONS

- 12 cm
- 100 cm
- 180 cm

ALSO AVAILABLE

Traceability certificates

SPECIFICATIONS

Parameter	Condition	Value	Units
Temperature			
Operating range	–	-40 to 70	°C
Accuracy	Typ., 0 °C to 70 °C	±0.2	°C
Accuracy	-40 °C to 0 °C	±0.5	°C
Resolution	–	0.015	°C
Repeatability	Typ.	0.06	°C
Response time	t63% (75°C)	8	sec
Long-term drift ^[4]	Typ.	≤0.03	°C/yr
Factory calibrated	Individually ^[2]	Yes	–
Connector IP rating	–	67	–
Probe IP rating	–	54	–
Relative humidity			
Operating range ^[3]	Non-condensing	0 to 100	%RH
Accuracy	Typ., 25 °C, 0 to 100 %RH	±2	%RH
Accuracy	Max., 25 °C, 0 to 90 %RH	±2.5	%RH
Accuracy	Max., 25 °C, 90 to 100 %RH	±3.5	%RH
Resolution	Typ.	0.01	%RH
Repeatability	–	0.15	%RH
Hysteresis	at 25 °C	±0.8	%RH
Long-term drift ^[4]	Typ.	≤0.25	%RH/yr
Factory calibrated	Individually ^[2]	Yes	–
Filter - Layer 1			
Material	Polyethylene terephthalate (PET) mesh		
Filter - Layer 2			
Material	PTFE membrane		
Efficiency	Particle size ≥200 nm	99.99	%

SPECIFICATIONS

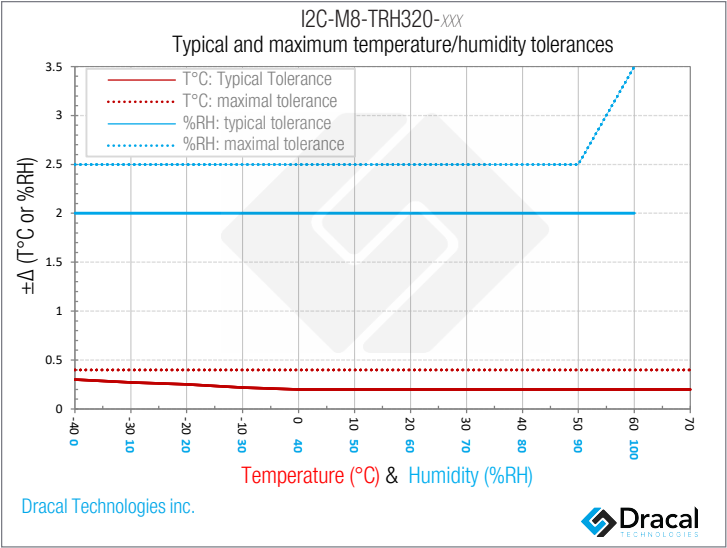
Parameter	Condition	Value	Units
Power supply			
Supply voltage ^[5]	With a 12 cm probe	3.0 to 5	VDC
Current consumption	Measuring, at 5V	1.5	mA
Current consumption	Idle, periodic acq., 5V	45	µA
Communication			
Protocol		I ² C	
Maximum speed		1	Mhz
Mechanical			
Colour	–	Black	–
Connector type		M8	
Arrangement code type	4-pin	A	
Polarity		Male	
Diameter		10	mm
Overall length	I2C-M8-TRH320-P12	12	cm
Overall length	I2C-M8-TRH320-P100	100	cm
Overall length	I2C-M8-TRH320-P180	180	cm
Weight	I2C-M8-TRH320-P12	10	g
Weight	I2C-M8-TRH320-P100	46	g
Weight	I2C-M8-TRH320-P180	80	g
Lifetime	–	5	years

^[2] Each sensor is individually conditioned by the manufacturer of the semi-conductor sensor chips, in the best stable conditions and their correction coefficients are recorded in each of them.

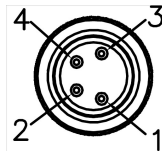
^[3] If water condensation or splashing is possible, the probe's tip should be orientated downward.

^[4] Typical value for operation in normal RH/T operating range.

^[5] Cable length dependent.



CABLE SIGNAL CONNECTIONS (front view)



V+	Black
SCL	White
SDA	Brown
Ground (-)	Blue

PIN-1	5VDC Max
PIN-2	SCL
PIN-3	Ground
PIN-4	SDA

EXAMPLE WITH A M8 PANEL MOUNT RECEPTACLE (sold separately)



CAUTION: Please keep in mind that electromagnetic interference (EMI) may decrease the accuracy of the sensor. Avoid using this device near EMI sources such as motors, high voltage transformers and fluorescent tubes.

NOTE: Note that this product is not waterproof and requires protection if contact with water is possible.

TIP: Avoid installing the sensor in a location where strong vibration is likely to occur. Strong vibrations may cause slight inaccuracies in the reading.

TIP: As for any precision measurement equipment, it is advised to power on the unit at least 15 minutes before using it.

ORDERING

PRODUCT(S)

PART NUMBER	OPTION	DESCRIPTION
601102	I2C-M8-TRH320-P12	I2C temperature and humidity precision probe with M8 connector, 12 cm
601103	I2C-M8-TRH320-P100	I2C temperature and humidity precision probe with M8 connector, 100 cm
601105	I2C-M8-TRH320-P180	I2C temperature and humidity precision probe with M8 connector, 180 cm

Warning: This product should not be used in applications where its failure may cause personal injury.

Note: While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions.

Note: Data may change without notification, and you are strongly advised to obtain copies of the most recently issued datasheet.