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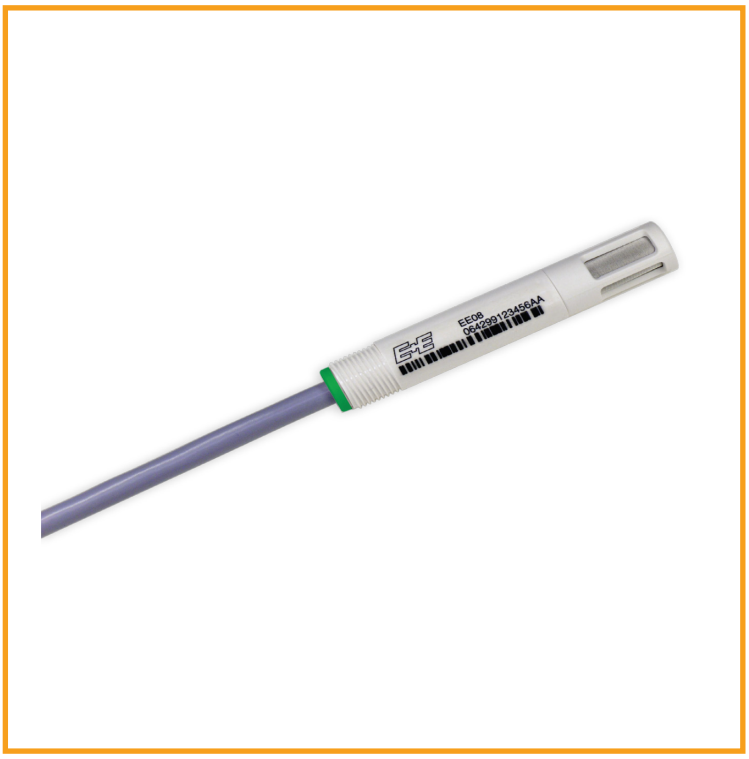
Sensors & Instrumentation

Datasheet EE08

High-Precision Miniature Humidity and Temperature Probe



EE08

High-Precision Miniature Humidity and Temperature Probe

The EE08 reliably measures the relative humidity (RH) and the temperature (T) in indoor and outdoor applications. Outstanding temperature compensation leads to excellent accuracy over the wide working range of 0...100 %RH and -40...+80 °C (-40...176 °F).

Versatility

EE08 features analogue outputs for RH and T, passive T output and E2 digital interface. The small size, the choice between M12 connector or fixed cable and the very wide voltage supply range facilitate the EE08 integration in most applications.

Long-Term Performance

The long-term accuracy and stability of the EE08 are based on the high-end E+E humidity sensing elements manufactured in state-of-the-art thin-film technology. The E+E proprietary coating ensures best long-term performance even in dirty, dusty and corrosive environment.

Energy Efficiency

Due to very low power consumption, voltage supply range down to 4.5 V DC and short start-up time, the EE08 is suitable for battery powered devices.

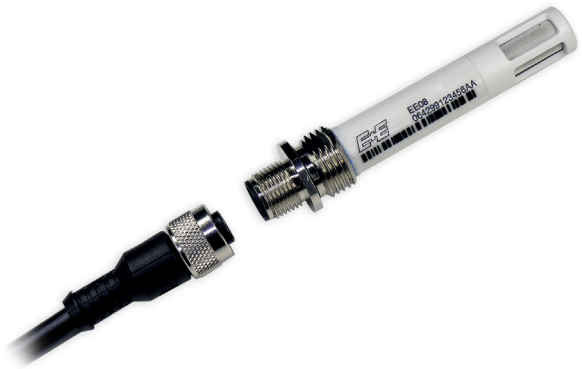
Outdoor Use

For meteorology and other outdoor use, the EE08 can be fitted with radiation shields appropriate for the product version with plug or fixed cable.

User Configurable and Adjustable

The free EE-PCS Product Configuration Software and an optional configuration adapter facilitate configuration and adjustment of the EE08.

EE08 cable version



EE08 plug version

Features

Measurement Performance

- Accurate and long-term stable RH and T measurement
- Wide temperature range -40...+80 °C (-40...+176 °F)

Sensing Elements

- Protected by
  - E+E proprietary coating
  - Metal grid filter
- Active or passive T measurement

Electronics

- Output 0 - 1 / 2.5 / 5 / 10 V
- E2 interface
- Low power consumption and short start-up time
- Supply voltage down to 4.5 V
- User-adjustable with EE-PCS

Enclosure and Connection

- Small dimensions
- IP65, polycarbonate
- M12x1 connector, 8 poles
- Cable up to 5 m

Inspection certificate

According to DIN EN 10204-3.1

Features

Protective Sensor Coating

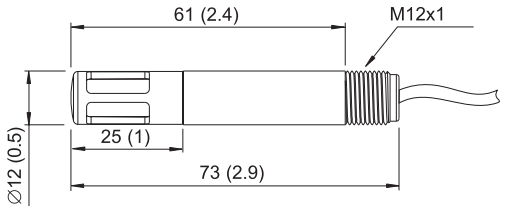
The E+E proprietary sensor coating is a protective layer applied to the sensing elements, their leads and soldering points. The coating substantially extends sensor lifetime and ensures optimal measurement performance in corrosive environment (salts, off-shore applications). Additionally, it improves the sensors' long term stability in dusty, dirty or oily applications by preventing stray impedance caused by deposits on the active sensor surface or on the electrical connections.

Dimensions

Values in mm (inch)

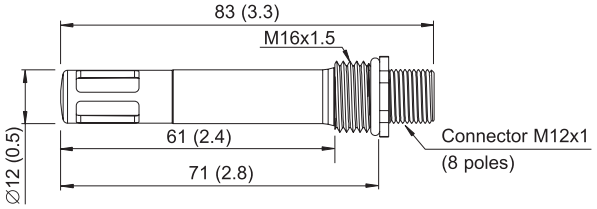
Cable version

(Connection type E8)



Plug version

(Connection type E11)



Technical Data

Measurands

Relative Humidity (RH)

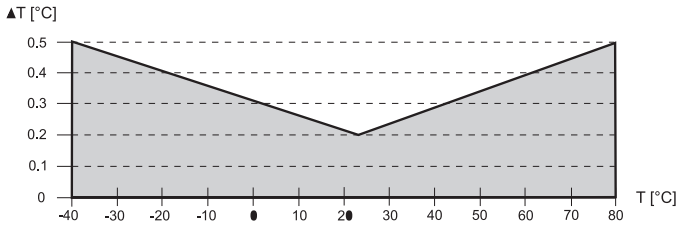
Measuring range	0...100 %RH
Accuracy[1)] including hysteresis, non-linearity and repeatability, @ 23 °C (73 °F) and nominal voltage **RH ≤ 90 %** **RH > 90 %**	 ±2 %RH ±3 %RH
Temperature dependency, typ.	±0.03 %RH / °C (±0.017 %RH / °F)

1) The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement); nominal voltage V1 = 12 V DC, V2 = 24 V DC

Technical Data

Measurands

Temperature (T)

Measuring range	-40...+80 °C (-40...+176 °F)
Accuracy[1)]	

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Outputs

Analouge	0 - 1 V / 0 - 2.5 V / 0 - 5 V / 0 - 10 V	-0.2 mA < I_L < 0.2 mA
Digital interface	E2 interface[1)]	

1) E2 voltage level = 3.3 V / ±0.1 V, for further support literature refer to www.epluse.com/ee08.

General

Power supply class III USA & Canada: Class 2 supply necessary, max. voltage 30 V DC			
output 0 - 1 V / 0 - 2.5 V	V1: 4.5 - 15 V DC	V2: 7 - 30 V DC	
output 0 - 5 V		V2: 7 - 30 V DC	
output 0 - 10 V		V2: 12 - 30 V DC	
Current consumption, typ.	<1.3 mA		
Electrical connection	M12x1, 8/10 poles Cable PVC 8 x 0.14 mm² (M1 models) Cable PVC 10 x 0.14 mm² (M6 models)		
Filter	Metal grid		
Storage conditions	-40...+80 °C (-40...176 °F) 0...95 %RH non-condensing		
Enclosure			
Material	PC (Polycarbonate)		
Protection rating	IP65		
Electromagnetic compatibility	EN 61326-1 FCC Part15 Class B	EN 61326-2-3 ICES-003 Class B	Industrial Environment
Conformity	CE UKCA		
Adjustment	EE-PCS Product Configuration Software (www.epluse.com/configurator) and configuration adapter		

Ordering Guide

	Feature	Description	Code			
			EE08-			
Hardware Configuration	Model	RH + T	M1			
		RH + T passive				M6
	Output	0 - 1 V[1]	A1			
		0 - 5 V[2]	A2			
		0 - 10 V[2]	A3			
		0 - 2.5 V[1]	A8			
	Power supply	4.5 - 15 V DC	V1			
		7 - 30 V DC	V2			
	T sensor passive[3]	Pt100 DIN A				TP1
		Pt1000 DIN A				TP3
	Filter	Metal grid, polycarbonate body	No code			
	Electrical connection	Cable		E8		E8
		M12 plug, 8 poles	E11		E11	
	Connection cable length	1 m (3.3 ft)		KL100		KL100
		2 m (6.6 ft)		KL200		KL200
		5 m (16.4 ft)		KL500		KL500
	Sensing element protection	Without	No code			
		E+E proprietary coating	C1			
Analogue Outputs	Output 1 measurand	Relative humidity RH [%]	No code			
	Output 2 measurand	Temperature T [°C]	No code			
		Temperature T [°F]	MB2			
	Output 2 scaling low	Value	SBL*Value*			
	Output 2 scaling high	Value	SBH*Value*			

1) With supply 4.5 - 15 V DC (V1) or 7 - 30 V DC (V2)
2) Only with supply 7 - 30 V DC (V2)
3) T sensor details see the Pt100 and Pt1000 R_T_Characteristics.

Order Example

EE08-M1A2V2E8KL200SBL-40SBH80

Feature	Code	Description
Model	No code	RH & T
Output	A2	0 - 5 V
Power supply	V2	7 - 30 V DC
Filter	No code	Metal grid, polycarbonate body
Electrical connection	E8	Cable
Connection cable length	KL200	2 m (6.6 ft)
Output 1 measurand	No code	Relative humidity RH [%]
Output 2 measurand	No code	Temperature T [°C]
Output 2 scaling low	SBL-40	-40
Output 2 scaling high	SBH80	80

Accessories

For further information see datasheet Accessories.

Description	Code
E+E Product Configuration Software (Free download from www.epluse.com/configurator)	EE-PCS
Configuration adapter RS232 to E2	HA011005
M12 connection cable for plug version (E11) M12x1 socket, 8 poles ←→ free cable ends, shielded	
1.5 m (5 ft)	HA010322
3 m (10 ft)	HA010323
5 m (16.4 ft)	HA010324
10 m (32.8 ft)	HA010325
Radiation shield for cable version (E8)	HA010502
Radiation shield for plug version (E11)	HA010506
Wall mounting clip Ø12 mm (0.47")	HA010211
Protection cap for Ø12 mm (0.47") probe	HA010783
M12x1 flange coupling with flying leads 8 poles socket	HA010703
M12x1 cable connector 8 poles socket for self assembly	HA010704
Metal grid filter, polycarbonate body	HA010113


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