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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

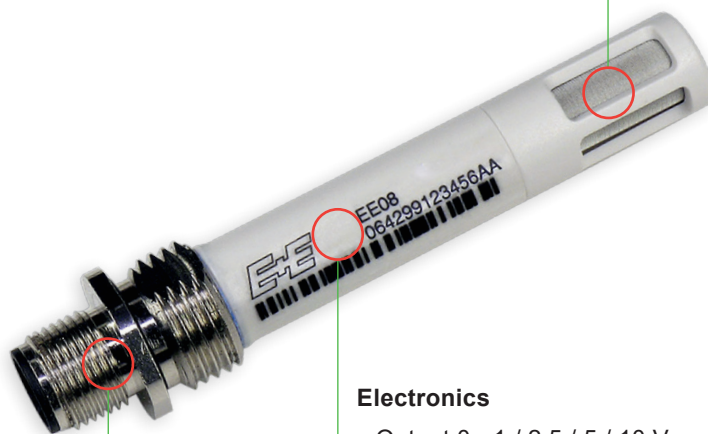
Features

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



Enclosure and Connection

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

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 DC
- User-adjustable with EE-PCS

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.

Accredited Traceable Calibration Certificate



Internationally recognised certificates for the calibration of measuring instruments from accredited laboratories document the traceability of the measurements to the International System of Units (SI). The E+E Elektronik calibration laboratory offers two levels of traceable calibrations.

- As a Designated Institute (DI) of the Republic of Austria, the E+E calibration laboratory maintains Austria's national measurement standards for humidity, dew point temperature, air velocity and CO₂. This authorises the E+E calibration laboratory to issue calibration certificates at the level of a National Metrological Institute (NMI).
- The E+E calibration laboratory is accredited by Akkreditierung Austria in accordance with DIN EN ISO/IEC 17025 with the identification number 0608. This allows the laboratory to issue ISO 17025 certificates for the measurands humidity, temperature, dew point temperature, air velocity, flow, pressure and CO₂.

Visit www.eplusecal.com for detailed information on calibration and to enquire a certificate of accredited traceable calibration for the EE08 from the Designated Institute.

ISO 9001 Calibration Certificate

An ISO 9001 calibration certificate documents the comparative measurement of a device against high quality reference equipment (factory level standard). The comparison is performed in accordance with internal procedures that comply with ISO 9001 and provides information on the specimen's measuring accuracy. The reference equipment is traceable to national standards, however, the calibration process is not accredited. Therefore, an ISO 9001 calibration is neither traceable nor internationally comparable.

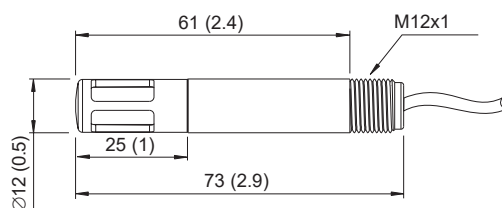
Visit www.epluse.com/iso9001cal for detailed information on calibration and to enquire an ISO 9001 calibration certificate.

Dimensions

Values in mm (inch)

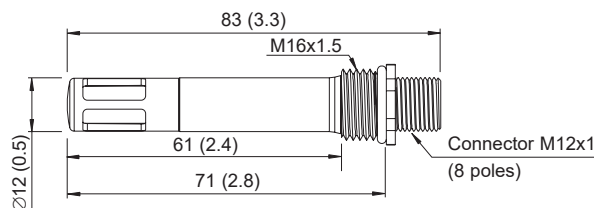
Cable version

(Connection type E8)



Plug version

(Connection type E11)



Technical Data

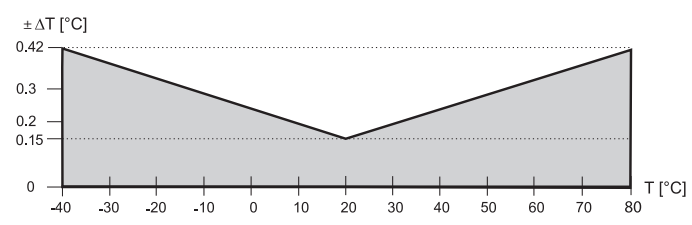
Measurands

Relative Humidity (RH)

Measuring range	0...100 %RH		
Accuracy ¹⁾ including hysteresis, non-linearity and repeatability, @ 23 °C (73 °F) and nominal voltage	≤90 %RH >90 %RH	±1.65 %RH ±2.45 %RH	
Factory calibration uncertainty ²⁾	≤90 %RH >90 %RH	±(0.7 + 0,003 * mv) %RH ±1 %RH	mv = measured value
Temperature dependency, typ.	±0.03 %RH/°C (±0.017 %RH/°F)		

1) Defined against E+E calibration reference.
2) Defined at 23 °C with a coverage factor k=2, corresponding to a confidence level of 95 %.

Temperature (T)

Measuring range	-40...+80 °C (-40...+176 °F)		
Accuracy ¹⁾			
Factory calibration uncertainty ²⁾	±0.1 °C		

1) Defined against E+E calibration reference.
2) Defined at 23 °C with a coverage factor k=2, corresponding to a confidence level of 95 %.

Outputs

Analogue	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.

Technical Data

General

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

Ordering Guide

Feature		Description	Code			
Hardware Configuration			EE08-			
	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				
Accredited Traceable Calibration Certificate in accordance with DIN EN ISO/IEC 17025			see www.eplusecal.com			
ISO 9001 Calibration Certificate			see www.epluse.com/iso9001cal			

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

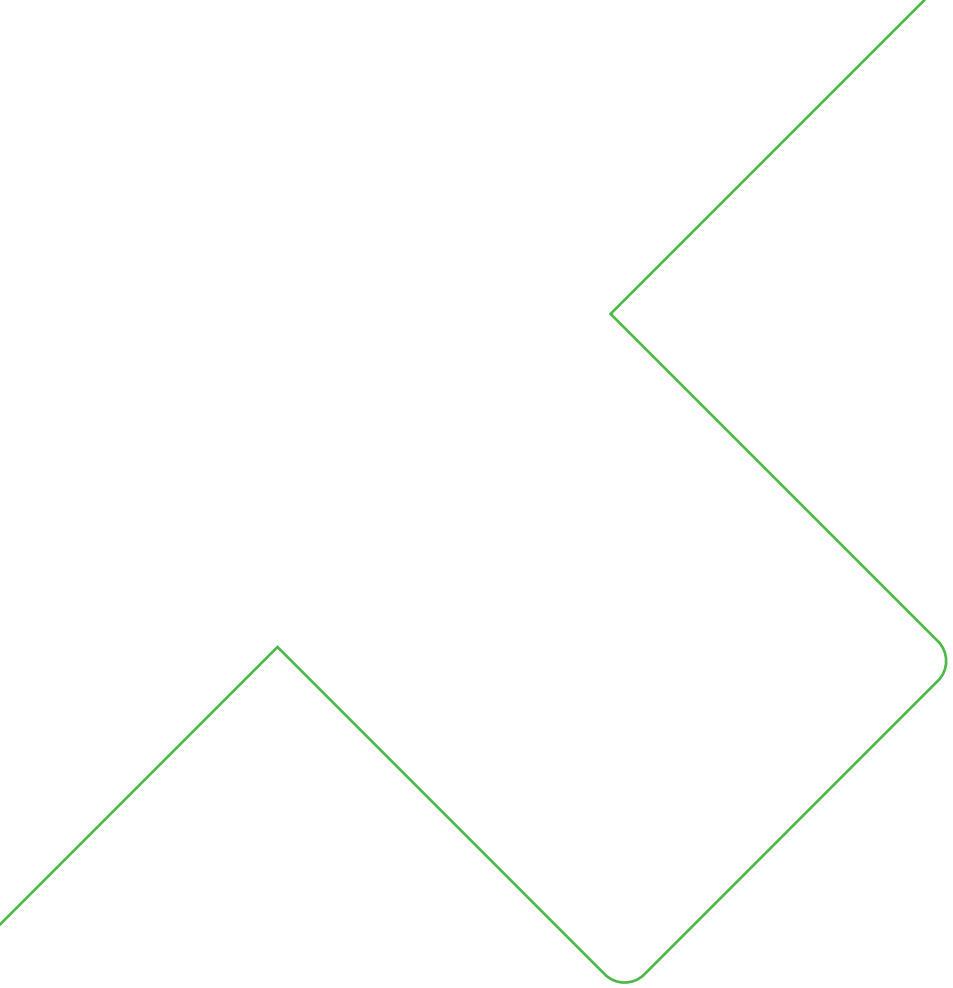
EE08-M1A2V2E8KL200SBL-40SBH80

Feature	Code	Description
Model	M1	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
Interface cable RS232 ↔ E2 bus for EE08, 2 m (6.6 ft)	HA011005
Sensor connection cable M12x1 socket ↔ free ends, 8 poles, 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 with clamp ring M20x1.5 for cable version (E8)	HA010502
Radiation shield with screw-in thread M16x1.5 for plug version (E11)	HA010506
Wall mounting clip Ø12 mm (0.47")	HA010211
Protection cap for Ø12 mm (0.47") probe, RAL6018	HA010783
Flange socket, M12x1 ↔ 50 mm (1.97") stranded wire, 8 poles, M16x1 screw-in thread	HA010703
Connector, M12x1 socket, 8 poles, for self assembly	HA010704
Metal grid filter cap for EE08, polycarbonate body	HA010113



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