

# **+ Datasheet EE07**

**Interchangeable Humidity and Temperature  
Probe with Digital Interface**



# EE07

## Interchangeable Humidity and Temperature Probe with Digital Interface

The EE07 is designed for accurate humidity (RH) and temperature (T) measurement in demanding climate control and OEM applications. It is available with polycarbonate or stainless steel enclosure, as well as for T measurement only. Furthermore, it features an optimized version for minimal power consumption, ideal for battery-powered measurement devices.

### Measurement Performance

The high-end E+E humidity sensing element, manufactured using state-of-the-art thin film technology, offers outstanding measurement accuracy. With a wide T working range and excellent T compensation, the EE07 is suitable for both indoor and outdoor use. The excellent RH and T accuracy of the probe makes it ideal for use in meteorology with the optional radiation shield.

### Long-Term Stability

The E+E proprietary coating in combination with the wide choice of filter caps protects the RH sensing element from corrosion and dirt. This ensures best long-term stability even in harsh environment.

### Digital Interface

The measured values are available on the serial E2 interface. The M12 connector allows for EE07 replacement within seconds.

### Adjustable

The user can perform the RH and T adjustment of the probe with an optional adapter.



RH/T or T polycarbonate probe with membrane filter



RH/T stainless steel probe with metal-grid filter



T stainless steel probe

# Features

## Measurement performance

- Outstanding RH and T accuracy
- Measuring range from -40 °C (-40 °F) up to +80 °C (+176 °F)
- Temperature compensation
- Very low power consumption

## RH/T probe head

- RH sensing element protected by E+E proprietary coating
- Outstanding long term stability
- Wide choice of filter caps



## Output and connection

- E2 interface
- M12x1 connector, 4-poles
- Pluggable and interchangeable
- Adjustable via optional adapter

## Mechanical construction

- IP65 protection rating
- Polycarbonate or stainless steel enclosure

## Inspection certificate

according to DIN EN 10204-3.1

# Features

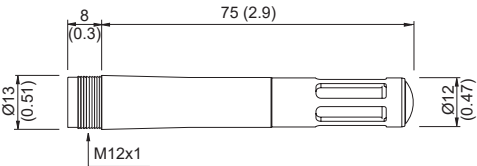
## Protective Sensor Coating

The E+E proprietary sensor coating is a protective layer applied to the active surface of the sensing element. 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.

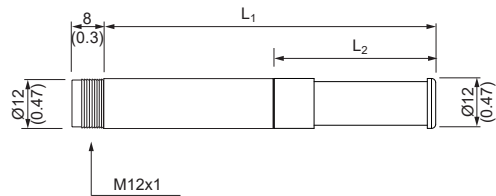
# Dimensions

Values in mm (inch)

### EE07-M1Fx

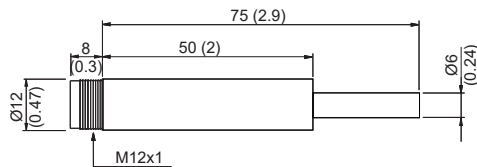


### EE07-M1HS2x



Filter	L <sub>1</sub>	L <sub>2</sub>
Metal grid	79.5 mm (3.13")	38.5 mm (1.52")
H <sub>2</sub> O <sub>2</sub>	73.5 mm (2.89")	33 mm (1.3")

### EE07-M3HS2x



# Electrical Connection

**⚠ WARNING**

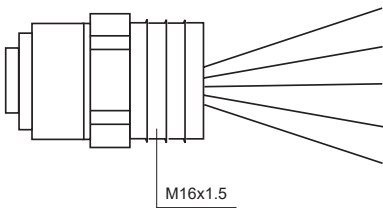
The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.

EE07

M12x1 flange coupling socket with  
50 mm (2") free cable ends (HA010705)



Pin	Description
1	GND
2	V+
3	DATA
4	CLOCK



Color	Description
Brown	GND
White	V+
Blue	DATA
Black	CLOCK
Grey	Shielding

# Technical Data

Measurands

Relative Humidity (RH)

Measuring range	0...100 %RH, non condensing
Accuracy <sup>1)</sup> (incl. hysteresis, non-linearity and repeatability) @ 23 °C (73 °F)	0...90 %RH ±2 %RH 90...100 %RH ±3 %RH
Temperature dependency	<(0.025 + 0.0003 x RH) x (T - 23 °C) (73 °F)
Supply voltage dependency for option AF4 and V+ < 3.3 V DC, typ.	-0.0026 %RH/mV

1) Traceable to international standards, administrated by NIST, PTB, BEV,...  
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).

Temperature (T)

Measuring range	-40...+80 °C (-40...+176 °F)
Accuracy	<div><p>± ΔT [°C]</p><p>T [°C]</p></div>

# Technical Data




## Output

### Digital

Digital interface	E2 interface <sup>1)</sup>
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1) For further support literature refer to [www.epluse.com/ee07](http://www.epluse.com/ee07).

## General

<b>Power supply class III</b>  USA & Canada: Class 2 supply necessary <b>Standard</b> <b>Option AF4</b>	3.8 V DC - 5.5 V DC 2.7 V DC - 5.5 V DC
<b>Current consumption, typ.</b> <b>Standard</b> <b>Option AF4</b>	< 1.5 mA < 6 µA in sleep mode 1.5 - 2.5 mA during measurement (150 ms) Average: <200 µA at sampling rate = 1 s
<b>Voltage level digital interface</b>	Max. 3.5 V DC, ≤V+ for option AF4
<b>Electrical connection</b>	M12x1, 4 poles
<b>Humidity working range</b> <b>With coating</b> <b>Without coating</b>	0...100 %RH, non-condensing 0...95 %RH, non-condensing
<b>Temperature range</b>	-40...80 °C (-40...176 °F)
<b>Storage conditions</b>	-40...80 °C (-40...176 °F) 0...95 %RH, non-condensing
<b>Maximum cable length</b> (Depends on the bus frequency)	30 m (98.4 ft)
<b>Enclosure</b> <b>Material</b> <b>Protection rating, probe body</b>	Polycarbonate or stainless steel IP65
<b>Electromagnetic compatibility<sup>1)</sup></b>	EN 61326-1      EN 61326-2-3      Basic environment FCC Part15 Class B      ICES-003 Class B
<b>Conformity</b>	 

1) No protection against surge.

# Ordering Guide

Feature	Description	Code			
Hardware Configuration		EE07-			
	Model	RH + T		M1	
		T			M3
	Enclosure material	PC (Polycarbonate)		No code	No code
		Stainless steel		HS2	HS2
	Filter	Membrane, polycarbonate body		F2	F2
		Metal grid, polycarbonate body		F3	
		PTFE (Polytetrafluoroethylene)		F5	
		Stainless steel - metal grid (up to 180 °C / 356 °F)			F9
		Catalytic for H <sub>2</sub> O <sub>2</sub> sterilisation		F12	F12
	Sensing element protection	Without		No code	
		E+E proprietary coating		C1	
	Additional function	Without		No code	No code
		Energy saving		AF4	AF4

# Order Examples

## EE07-M1F2C1

Feature	Code	Description
Model	<b>M1</b>	RH + T
Enclosure material	<b>No code</b>	PC (Polycarbonate)
Filter	<b>F2</b>	Membrane, polycarbonate body
Sensing element protection	<b>C1</b>	E+E proprietary coating
Additional function	<b>No code</b>	Without

## EE07-M1HS2F12C1AF4

Feature	Code	Description
Model	<b>M1</b>	RH + T
Enclosure material	<b>HS2</b>	Stainless steel
Filter	<b>F12</b>	Catalytic for H <sub>2</sub> O <sub>2</sub> sterilisation
Sensing element protection	<b>C1</b>	E+E proprietary coating
Additional function	<b>AF4</b>	Energy saving

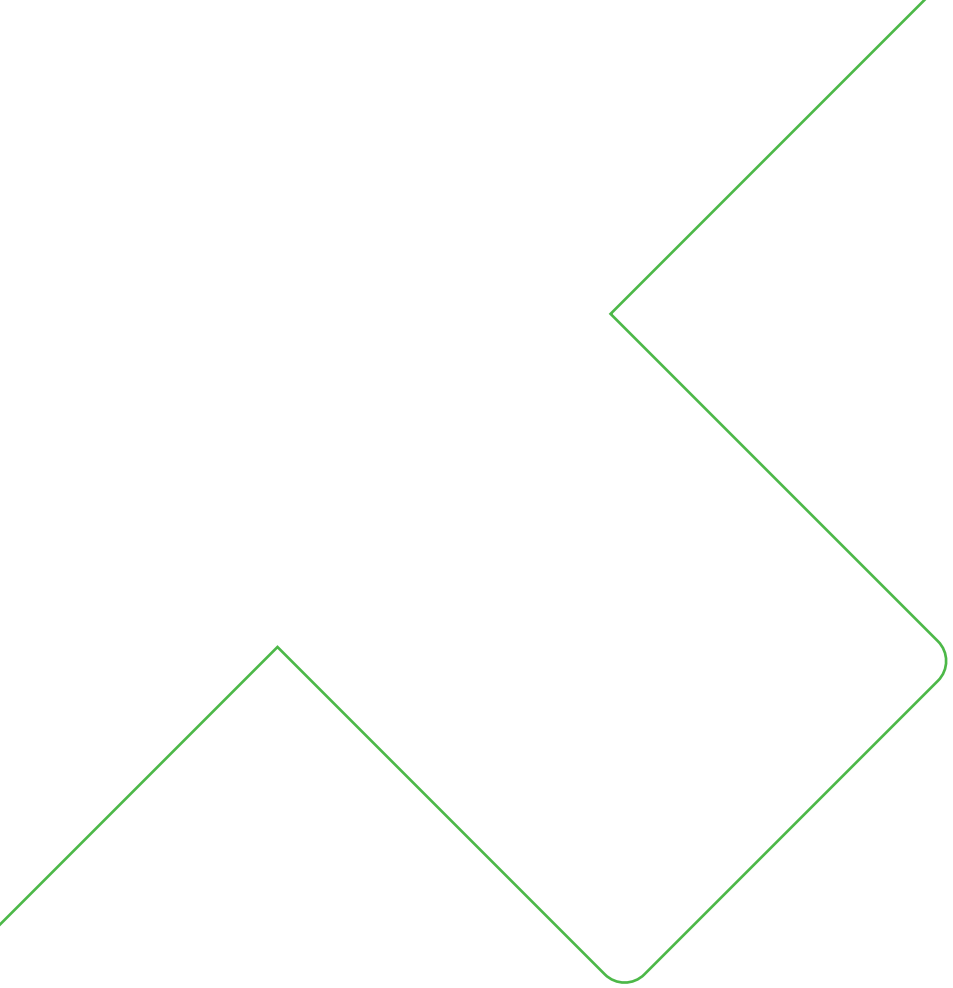
# Scope of Supply

- EE07 probe according to ordering guide
- Inspection certificate according to DIN EN 10204-3.1

# Accessories

For further information see datasheet [Accessories](#).

Description	Code
M12x1 flange coupling with 50 mm (2") free cable ends	<b>HA010705</b>
Connection cable M12x1 socket 5 poles / free cable ends	<b>HA010819</b>
1.5 m (4.9 ft)	<b>HA010820</b>
5 m (16.4 ft)	<b>HA010821</b>
10 m (32.8 ft)	
Radiation shield with fixed clamping ring (M20x1.5)	<b>HA010502</b>
Protection cap for M12 socket	<b>HA010781</b>
Protection cap for M12 plug	<b>HA010782</b>
Configuration adapter	<b>See datasheet EE-PCA</b>



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