EE07

Interchangeable Humidity / Temperature Probes with Digital Output

EE07 is ideal for demanding climate control and OEM applications and features a well-proven E+E humidity (RH) sensing element. It is available in polycarbonate or metal enclosure, as well as for temperature (T) measurement only. Additionally it features an optimized version for very low power consumption, ideal for battery-powered measurement devices.

The wide T working range, the T compensation and the choice of filter caps make EE07 appropriate for both indoor and outdoor use. Due to the excellent RH and T accuracy, the probe can be employed with the optional radiation shield even in meteorology. The E+E proprietary coating protects the RH sensing element against corrosion and dirt, which leads to best long term stability even in harsh environment.


RH/T or T polycarbonate probe


RH/T metal probe


T metal probe

The measured values are available on the serial E2 interface. The M12 connector allows for EE07 replacement within seconds. The user can perform the RH and T adjustment of the probe with the optional configuration kit.

Typical Applications

Demanding climate control
Outdoor and meteorology
OEM applications
Battery powered measurement devices
Data loggers, handheld devices

Features

Outstanding RH and T accuracy
Excellent long term stability
Digital output
Pluggable and interchangeable
Very low power consumption

Technical Data

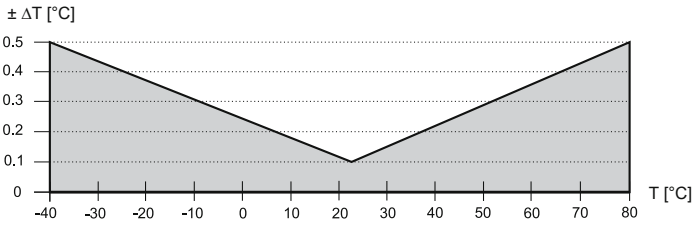
Measurands

Relative Humidity

Measuring range		0...100 %RH
Accuracy[1]	0...90 %RH:	±2 %RH
@ 23 °C (73 °F)	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

Temperature

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



Outputs

Digital interface	E2[2]

General

Supply voltage (Class III)	Standard:	3.8 V DC - 5.5 V DC
	Option AF4:	2.7 V DC - 5.5 V DC
Current consumption	Standard:	< 1.5 mA
	Option AF4:	< 6 µA, in sleep mode
		1.5 - 2.5 mA during measurement (150 ms)
		average: <200 µA at sampling rate = 1 s
Voltage level digital interface		Max. 3.5 V DC, ≤ V+ for option AF4

Electrical connection	M12x1, 4 poles
Enclosure material	Polycarbonate or stainless steel
Protection rating	IP65
Electromagnetic compatibility[3]	EN 61326-1 EN 61326-2-3 FCC Part15 Class A ICES-003 Class A
Maximum cable length[4]	30 m (98.4 ft)
Operating and storage conditions	-40...80 °C (-40...176 °F)
With coating:	0...100 %RH (operation)
Without coating:	0...95 %RH (operation)
	0...95 %RH non-condensing (storage)

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).
2) For further support literature refer to www.epluse.com/EE07.
3) No protection against surge
4) Depends on the bus frequency

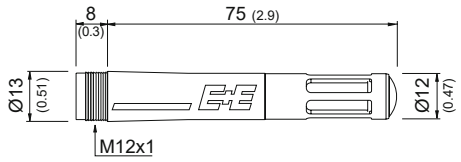
E+E Sensor Coating

The E+E proprietary sensor coating is a hygroscopic layer applied to RH sensing element. The coating substantially extends sensor life-time and ensures optimal measurement performance in corrosive environments (salts, off-shore applications). Additionally, it improves the 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.

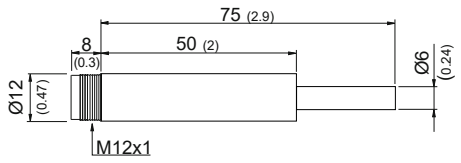
Dimensions

Values in mm (inch)

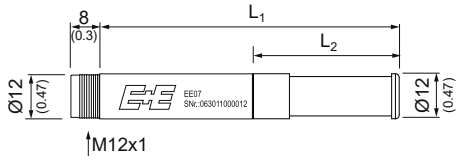
EE07-MxFx



EE07-M3HS2



EE07-M1HS2

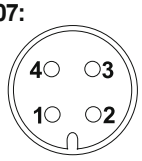


Filter	L_1	L_2
Metal grid	79.5 mm (3.13")	38.5 mm (1.52")
H_2O_2	73.5 mm (2.89")	33 mm (1.3")

Connection Diagram

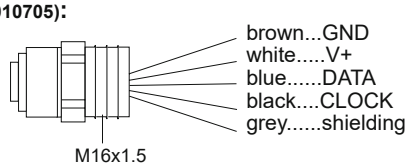
Important note:
The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.

EE07:



1...GND
2...V+
3...DATA
4...CLOCK

M12x1 flange coupling with 50 mm (2") flying leads (HA010705):



Ordering Guide

			EE07-			
Hardware Configuration	**Model**	RH + T	M1		M3	
		T				
	Enclosure material	Polycarbonat	no code		no code	
		Stainless steel		HS2		HS2
	Filter	Membrane	F2		F2	-
		PTFE	F5			-
		Metal grid	F3			-
		H_2O_2	F12	F12		-
		Stainless steel - metal grid		F9		-
	E+E Sensor Coating	Without coating	no code			-
		With coating	C1			-
	Additional function	None	no code		no code	
		Energy saving	AF4		AF4	

Order Example

EE07-M1F2C1

Model:	RH + T
Enclosure Material:	Polycarbonate
Filter:	Membrane
Sensing element protection:	With coating
Additional function:	None

EE07-M1HS2F12C1AF4

Model:	RH + T
Enclosure Material:	Stainless steel
Filter:	H_2O_2
Sensing element protection:	With coating
Additional function:	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 data sheet "Accessories")

- M12x1 flange coupling with 50 mm (2") flying leads	HA010705
- Connecting cable M12x1 - flying leads (1.5 m (4.9 ft) / 5 m (16.4 ft) / 10 m (32.8 ft))	HA0108**19**/**20**/**21**
- Filter caps	HA0101xx
- Radiation shield with cable gland (M20x1.5)	HA010502
- Protection cap for M12 socket	HA010781
- Protection cap for M12 plug	HA010782
- Configuration adapter	see data sheet EE-PCA