

EE1900

Humidity Measurement Module for OEM Applications

The EE1900 humidity module is optimised for the measurement of relative humidity (RH) or dew point temperature (Td) in climate chambers. The outstanding temperature compensation across the working range from -70 °C to 180 °C (-94 °F to 356 °F) and the choice of PPS probes make the module suitable for a wide range of applications.

Outstanding Accuracy and Long Term Stability

The excellent measuring accuracy of the EE1900 rests on the innovative E+E humidity and temperature sensing element HMC01. The proprietary E+E coating protects the sensor from dust, dirt and corrosive agents. Therefore, the EE1900 module features excellent long term stability even in harsh environment.

High Resistance to Chemicals, Dust and Corrosion

In applications with chemical contamination, the EE1900 stands out by the Automatic Sensor ReCovery (ARC) function. The controlled, strong heating outgases the chemicals from the sensing element to ensure reliable and stable measurements.

User Configurable and Adjustable

The analogue output of the EE1900 can be set to current or voltage with a slide switch. The service interface and the free EE-PCS configuration software allow for output scaling and adjustment of the humidity measurement.

Easy Installation

The high-quality, flexible probe cable up to 3 m facilitates the convenient mounting of the EE1900. The electronics board is available in two sizes, for easy integration into existing climate chambers and other machines.



Compact PCB

Features

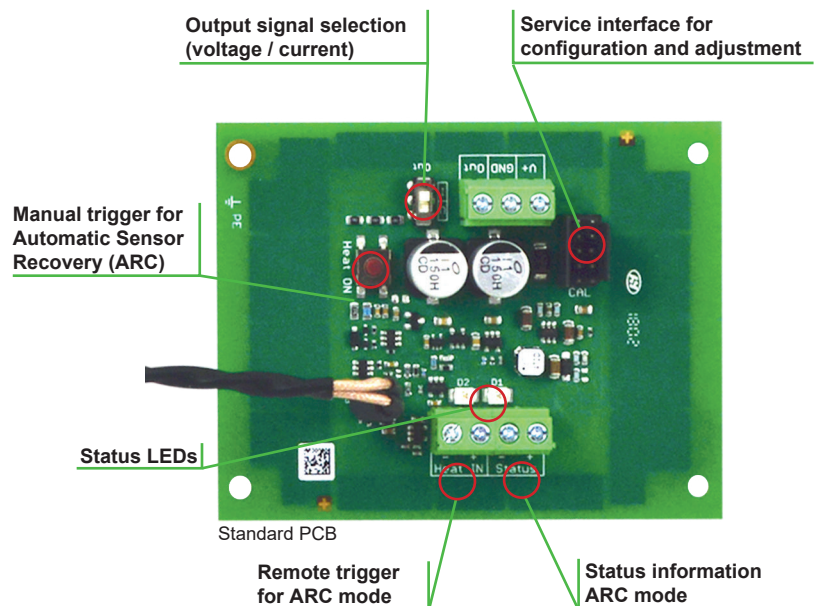


HMC01 sensing element

- » Automatic Sensor Recovery
- » Protected by E+E proprietary coating

Inspection certificate

- » According DIN EN 10204-3.1



Standard PCB

Protective sensor coating

The E+E proprietary sensor coating is a hygroscopic layer applied to the sensing elements, their leads and soldering points. 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 of E+E sensors in dusty, dirty or oily applications by preventing stray impedance caused by deposits on the active sensor surface or on the electrical connections.

Technical Data

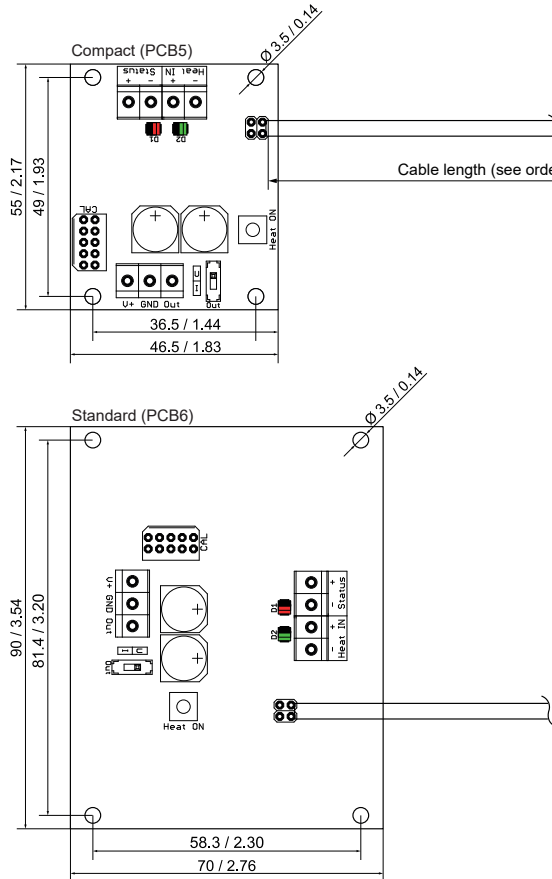
Sensing element	HMC01
Measurands	
Relative humidity (RH)	
Working range	0...100 % RH
Accuracy ¹⁾ (incl. hysteresis, non-linearity and repeatability)	
-20...40 °C (-4...104 °F)	± 2 % RH (≤90 % RH) / ± 2.5 % RH (>90 % RH)
-40...180 °C (-40...356 °F)	± 2.5 % RH (≤90 % RH) / ± 3.5 % RH (>90 % RH)
Dew point (Td)	
Working range	-20...80 °C Td (-4...176 °F Td)
Accuracy	± 2 °C (± 3.6 °F) for T _{ambient} - Td < 20 °C (36 °F)
General	
Response time RH t _{10/90} at 20°C (68 °F), typ.	15 s with stainless steel grid filter ²⁾
Supply voltage	15 - 35 V DC and 17 - 29 V AC
Current consumption	
for DC supply	< 32 mA
for AC supply	< 60 mA _{rms}
Output signal	
	0 - 1 / 5 / 10 V -1 mA < I _L < 1 mA
	0 / 4 - 20 mA (3 wire) R _L < 500 Ω
ARC status signal	Optocoupler, open/closed
Working range electronics	-40...60 °C (-40...140 °F) / 0...90 % RH non-condensing
Working range probe	-70...180 °C (-94...356 °F) / 0...100 % RH
Storage conditions	-40...60°C (-40...140 °F) / 0...90 % RH non-condensing
Electrical connection	Screw terminals max. 1.5 mm ² (AWG 16)
Electromagnetic compatibility	Component for OEM equipment tested according to EN 61000-4-3 and EN 61000-4-6

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).

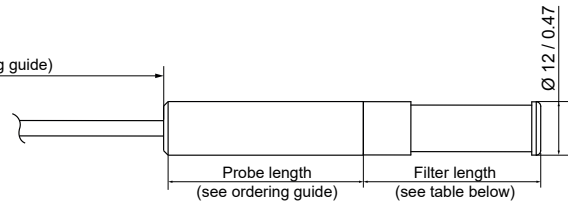
2) Other filters see data sheet "Accessories".

Dimensions (mm/inch)

Electronics boards



Sensing probes



Order code	Filter length [mm/inch]
F9	39 / 1.54
F4	33 / 1.30
no code	33 / 1.30
F12	33 / 1.30

Ordering Guide

		EE1900
PCB size	Standard, 90 x 70 mm (3.54 x 2.76") Compact, 55 x 46.5 mm (2.17 x 1.83")	PCB6 PCB5
Probe material	PPS	no code
Probe length	45 mm (1.77") 200 mm (7.84")	no code L200
Cable length	0.5 m (1.64 ft) 1.5 m (4.92 ft) 3 m (9.84 ft)	no code K1.5 K3
E+E sensor coating	With coating ¹⁾ Stainless steel grid, stainless steel body	C1 F9
Filter	Stainless steel sintered PTFE Catalytic for H ₂ O ₂ sterilisation	F4 no code F12
Output	Relative humidity (% RH) Dew point temperature (°C) Dew point temperature (°F)	no code MA52 MA53
Output signal	0 - 1 V 0 - 5 V 0 - 10 V 0 - 20 mA 4 - 20 mA	GA1 GA2 no code GA5 GA6
Output scale low	0 Value	no code SALValue
Output scale high	100 Value	no Code SAHValue

1) Mandatory, free of charge.

Order Example

EE1900-PCB5C1

PCB size:	55 x 46.5 mm (2.17 x 1.83")
Probe material:	PPS
Probe length:	45 mm
Cable length:	0.5 m
E+E Sensor coating	With coating
Filter:	PTFE
Output:	Relative humidity (% RH)
Output signal:	0 - 10 V
Scaling 1 low:	0
Scaling 1 high:	100

Scope of supply

- EE1900 according to ordering guide
- Inspection certificate according to DIN EN 10204-3.1

Accessories (see datasheet „Accessories“)

- Mounting flange 12 mm	HA010201
- Configuration cable with USB adapter	HA011017
- Stainless steel wall mounting clip Ø12 mm	HA010225
- Protection cap for Ø12 mm (0.47") probe	HA010783