EE1950

Dew Point Measurement Module for High Humidity Applications

The EE1950 dew point (Td) measurement module is dedicated for demanding OEM applications such as climate and test chambers. It is optimized for best performance even in harsh, polluted and condensing environment.

Outstanding Accuracy and Long Term Stability

The innovative, heated E+E sensing element HMC01, together with a sophisticated electronic circuitry and a precise factory calibration procedure, allows for excellent accuracy and long-term stability of the EE1950 even under continuous high humidity conditions.

Relative Humidity Calculation

Together with an additional temperature sensor, the dew point module is the perfect solution for precise calculation of the relative humidity (RH) for climate chambers monitoring and control.

High Resistance to Chemicals, Dust and Corrosion

In contaminated environment, the **A**utomatic Sensor **R**e**C**overy (ARC) function outgases the chemicals from the sensing element. Furthermore, the E+E proprietary coating protects the sensing element of EE1950 against dust and dirt deposits as well as against corrosive agents.

These features improve relevantly the long term performance and the service time of the device.

User Configurable and Adjustable

The dew point measured data is available on the analogue output, which can be set to current or voltage with a slide switch. The service interface and the free EE-PCS configuration software allow for easy output scaling and adjustment.

Easy Installation

The choice of two board sizes together with the high quality, flexible cable of the PPS sensing probe facilitate the design-in of the EE1950.
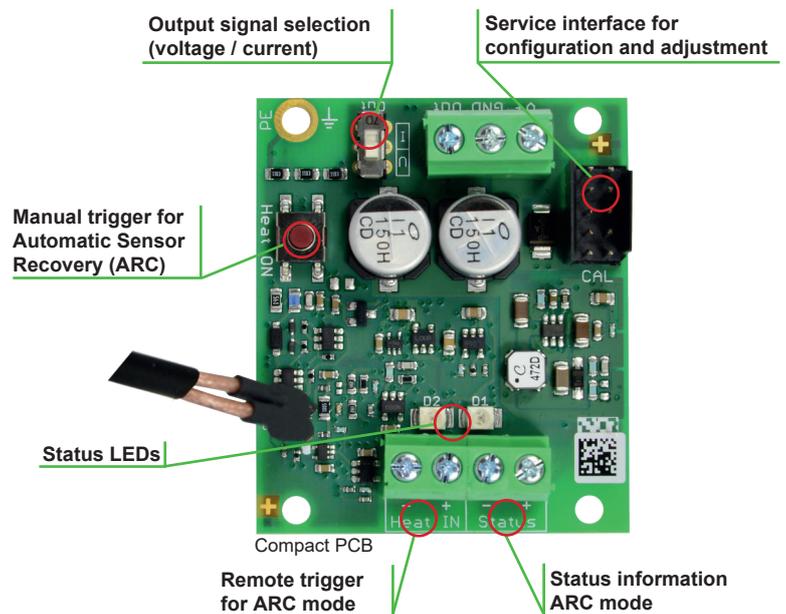

Standard PCB

Features

HMC01 sensing element

» Heated sensing element for best performance and long term stability under continuous high RH and condensing conditions
» Automatic Sensor Recovery
» Protected by E+E proprietary coating

Inspection certificate

» According DIN EN 10204-3.1

Output signal selection (voltage / current)

Service interface for configuration and adjustment

Manual trigger for Automatic Sensor Recovery (ARC)

Status LEDs

Compact PCB

Remote trigger for ARC mode

Status information ARC mode

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

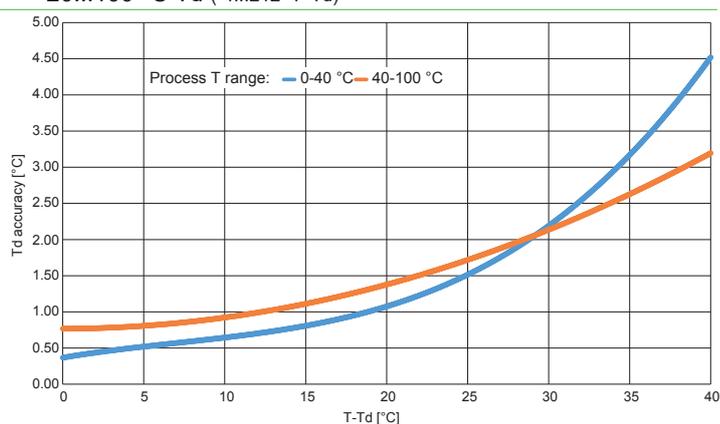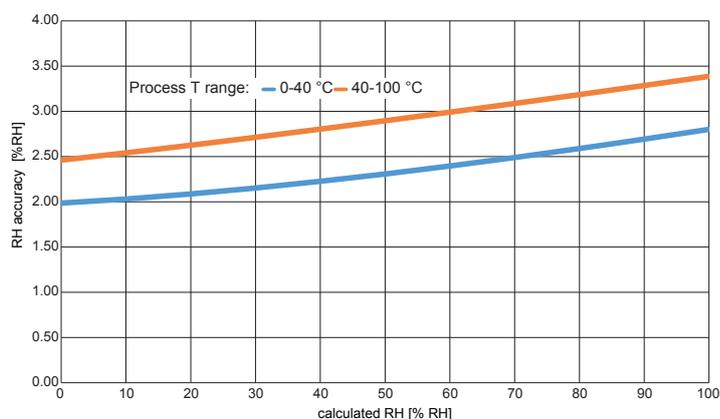|	
Sensing element	HMC01

Measurands

Dew point (Td)

Working range	-20...100 °C Td (-4...212 °F Td)
Accuracy[1] for Td < 90 °C	

Accuracy of the **calculated relative humidity (RH)** out of the measured Td and the reading of an additional T sensor with ±0.2 °C (0.36 °F) uncertainty

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 or 17 - 29 V AC		
Current consumption at 20 °C (68 °F)	Supply	24 V DC	24 V AC
	Measuring mode	< 35 mA	< 70 mA$_{rms}$
	ARC mode	max. 80 mA	max. 160 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 mm² (AWG 16)		
Electromagnetic compatibility	EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6,		
	Industrial enviroment and EN 55011		

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).
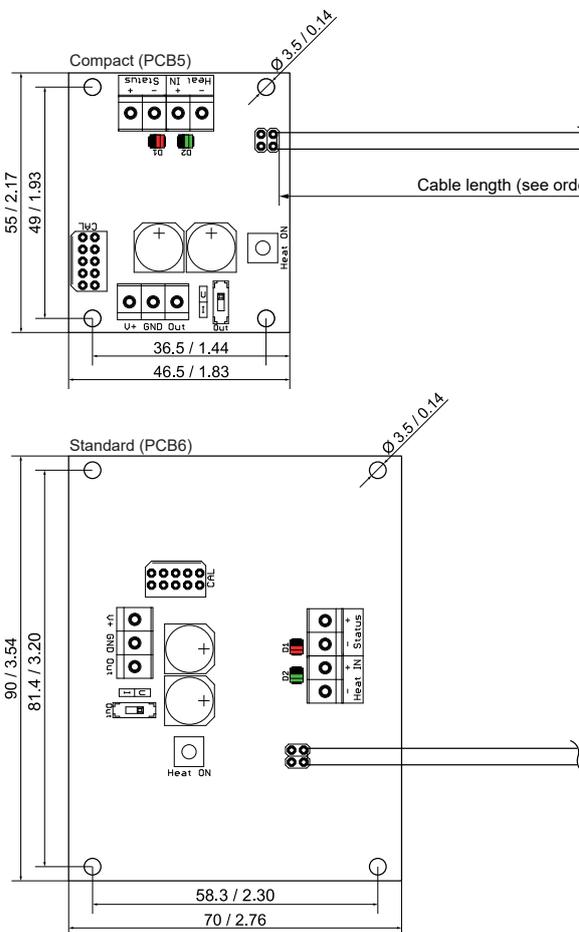2) Other filters see data sheet "Accessories".

Long-term test 85 °C (185 °F) / 85 %RH
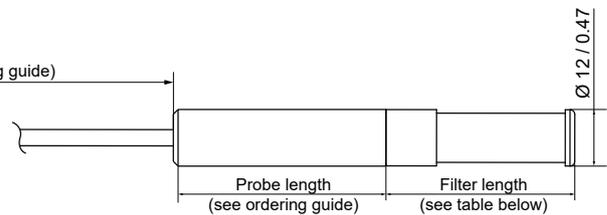
Td [°C]
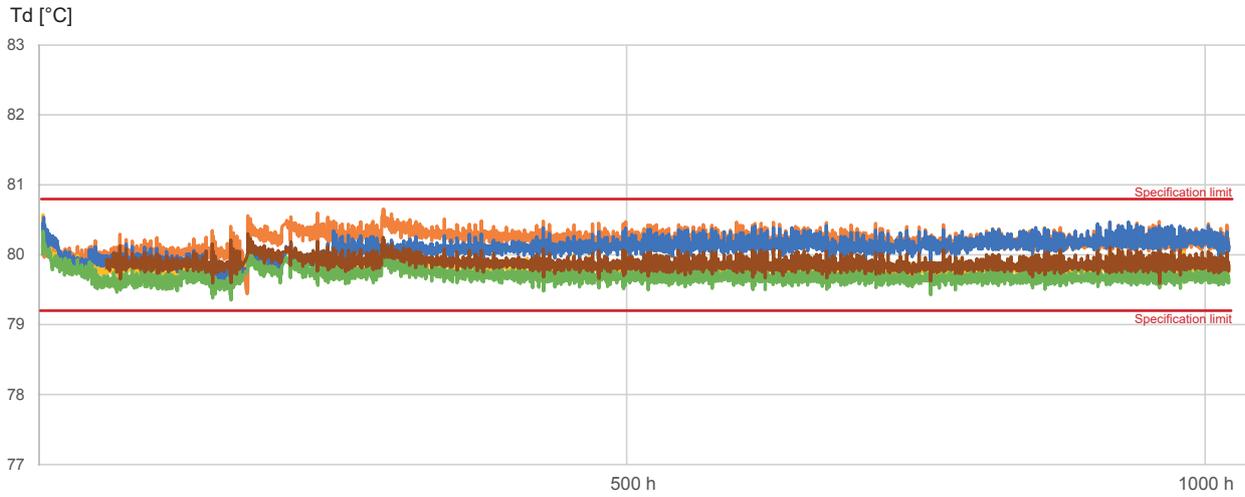
Stability of five EE1950 dew point measuring modules during an 85 °C (185 °F) / 85 %RH long-term test over 1000 hours.

Dimensions (mm/inch)

Electronics boards

Compact (PCB5)

Ø 3.5 / 0.14

55 / 2.17
49 / 1.93

36.5 / 1.44
46.5 / 1.83

Standard (PCB6)

Ø 3.5 / 0.14

90 / 3.54
81.4 / 3.20

58.3 / 2.30
70 / 2.76

Sensing probes

Cable length (see ordering guide)

Ø 12 / 0.47

Probe length
(see ordering guide)

Filter length
(see table below)

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

		EE1950
PCB size	Standard, 90 x 70 mm (3.54 x 2.76")	PCB6
	Compact, 55 x 46.5 mm (2.17 x 1.83")	PCB5
Probe material	PPS	no code
Probe length	45 mm (1.77")	no code
	200 mm (7.84")	L200
Cable length	0.5 m (1.64 ft)	no code
	1.5 m (4.92 ft)	K1.5
	3 m (9.84 ft)	K3
E+E sensor coating	With coating[1]	C1
Filter	Stainless steel grid, stainless steel body	F9
	Stainless steel sintered	F4
	PTFE	no code
	Catalytic for H_2O_2 sterilisation	F12
Output	Dew point temperature (°C)	MA52
	Dew point temperature (°F)	MA53
Output signal	0 - 1 V	GA1
	0 - 5 V	GA2
	0 - 10 V	no code
	0 - 20 mA	GA5
	4 - 20 mA	GA6
Output scale low	0	no code
	Value	SALV*alue*
Output scale high	100	no code
	Value	SAHV*alue*

1) Mandatory, free of charge.

Order Example

EE1950-PCB6K3C1F4MA52SAL-20SAH40

PCB size:	90 x 70 mm (3.54 x 2.76")
Probe material	PPS
Probe length:	45 mm (1.77")
Cable length:	3 m (9.84 ft)
E+E Sensor coating:	With coating
Filter:	Stainless steel sintered
Output:	Dew point temperature (°C)
Output signal:	0 - 10 V
Scaling 1 low:	-20
Scaling 1 high:	40

EE1950-PCB5L200C1MA52

PCB size:	55 x 46.5 mm (2.17 x 1.83")
Probe material	PPS
Probe length:	200 mm (7.84")
Cable length:	0.5 m (1.64 ft)
E+E Sensor coating:	With coating
Filter:	PTFE
Output:	Dew point temperature (°C)
Output signal:	0 - 10 V
Scaling 1 low:	0
Scaling 1 high:	100

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