

EE99-1

Humidity/Temperature Module for OEM Applications

The EE99-1 humidity and temperature module is optimised to meet the specific requirements of relative humidity (RH) and temperature (T) monitoring in climate chambers.

Outstanding Measurement Performance

The EE99-1 employs high-end E+E humidity sensing elements manufactured in state-of-the-art thin film technology, which are the prerequisite for outstanding measurement accuracy.

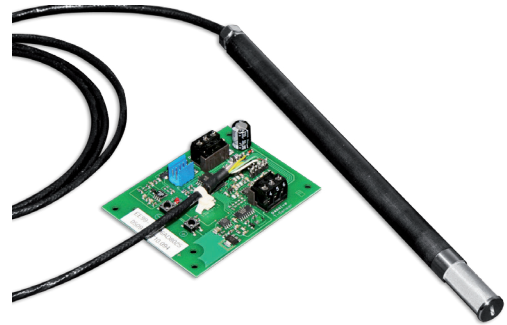
With a working range from -50 °C (-94 °F) up to 180 °C (356 °F) and various probe and cable lengths the EE99-1 module is suitable for a wide range of applications.

Long-Term Stability

The E+E proprietary coating protects the sensing elements against corrosive and electrically conductive pollution, which leads to excellent long-term stability even in harsh environment.

Outputs and Installation

The measured RH data is available on an analogue current output (4 - 20 mA/3-wire). The passive T values can be read out using the 3-wire connection. The high-quality probe cable up to 10 m facilitates mounting of the EE99-1. Push buttons on the PCB allow for adjustment in the field.



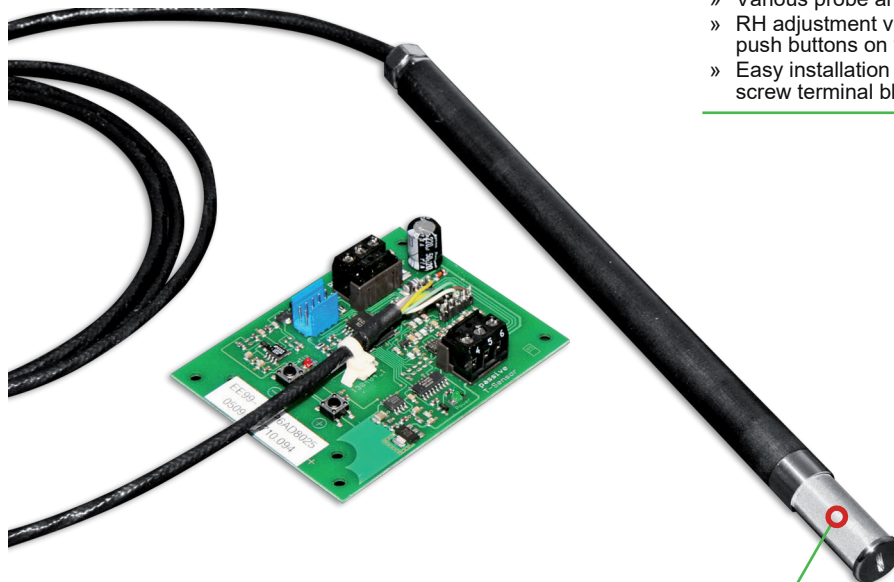
Features

EE99-1 Performance and Outputs

- » High RH accuracy
- » Wide T measuring range from -50 °C (-94 °F) up to 180 °C (356 °F)
- » Analogue 4 - 20 mA (3-wire) output for RH
- » T passive output with 3-wire connection - Pt100 / Pt1000, DIN A (DIN EN 60751)

Remote Probe and PCB

- » Various probe and cable lengths
- » RH adjustment via push buttons on the PCB
- » Easy installation with plug-in screw terminal block



Test Report

- » according to DIN EN 10204-2.2

RH Sensing Element

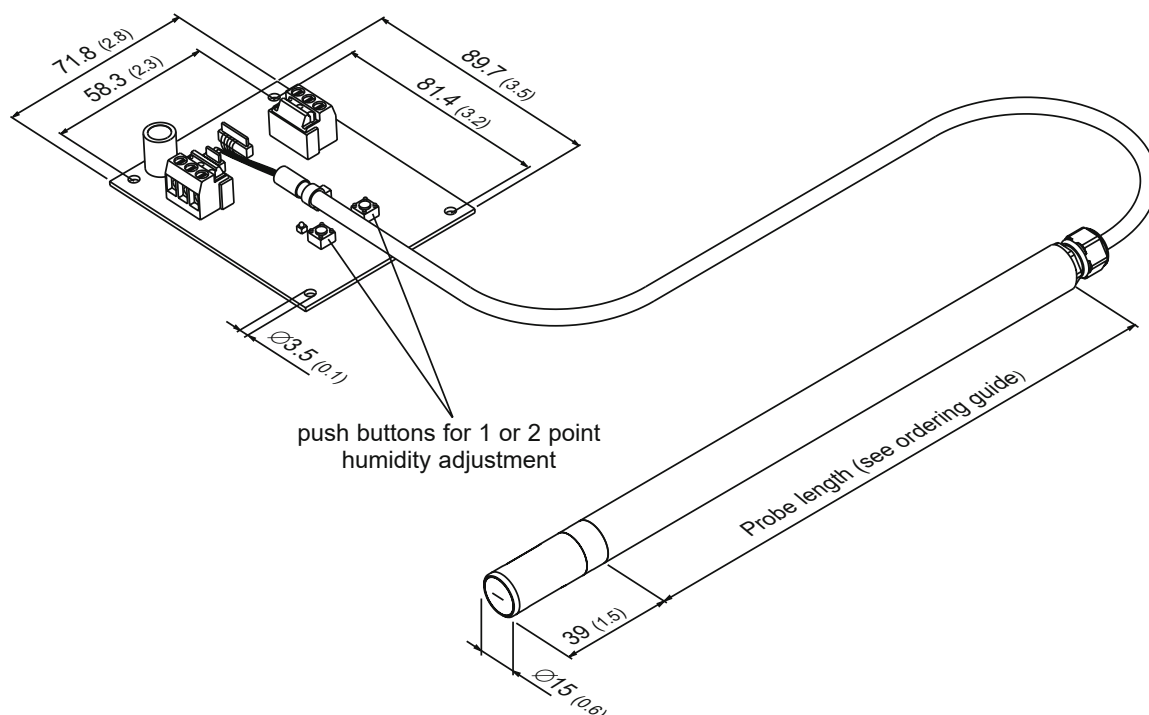
- » Outstanding long term stability
- » Protected by
 - E+E proprietary coating
 - stainless steel grid filter

Protective Sensor Coating

The E+E proprietary sensor coating is a protective layer applied to the active surface and leads of the sensing elements. The coating substantially extends the lifetime and the measurement performance of the E+E sensor in corrosive environment (salts, off-shore applications). Additionally, it improves the sensor's long term stability in dusty, dirty or oily applications by preventing stray impedances caused by deposits on the active sensor surface.

Dimensions

Values in mm (inch)



Technical Data

Measurands

Relative humidity

Measuring range 0...100 %RH

Accuracy¹⁾ (including hysteresis, non-linearity and repeatability)

-15...40 °C (5...104 °F)	≤90 %RH	± (1.3 + 0.003*mv) %RH	mv = measured value
	>90 %RH	± 2.3 %RH	
-25...70 °C (-13...158 °F)		± (1.4 + 0.01*mv) %RH	
-50...180 °C (-40...356 °F)		± (1.5 + 0.015*mv) %RH	

Response time t_{90} , typ. at 20 °C (68 °F) <15 s

Temperature

Measuring range -50...180 °C (-58...356 °F)

Output


Analogue

RH: 4 - 20 mA (3-wire) Load resistance ≤350 Ω

Temperature passive²⁾

Pt100, Pt1000 DIN A (DIN EN 60751) see ordering guide, 3-wire connection

General

Power supply class III 		10 - 28 V AC 10 - 35 V DC
Current consumption, typ.	24 V AC 24 V DC	<60 mA <32 mA _{rms}
Probe material		Plastic PPS-GF40
Electrical connection		Pluggable screw terminals max. 1.5 mm ² (AWG 16)
Electromagnetic compatibility		Component for OEM equipment tested according to EN 61000-4-3 EN 61000-4-6 Industrial environment
Working range	Electronics Probe	-40...60 °C (- 40...140 °F), 0...90 %RH non-condensing -50...180 °C (- 58...356 °F)/short time up to 200 °C (392 °F) possible, 0...100 %RH
Storage conditions		-40...60 °C (-40...140 °F), 0...90 %RH non-condensing
Adjustment		RH: field adjustable via push buttons on the PCB

- 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).
- 2) Max. power dissipation 1 mW
- 3) USA & Canada: class 2 supply required, max. supply voltage 30 V DC.

Ordering Guide

			EE99x1-
Hardware Configuration	Model	RH + T passive	M6
	T sensor passive	Pt100 DIN A	TP1
		Pt1000 DIN A	TP3
	Cable length	2 m (6.6 ft)	K2
		5 m (16.4 ft)	K5
		10 m (32.8 ft)	K10
	Probe length	65 mm (2.6")	L65
200 mm (7.9")		L200	
Sensing element protection	With E+E proprietary coating	C1	

Ordering Example

EE99x1-M6TP1K2L200C1

Model:	RH + T passive
T-Sensor passive:	Pt100 (class A, DIN EN 60751)
Cable length:	2 m (6.6 ft)
Probe length:	200 mm (7.9")
Sensing element protection:	With E+E proprietary coating