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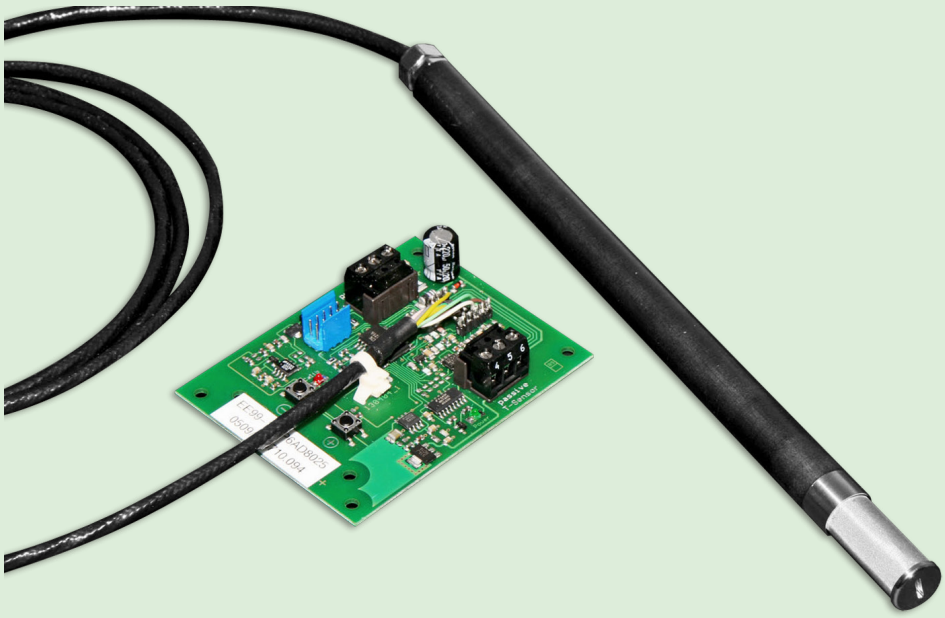
Datasheet EE99-1

Humidity and Temperature Module for OEM Applications



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EE99-1

Humidity and 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 up to +180 °C (-94 °F up to +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.

Humidity and temperature module

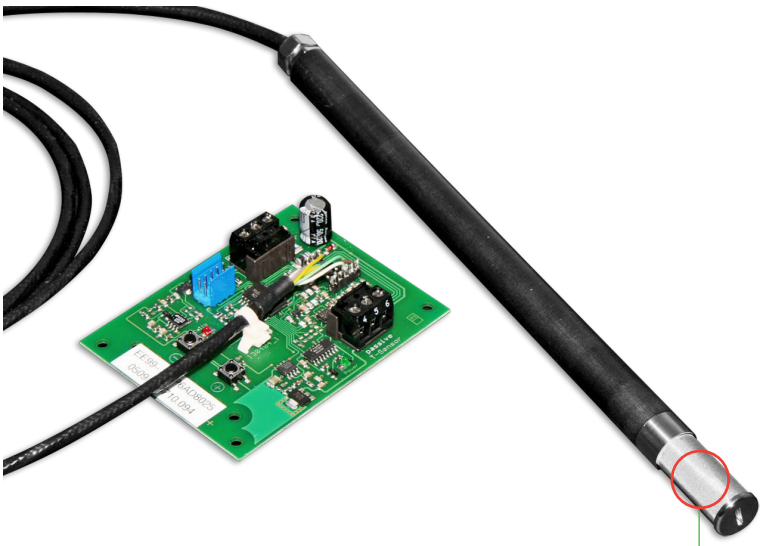
Features

Measurement 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 intstallation with plug-in screw terminal block



RH Sensing Element

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

Test Report

According to DIN EN 10204-2.2

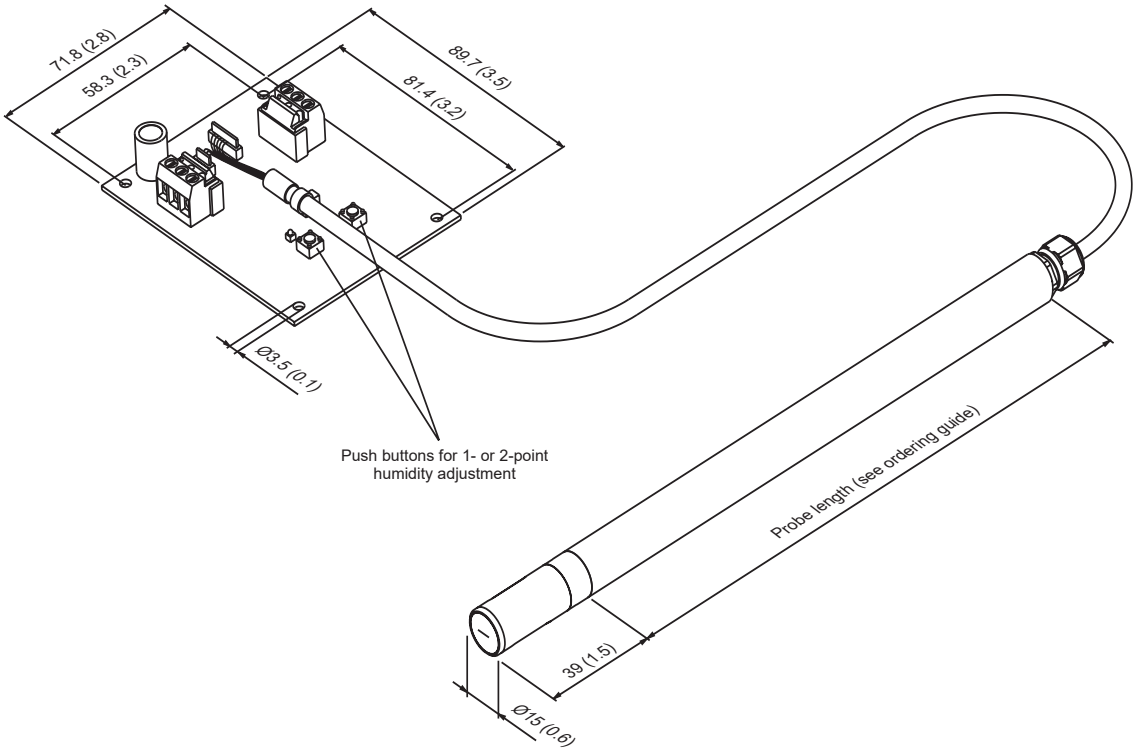
Features

Protective Sensor Coating

The E+E proprietary sensor coating is a protective layer applied to the sensing elements, their leads and soldering points. 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 or on the electrical connections.

Dimensions

Values in mm (inch)



Technical Data

Measurands

Relative Humidity (RH)

Measuring range	0...100 %RH
Accuracy[1)] incl. hysteresis, non-linearity and repeatability **-15...+40 °C (5...104 °F) ≤90 %RH** **-15...+40 °C (5...104 °F) >90 %RH** **-25...+70 °C (-13...+158 °F)** **-40...+180 °C (-40...+356 °F)**	 ±(1.3 + 0.003 % * mv) %RH mv = measured value ±2.3 %RH ±(1.4 + 0.01 % * mv) %RH ±(1.5 + 0.015 % * mv) %RH
Response time t_{90}, typ. @ 20 °C (68 °F)	<15 s

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	-50...+180 °C (-58...+356 °F)

Output

Analogue

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

T Sensor Passive[1)]

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

1) Max. power dissipation 1 mW

General

Power supply class III USA & Canada: Class 2 supply necessary, max. voltage 30 V DC	10 - 35 V DC 10 - 28 V AC
Current consumption, typ.	24 V DC < 32 mA 24 V AC < 60 mA_{rms}
Electrical connection	Pluggable screw terminals max. 1.5 mm^2 (AWG 16)
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 (-40...+140 °F) 0...90 %RH, non condensing
Probe material	PPS-GF40
Adjustment	RH: field adjustable via push buttons on the PCB
Electromagnetic compatibility	Component for OEM equipment tested according to, EN 61000-4-3 EN 61000-4-6 Industrial Environment

Ordering Guide

	Feature	Description	Code
Hardware Configuration			EE99x1-
	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

Order Example

EE99x1-M6TP1K2L200C1

Feature	Code	Description
Model	M6	RH + T passive
T-Sensor passive	TP1	Pt100 DIN A (DIN EN 60751)
Cable length	K2	2 m (6.6 ft)
Probe length	L200	200 mm (7.9")
Sensing element protection	C1	With E+E proprietary coating

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