

EE99-1

OEM - Humidity / Temperature Modules

The EE99-1 OEM - RH/T modules are designed to meet the specific requirements of RH/T monitoring in climate chambers. High-end E+E humidity sensor elements of the HC series and accurate temperature compensation of the humidity reading result in an excellent accuracy over a broad measurement range. The analogue output for relative humidity is 4 - 20mA / 3-wire. The passive temperature output can be connected via 3-wire to an external readout. Easy mounting and service is possible with a plug-in screw terminals block and by push buttons for field calibration.



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Operation in heavily polluted and/or corrosive environments is typical for many industrial processes and can lead to drift or damage of the humidity sensor and therefore to incorrect measurements. The unique protective coating developed by E+E for the sensing probe means a significant improvement of the long-term stability of the transmitter in very dirty and aggressive environments.

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Typical Applications

climate chambers
 drying chambers

Features

remote sensing probe up to 10m (32.8ft)
 accuracy $\pm 2\%$ RH
 traceable calibration
 working range humidity 0...100% RH
 working range temperature -50...180°C (-58...356°F) / up to 200°C (392°F)
 short term passive 3-wire temperature output
 easy field calibration

Technical Data

Measured quantities

Relative humidity

Humidity sensor ¹⁾	HC1000-400	
Working range	0...100% RH	
Accuracy ²⁾ (including hysteresis, non-linearity and repeatability, traceable to intern. standards, administrated by NIST, PTB, BEV...)		
-15...40°C (5...104°F) $\leq 90\%$ RH	$\pm (1.3 + 0.3\% \cdot mv)$ % RH	
-15...40°C (5...104°F) $> 90\%$ RH	$\pm 2.3\%$ RH	
-25...70°C (-13...158°F)	$\pm (1.4 + 1\% \cdot mv)$ % RH	
-50...180°C (-40...356°F)	$\pm (1.5 + 1.5\% \cdot mv)$ % RH	

Output signal	4 - 20mA (3-wire)
Response time with filter at 20°C (68°F) / t_{90}	< 15 sec.

Temperature

Temperature sensor element ³⁾	Pt100 resp. Pt1000 (class A, DIN EN 60751) see Ordering Guide
Working range	-50...180°C (-58...356°F) / up to 200°C (392°F) short term

General Data

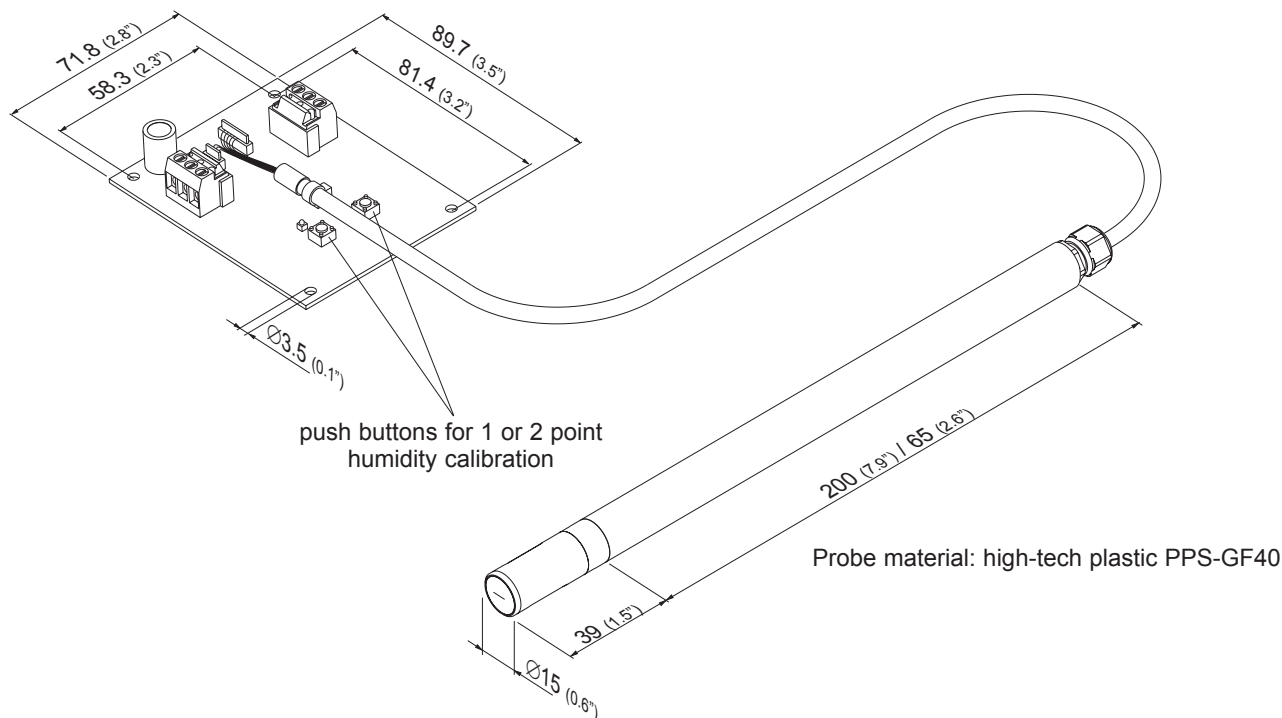
Supply voltage	10 - 35V DC or 10 - 28V AC	
Load resistor for 4 - 20 mA output	10 - 35V DC	$R_L < \frac{U_v - 5V}{0.02 A}$ [Ω] (max. 350 Ω)
	10 - 28V AC	$R_L < 350 \Omega$
Current consumption	for DC supply < 32mA	for AC supply < 60mA _{eff}
Working temperature range electronics	-40...60°C (-40...140°F)	
Storage temperature range	-40...60°C (-40...140°F)	
Electrical connection	pluggable screw terminals up to max. 1.5mm ² (AWG 16)	
Sensor protection	stainless steel grid filter	
Electromagnetic compatibility	Designed for installment in and with other equipment (OEM) Measurements according to EN61000-4-3 and EN61000-4-6 FCC Part15 ClassB ICES-003 ClassB	

¹⁾ Refer to the working range of the humidity sensor

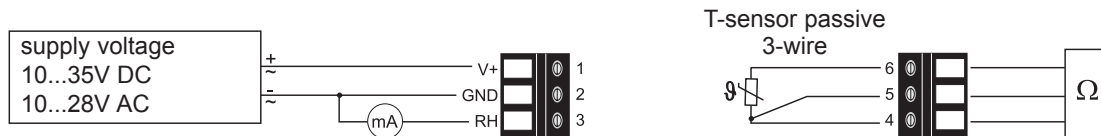
³⁾ max. power dissipation 1mW

²⁾ 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).

Mounting Dimensions (mm)



Connection Diagram



Ordering Guide

MODEL	OUTPUT	T-SENSOR	VERSION	FILTER	CABLE LENGTH
Humidity + Temperature passive (FP)	4 - 20 mA (6)	Pt100 DIN A (A) Pt1000 DIN A (C)	remote sensing probe (D)	stainless steel grid filter (8)	2m (6.6ft) (02) 5m (16.4ft) (05) 10m (32.8ft) (10)
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PROBE LENGTH	
200mm (7.9")	(5)
65mm (2.6")	(2)

Order Example

EE99-1-FP6AD8025

Model: Humidity + Temperature passive
 Output: 4 - 20mA
 T-Sensor: Pt100 DIN A
 Version: remote sensing probe
 Filter: stainless steel grid filter
 Cable length: 2m (6.6ft)
 Probe length: 200mm (7.9")

Accessories

Metal grid filter (HA010108)