HUMICAP® Humidity and Temperature Probe HMP113

Features

- Fast thermal response time
- Low power consumption
- Start-up time < 2 s
- Measurement range: 0 ... 100 %RH; −40 ... +60 °C (−40 ... +140 °F)
- Detachable cable with standard 4-pin M8 connector
- Plastic enclosure with IP54 classification
- Proven Vaisala HUMICAP® 180R sensor for excellent stability
- Optional RS-485 digital output supports Modbus® RTU
- Optional dew point, wet bulb temperature, absolute humidity, mixing ratio, and enthalpy output
- Comes with calibration certificate: ±1.5 %RH measurement accuracy (0 ... 90 %RH)

Vaisala HUMICAP® Humidity and Temperature Probe HMP113 is a highly accurate and cost-effective humidity probe with plastic enclosure. It is designed for indoor environments, integration into other manufacturers' equipment, or use with Vaisala HUMICAP® Handheld Humidity and Temperature Meter HM40.

Easy installation

The compact probe fits into tight spaces. The cable has a threaded M8 connector for easy installation. Different cable lengths and a selection of accessories are available.

Low power consumption

HMP113 is suitable for battery powered applications due to its very low power consumption. It also has an extremely fast start-up time.

Several outputs

Temperature measurement is a standard feature in HMP113, with dew point temperature, wet bulb temperature, absolute humidity, mixing ratio, and enthalpy as optional calculated parameters. Four voltage output ranges are available. An optional RS-485 output with Modbus support is also available.

High performance

HMP113 has a PC/ABS plastic enclosure and is suitable for noncondensing environments with fast temperature changes and a need for high-accuracy measurements with traceability. HMP113 also has a high chemical tolerance thanks to the proven Vaisala HUMICAP® 180R sensor.

Variety of calibration options

A quick field calibration can easily be carried out using a handheld meter, for example Vaisala Handheld Meter HM40. Alternatively, the probe can be calibrated using a PC with USB cable or sent to a Vaisala Service Center.

Technical data

Measurement performance

Relative humidity	
Measurement range	0 ... 100 %RH
Accuracy (incl. non-linearity, hysteresis, and repeatability):	
at 0 ... +40 °C (+32 ... +104 °F)	±1.5 %RH (0 ... 90 %RH) ±2.5 %RH (90 ... 100 %RH)
at −40 ... 0 °C (−40 ... +32 °F) and +40 ... +60 °C (+104 ... +140 °F)	±3.0 %RH (0 ... 90 %RH) ±4.0 %RH (90 ... 100 %RH)
Factory calibration uncertainty at +20 °C (+68 °F):	±1.1 %RH (0 ... 90 %RH) ±1.8 %RH (90 ... 100 %RH)
Humidity sensor	HUMICAP® 180R
Stability	±2 %RH over 2 years
Temperature	
Measurement range	−40 ... +60 °C (−40 ... +140 °F)
Accuracy:	
at 0 ... +40 °C (+32 ... +104 °F)	±0.2 °C (±0.36 °F)
at −40 ... 0 °C (−40 ... +32 °F) and +40 ... +60 °C (+104 ... +140 °F)	±0.4 °C (±0.72 °F)
Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751
Analog outputs	
Accuracy at +20 °C (+68 °F)	±0.2 % of FS
Temperature dependence	±0.01 % of FS/°C (±0.006 % of FS/°F)

Operating environment

Operating temperature	−40 ... +60 °C (−40 ... +140 °F)
EMC compliance	EN 61326-1, basic immunity test requirements

Inputs and outputs

Power consumption	1 mA average, max. peak 5 mA
Operating voltage [1]	
With 1 V / 2.5 V output	5 ... 28 VDC
With 5 V output	8 ... 28 VDC
With loop power converter	8 ... 28 VDC
With digital output	5 ... 28 VDC
Start-up time	
Probes with analog output	4 s at operating voltage 13.5 ... 16.5 VDC 2 s at other valid operating voltages
Probes with digital output	1 s
Outputs	
2 channels	0 ... 1 VDC / 0 ... 2.5 VDC / 0 ... 5 VDC / 1 ... 5 VDC
1-channel loop-power converter (separate module, compatible with humidity accuracy only)	4 ... 20 mA
Digital output (optional)	RS-485 2-wire half duplex, supports Modbus RTU
External loads	
0 ... 1 V	R_L min 10 kΩ
0 ... 2.5 V /0 ... 5 V	R_L min 50 kΩ
Output parameters	
Relative humidity, temperature, dew point temperature, wet bulb temperature, absolute humidity, mixing ratio, enthalpy	

1) Use lowest available operating voltage to minimize heating.

Mechanical specifications

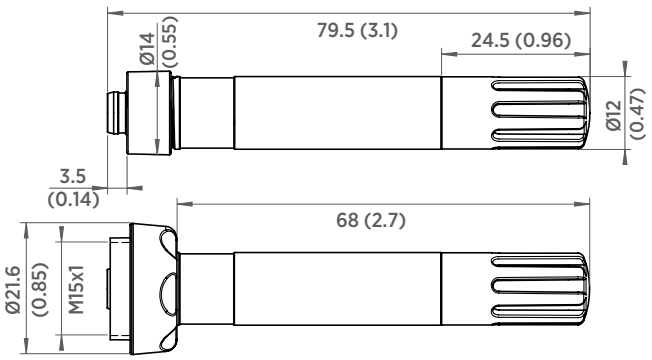
IP rating	IP54 [1]
Cable connector	4-pin M8 (IEC 60947-5-2)
Materials	
Body	PC/ABS blend
Grid filter	PC (glass reinforced)
Cable	Polyurethane or FEP
Weight	
Probe	9 g (0.3 oz)
Probe with 0.3 m (1 ft) cable	20 (0.7 oz)

1) Not applicable with the plastic grid filter.

Spare parts and accessories

Sensors	
Vaisala HUMICAP® 180R	HUMICAP180R
Vaisala HUMICAP® 180V	HUMICAP180V
Sensor protection	
Plastic grid filter	DRW240185SP
Plastic grid with membrane filter	ASM210856SP
Stainless steel sintered filter	HM47280SP
Porous PTFE filter	219452SP
Probe installation	
Probe mounting clamp set, 10 pcs	226067
Probe mounting flange	226061
Probe holder, 5 pcs	ASM213382SP
Plastic locking bushing (3 pcs) for attaching probe to HM40	DRW238590SP
Connection adapters [1]	
4 ... 20 mA loop power converter	UI-CONVERTER-1CB
Mounting bracket for converter	225979
USB cable for PC connection	219690
Connection cable for HM70	219980SP
Connection cables with open wires	
+60 °C 0.3 m (+140 °F 1 ft)	HMP50Z032SP
+60 °C 1.2 m (+140 °F 4 ft)	HMP50Z120
+60 °C 3 m (+140 °F 9.8 ft)	HMP50Z300SP
+80 °C 1.5 m (+176 °F 5 ft)	225777SP
+80 °C 3 m (+176 °F 10 ft)	225229SP
+180 °C 1.5 m (+356 °F 5 ft) FEP	238025
+180 °C 3 m (+356 °F 10 ft) FEP	226902SP

1) No separate adapter is needed for HM40 compatibility.



Dimensions in mm (inches)

CE

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