

HMP113 Humidity and Temperature Probe



Features

- Fast thermal response time
- Low power consumption and fast start-up for battery-powered applications
- 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
- Compatible with Vaisala Insight PC software, Vaisala Indigo80 Handheld Indicator, and Vaisala HM40 Handheld Meter
- Optional RS-485 digital output supports Modbus® RTU
- 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.

Flexible connectivity

In addition to analog and digital (Modbus) output options, the probe can also be used with the Vaisala Indigo80 Handheld Indicator and the Vaisala HM40 Handheld Meter. For easy-to-use access to configuration and device analytics functionalities, the probe can be connected to Vaisala Insight software for Windows®. For more information, see vaisala.com/insight and vaisala.com/indigo80.

High performance

HMP113 has a PC/ABS plastic enclosure and is suitable for non-condensing 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 device, for example the Indigo80 Handheld Indicator or the HM40 Handheld Meter. 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 (probes with analog output):	
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)
Accuracy (probes with digital output):	
at +15 ... +25 °C (+59 ... +77 °F)	±0.1 °C (±0.18 °F)
at 0 ... +15 °C (+32 ... +59 °F) and +25 ... +40 °C (+77 ... +104 °F)	±0.15 °C (±0.27 °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)
IP rating ¹⁾	IP54

¹⁾ Not applicable with the plastic grid filter.

Compliance

EU directives and regulations	EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) as amended by 2015/863
Electromagnetic compatibility (EMC)	EN 61326-1, basic electromagnetic environment
EMC emissions	CISPR 32 / EN 55032, Class B
Compliance marks	CE, RCM, UKCA

Inputs and outputs

Power consumption	1 mA average, max. peak 5 mA
Operating voltage ¹⁾	
With 1 V / 2.5 V output	5–28 V DC
With 5 V output	8–28 V DC
With loop power converter	8–28 V DC
With digital output	5–28 V DC
Start-up time	
Probes with analog output	4 s at operating voltage 13.5–16.5 V DC 2 s at other valid operating voltages
Probes with digital output	1 s
Outputs	
2 channels	0–1 V DC / 0–2.5 V DC / 0–5 V DC / 1–5 V DC
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
Other voltage outputs	R _L min 50 kΩ
Output parameters	
Relative humidity, temperature, dew/frost point temperature, wet bulb temperature, absolute humidity, mixing ratio, enthalpy	

¹⁾ Use lowest available operating voltage to minimize heating.

Mechanical specifications

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)

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-ICB

Mounting bracket for converter 225979

USB cable for PC connection 219690

Connection cable for Indigo80 handheld indicator 262195SP

Connection cable for MI70 indicator 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

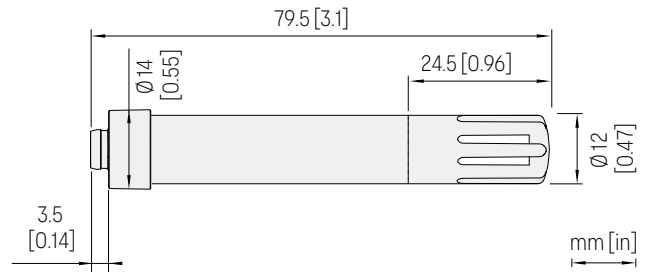
+80 °C 1.5 m (+176 °F 5 ft) 225777SP

+80 °C 3 m (+176 °F 10 ft) 225229SP

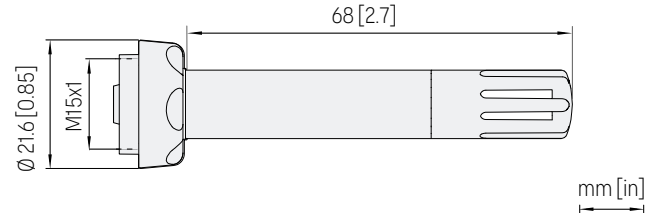
+180 °C 1.5 m (+356 °F 5 ft) FEP 238025

+180 °C 3 m (+356 °F 10 ft) FEP 226902SP

¹⁾ No separate adapter is needed for HM40 compatibility.



HMP113 dimensions



HMP113 dimensions with plastic locking bushing