



# HMP113 Humidity and Temperature Probe



## 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
- Compatible with Vaisala Insight PC software and Vaisala Indigo80 Handheld Indicator
- 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.

### Flexible connectivity

In addition to analog and digital (Modbus) output options, the probe can also be used with Vaisala Indigo80 handheld indicator. 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 [www.vaisala.com/insight](http://www.vaisala.com/insight) and [www.vaisala.com/indigo80](http://www.vaisala.com/indigo80).

### 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 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:	
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)
IP rating <sup>1)</sup>	IP54

<sup>1)</sup> Not applicable with the plastic grid filter.

## Compliance

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

## Inputs and outputs

Power consumption 1 mA average, max. peak 5 mA

### Operating voltage <sup>1)</sup>

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 <sub>L</sub> min 10 kΩ
0–2.5 V / 0–5 V	R <sub>L</sub> min 50 kΩ

### Output parameters

Relative humidity, temperature, dew point temperature, wet bulb temperature, absolute humidity, mixing ratio, enthalpy

<sup>1)</sup> 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

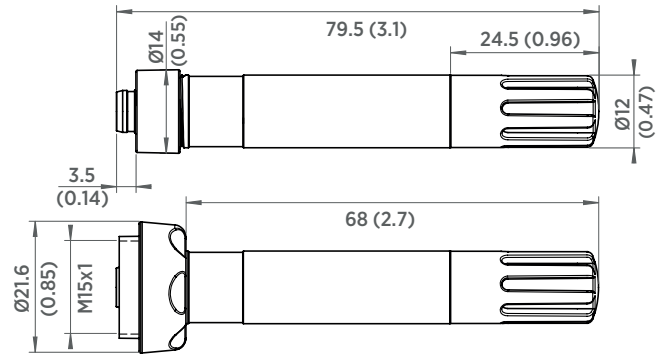
### Connection adapters <sup>1)</sup>

4–20 mA loop power converter	UI-CONVERTER-1CB
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

<sup>1)</sup> No separate adapter is needed for HM40 compatibility.



Dimensions in mm (inches)