www.esis.com.au
Ph 02 9481 7420
Fax 02 9481 7267
esis.enq@esis.com.au

ESIS
Industrial Electronics

VAISALA

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
- 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
- Optional dew point calculation
- 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® Hand-Held 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

There are two voltage outputs for relative humidity and temperature or dew point measurement. 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 hand-held meter, for example Vaisala Hand-Held 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):

Temperature range	0 ... +40 °C
0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH
Temperature range	-40 ... 0 °C, +40 ... +60 °C
0 ... 90 %RH	±3.0 %RH
90 ... 100 %RH	±4.0 %RH

Factory Calibration Uncertainty (+20 °C):

0 ... 90 %RH	±1.1 %RH
90 ... 100 %RH	±1.8 %RH
Humidity sensor	Vaisala HUMICAP® 180R
Stability	±2 %RH over 2 years

Temperature

Measurement range	-40 ... +60 °C

Accuracy over Temperature Range:

0 ... +40 °C	±0.2 °C
-40 ... 0 °C, +40 ... +60 °C	±0.4 °C
Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751

Dew Point

Measurement range	-40 ... +60 °C

Accuracy (incl. Non-Linearity, Hysteresis and Repeatability):

|	
Temperature range	0 ... +40 °C
When dew point depression < 15 °C	±1 °C
When dew point depression 15 ... 25 °C	±2 °C
Temperature range	-40 ... 0 °C, +40 ... +60 °C
When dew point depression < 15 °C[1]	±2 °C

Analog Outputs

Accuracy at 20 °C	±0.2 % of FS
Temperature dependence	±0.01 % of FS/°C

1) Dew point depression = ambient temperature - dew point

Operating Environment

Operating temperature	-40 ... +60 °C
EMC compliance	EN 61326-1, basic immunity test requirements
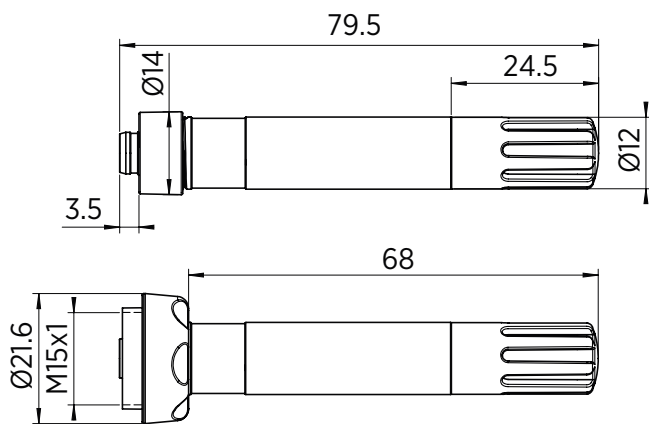
Dimensions in mm (inches)

Mechanical Specifications

IP rating	IP54
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
Probe with 0.3 m cable	20 g

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 ... 20 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
External Loads	
0 ... 1 V	R_L min 10 kΩ
0 ... 2.5 V /0 ... 5 V	R_L min 50 kΩ

1) (Use Lowest Available Operating Voltage to Minimize Heating)

Spare Parts and Accessories

4 ... 20 mA loop power converter	UI-CONVERTER-1CB
Mounting bracket for converter	225979
USB cable for PC connection	219690
Probe mounting clamp set, 10 pcs	226067
Probe mounting flange	226061
Sensor Protection	
Plastic grid for use with HM40	DRW236214SP
Membrane filter	230727SP
Stainless steel sintered filter	HM47280SP
Porous PTFE filter	219452SP
Connection Cables	
Standard 0.3 m	HMP50Z032SP
Standard 3 m	HMP50Z300SP
80 °C 1.5 m	225777SP
80 °C 3 m	225229SP
180 °C 3 m FEP	226902SP

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