



HUMICAP® Humidity and Temperature Probe HMP110



Features

- Miniature-size humidity transmitter
- Low power consumption and fast start-up for battery-powered applications
- Measurement range: 0 ... 100 %RH; -40 ... +80 °C (-40 ... +176 °F)
- Cable detachable with standard M8 quick connector
- IP65 metal housing
- Optional RS-485 digital output supports Modbus RTU
- ±1.5 %RH measurement accuracy (0 ... 90 %RH)

HMP110 is a trouble-free and cost-effective humidity transmitter with high accuracy and good stability. It is suitable for volume applications or integration into other manufacturers' equipment. HMP110 is also suitable for glove boxes, greenhouses, fermentation and stability chambers, data loggers, and incubators.

Benefits

- Latest generation Vaisala HUMICAP® 180R sensor for best stability and high chemical tolerance
- HMP110R replacement probe service available for easy maintenance
- Comes with calibration certificate
- Optional dew point calculation

Easy Installation

The probe cable has a screw-on quick connector for easy installation. Different cable lengths and accessories are available.

Low Current Consumption

HMP110 is suitable for battery-powered applications because of its very low current consumption. It also has a fast start-up time.

Several Outputs

The temperature measurement is a standard feature, dew point measurement is optional. Three standard voltage outputs are available. An optional RS-485 output with Modbus support is also available.

Robust Design

The stainless steel body of HMP110 is classified as IP65. Thus, it survives rough conditions. HMP110 has high chemical tolerance thanks to the HUMICAP® 180R sensor.

Easy Maintenance

Maintaining measurement traceability is easy using the HMP110R replacement probe. We send you a replacement probe, you detach the old probe and send it back to us. This way the measurement is available at all times without interruptions.

Technical Data

Measurement Performance

Relative Humidity

Measurement range	0 ... 100 %RH
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Accuracy at 0 ... +40 °C (+32 ... +104 °F) (Incl. Non-Linearity, Hysteresis and Repeatability):

0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH

Accuracy at -40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F) (Incl. Non-Linearity, Hysteresis and Repeatability):

0 ... 90 %RH	±3.0 %RH
90 ... 100 %RH	±4.0 %RH

Factory Calibration Uncertainty (+20 °C (+68 °F)):

0 ... 90 %RH	±1.1 %RH
90 ... 100 %RH	±1.8 %RH

Humidity sensor

Humidity sensor	Vaisala HUMICAP® 180R
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Stability

Stability	±2 %RH over 2 years
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Temperature

Measurement range	-40 ... +80 °C (-40 ... +176 °F)
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Accuracy over Temperature Range (Probes with Analog Output):

0 ... +40 °C (+32 ... +104 °F)	±0.2 °C (±0.36 °F)
-40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F)	±0.4 °C (±0.72 °F)

Accuracy over Temperature Range (Probes with Digital Output):

+15 ... +25 °C (+59 ... +77 °F)	±0.1 °C (±0.18 °F)
0 ... +15 °C, +25 ... +40 °C (+32 ... +59 °F, +77 ... +104 °F)	±0.15 °C (±0.27 °F)

-40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F)	±0.4 °C (±0.72 °F)
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Temperature sensor

Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751
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Dew Point

Measurement range	-40 ... +80 °C (-40 ... +176 °F)
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Accuracy at 0 ... +40 °C (+32 ... +104 °F) (Incl. Non-Linearity, Hysteresis and Repeatability):

When dew point depression < +15 °C (+59 °C)	±1 °C (±33.8 °F)
When dew point depression +15 ... +25 °C (+59 ... +77 °F)	±2 °C (±35.6 °F)

Accuracy at -40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F) (Incl. Non-Linearity, Hysteresis and Repeatability):

When dew point depression < +15 °C (+59 °F) ¹⁾	±2 °C (±35.6 °F)
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Analog Outputs

Accuracy at +20 °C (+68 °F)	±0.2 % of FS
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Temperature dependence	±0.01 % of FS/°C (±0.006 % of FS/°F)
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¹⁾ Dew point depression = ambient temperature - dew point

Mechanical Specifications

IP rating	IP65
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Body thread	M12x1 / 10 mm (0.4 in)
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Cable connector	4-pin M8 (IEC 60947-5-2)
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Materials

Body	Stainless steel (AISI 316)
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Grid filter	Chrome coated ABS plastic
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Cable	Polyurethane or FEP
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Weight

Probe	17 g (0.6 oz)
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Probe with 0.3 m (1 ft) cable	28 g (1 oz)
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Operating Environment

Operating temperature	-40 ... +80 °C (-40 ... +176 °F)
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EMC compliance	EN 61326-1, industrial environment
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Inputs and Outputs

Power consumption	1 mA average, max. peak 5 mA
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Operating Voltage¹⁾

With 1 V / 2.5 V output	5 ... 28 VDC
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With 5 V output	8 ... 28 VDC
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With loop power converter	8 ... 28 VDC
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With digital output	5 ... 28 VDC
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Start-Up Time

HMP110 probes with analog output	4 s at operating voltage 13.5 ... 16.5 VDC
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	2 s at other valid operating voltages
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HMP110 probes with digital output	1 s
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Outputs

2 channels	0 ... 1 VDC / 0 ... 2.5 VDC / 0 ... 5 VDC / 1 ... 5 VDC
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1-channel loop-power converter (separate module, compatible with humidity accuracy only)	4 ... 20 mA
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Digital output (HMP110 probes with digital output)	RS-485 2-wire half duplex, supports Modbus RTU
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External Loads

0 ... 1 V	R _L min 10 kΩ
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0 ... 2.5 V / 0 ... 5 V	R _L min 50 kΩ
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¹⁾ Use lowest available operating voltage to minimize heating.

Spare Parts and Accessories

4 ... 20 mA loop power converter	UI-CONVERTER-1CB
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Mounting bracket for converter	225979
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Plastic M12 installation nuts, pair	18350SP
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USB cable for PC connection	219690
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Probe mounting clamp set, 10 pcs	226067
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Probe mounting flange	226061
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Sensor Protection

Plastic grid	DRW010522SP
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Membrane filter	DRW010525SP
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Stainless steel sintered filter	HM46670SP
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PTFE sintered filter	DRW244938SP
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Connection Cables

Standard 0.3 m (1 ft)	HMP50Z032SP
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Standard 3 m (9.8 ft)	HMP50Z300SP
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+80 °C 1.5 m (+176 °F 5 ft)	225777SP
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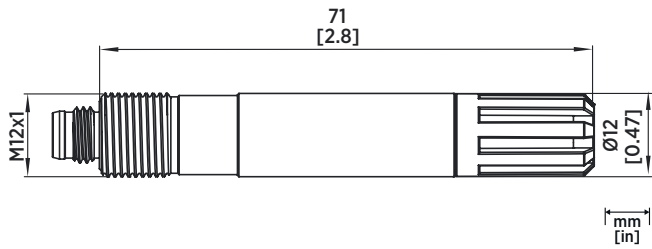
+80 °C 3 m (+176 °F 10 ft)	225229SP
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+180 °C 3 m (+356 °F 10 ft) FEP	226902SP
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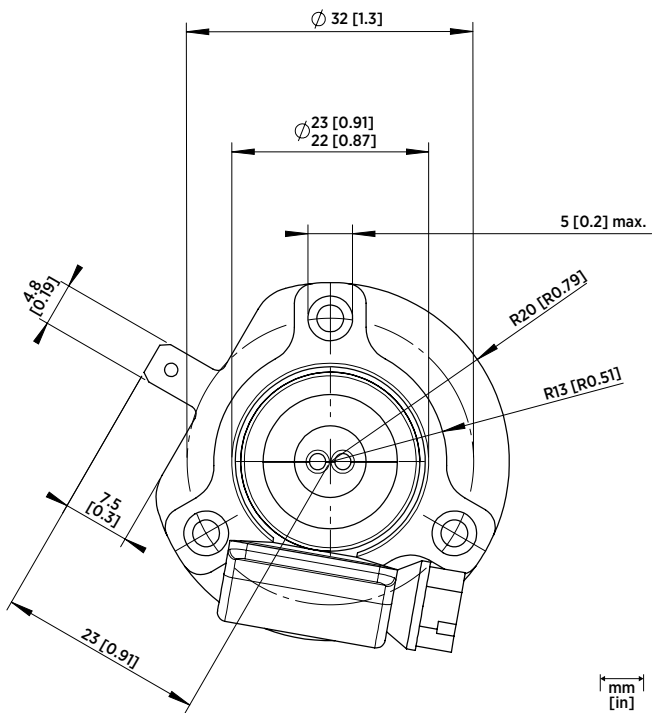
Connection cable for HM70	219980SP
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Flat extension cable 1 m (3 ft) ¹⁾	CBL210649SP
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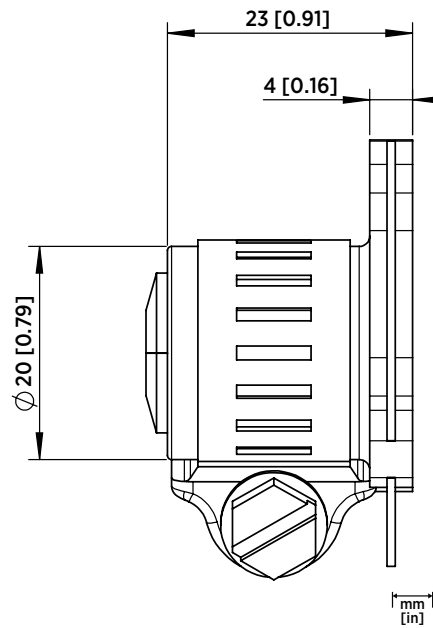
¹⁾ Connecting HMP110 to M170 requires using both flat cable CBL210649SP and connection cable 219980SP.



HMP110 Probe



Probe Mounting Flange, Front View



Probe Mounting Flange, Side View

