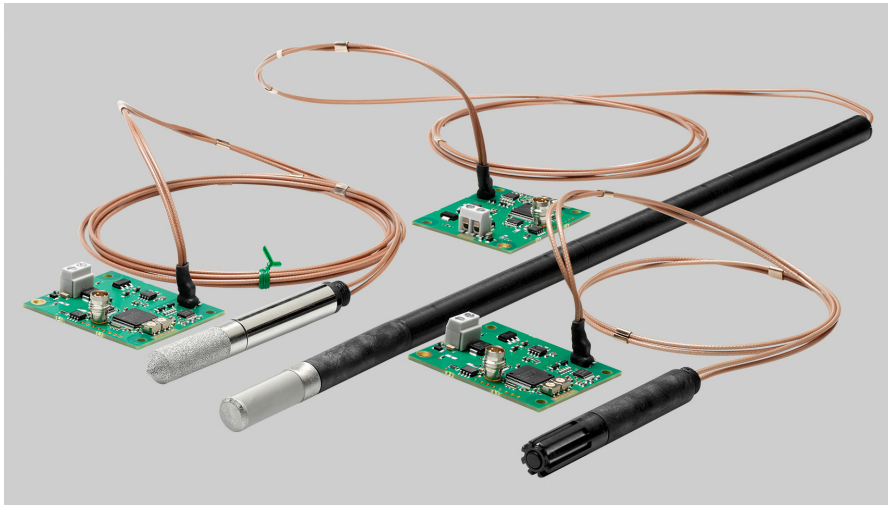




# HMM100 Humidity Module

For Environmental Chambers



## Features

- Full temperature compensation over the operating temperature range of -70 °C ... +180 °C (-94 °F ... +356 °F)
- High temperature tolerance, also suitable for heat sterilization
- Vaisala HUMICAP® 180R sensor
- Easy field calibration by trimmers
- Applications: test chambers, incubators

Vaisala HUMICAP® Humidity Module HMM100 is an open frame module for integration into environmental chambers. The module provides a single analog output channel for relative humidity (RH) or dew point ( $T_d$ ).

## Benefits

- Excellent measurement accuracy
- Low-maintenance
- Easy to install
- Durable

Two types of probes are available, one made of stainless steel, the other of plastics. The plastic probe comes in two sizes, a standard one and an extended 400-mm-long option. Several cable lengths up to 3 meters are available. Both probes use the Vaisala HUMICAP® 180R sensor which ensures excellent measurement accuracy.

## Robust and Reliable

The HMM100 probe works in freezing conditions (-70 °C (-94 °F)) and also in temperatures up to +180 °C (+356 °F). HMM100 is easy to install and the probe can be freely placed in a test chamber as the speed of airflow does not affect the measurement.

## Low-Maintenance

Compared to psychrometers, HMM100 requires very little maintenance. There is no wick that needs changing and there is no need for a water tank or water pump. Thus, environmental stress screening can be done reliably.

## Accessories

The accessories available are a component board mounting bracket with a lid, probe clamp, USB cable for service use, a module housing, and a probe mounting flange.

# Technical Data

## Measurement Performance

### Relative Humidity

Measurement range	0 ... 100 %RH
Factory calibration uncertainty (+20 °C / +68 °F)	±1.5 %RH
Humidity sensor types	HUMICAP® 180R HUMICAP® 180

### Accuracy <sup>1)</sup>

at -20 ... +40 °C (-4 ... +104 °F)	±2 %RH (0 ... 90 %RH) ±3 %RH (90 ... 100 %RH)
at -40 ... -20 °C and +40 ... +180 °C (-40 ... -4 °F and +104 ... +356 °F)	±2.5 %RH (0 ... 90 %RH) ±3.5 %RH (90 ... 100 %RH)

### Dew Point Temperature

Measurement range	-20 ... +100 °C (-4 ... +212 °F) T <sub>d</sub>
Accuracy <sup>2)</sup>	±2 °C (±3.6 °F) T <sub>d</sub>

<sup>1)</sup> Including non-linearity, hysteresis, and repeatability.

<sup>2)</sup> Including non-linearity, hysteresis, and repeatability, when dew point depression is < +20 °C (+68 °F) (ambient temperature - dew point).

## Operating Environment

EMC compliance	Applicable parts of EN61326-1, generic environment
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### Operating Temperature

Component board	-5 ... +55 °C (+23 ... +131 °F)
Stainless steel probe	-70 ... +180 °C (-94 ... +356 °F)
Plastic probe (standard body)	-70 ... +180 °C (-94 ... +356 °F)
Plastic probe (extended 400-mm (16-in) body)	-70 ... +120 °C (-94 ... +248 °F)
Plastic grid and membrane filter	-20 ... +80 °C (-4 ... +176 °F)
Porous PTFE, stainless steel sintered, and PPS plastic grid with stainless steel net filter	-70 ... +180 °C (-94 ... +356 °F)

## Mechanical Specifications

Service cable connector	M8 4-pin male
Probe diameter	12 mm (0.5 in)

### Probe Cable Lengths

Stainless steel probe	0.6/1.55/2.9 m (2/5.1/9.5 ft)
Plastic probe (standard body)	0.6/1.55/2.9 m (2/5.1/9.5 ft)
Plastic probe (extended 400-mm (16-in) body)	1.55 m (5.1 ft)

### Probe Material

Stainless steel probe	AISI316/PPS
Plastic probe	PPS
Extension tube for 400-mm probe	POM

Probe mounting clamp	AISI316
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### Mounting Bracket Material

Lid	ABS/PC
Bottom plate	Al
Module housing material	ABS/PC (cover)

## Inputs and Outputs

Power consumption	6 mA
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### Operating Voltage

2-wire model	24 VDC
3-wire model	10 ... 35 VDC or 24 VAC ±20 % 15 ... 35 VDC or 24 VAC ±20 % when 0 ... 10 V output is used

### Analog Output Types (1 Output Selectable)

2-wire model	4 ... 20 mA (loop-powered)
3-wire model	0 ... 20 mA, 0 ... 1/5/10 V, 1 ... 5 V

Max. wire size	0.5 ... 1.5 mm <sup>2</sup> (AWG)
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Service port	M8 connector for USB cable
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## Spare Parts and Accessories

HUMICAP® 180R sensor	HUMICAP180R
HUMICAP® 180 sensor <sup>1)</sup>	15778HM
Plastic grid filter	6221
Membrane filter	10159HM
Porous PTFE filter	219452SP
Stainless steel sintered filter	HM47280SP
PPS plastic grid with stainless steel net filter	DRW010281SP
Mounting bracket with lid	225979
Module housing (IP65)	226060
Probe mounting flange	226061
Probe mounting clamp set (10 pcs)	226067
USB cable	226068

<sup>1)</sup> Spare part item name: Vaisala INTERCAP® humidity sensor.

