

# Vaisala HUMICAP® Humidity and Temperature Probe HMP110



*The HMP110 with excellent stability and high chemical tolerance.*

## Features/Benefits

- Miniature-size humidity transmitter
- Low power consumption and fast start-up for battery powered applications
- Measurement range: 0 ... 100 %RH; -40 ... +80°C
- Cable detachable with standard M8 quick connector
- Reliable: Latest generation HUMICAP® 180R sensor for best stability and high chemical tolerance. IP65 metal housing.
- Optional RS485 digital output
- Traceable: Comes with calibration certificate.  $\pm 1.5$  %RH measurement accuracy (0 ... 90 %RH)
- HMP110R replacement probe service available for easy maintenance
- Optional dew point calculation

The 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. The HMP110 is also suitable for glove boxes, greenhouses, fermentation and stability chambers, data loggers, and incubators.

## 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. The HMP110D model has RS485 digital output.

## Robust Design

The stainless steel body of the HMP110 is classified as IP65. Thus, it survives rough conditions. The HMP110 has high chemical tolerance because of 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. In this way the measurement is available at all times without interruptions.

# Technical Data

## 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 ... +80 °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 ... +80 °C
Accuracy over temperature range	
0 ... +40 °C,	±0.2 °C
-40 ... 0 °C, +40 ... +80 °C	±0.4 °C

Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751
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### DEW POINT

Measurement range	-40 ... +80 °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 ... +80 °C
when dew point depression < 15 °C - dew point depression = ambient temperature - dew point	±2 °C

### ANALOG OUTPUTS

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

## Inputs and Outputs

Operating voltage	5 ... 28 VDC / 8 ... 28 VDC with
(Use lowest available operating voltage to minimize heating)	5 V output
	8 ... 28 VDC with loop power converter
Current consumption	1 mA average, max. peak 5 mA
Start-up time	
HMP110 probes with analog output	4 s at operating voltage
	13.5 ... 16.5 VDC
	2 s at other valid operating voltages
HMP110D 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 (HMP110D)	RS485 2-wire half duplex

## 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

## Operating Environment

Operating temperature range	-40 ... +80 °C
Electromagnetic compatibility	EN 61326-1: Electrical equipment for measurement, control and laboratory use – EMC requirements – for use in industrial locations.

## Mechanics

### Materials

body	stainless steel (AISI 316)
grid filter	chrome coated ABS plastic
cable	polyurethane or FEP

### Housing classification

IP65

### Body thread

M12x1 / 10 mm

### Cable connector

4-pin M8 (IEC 60947-5-2)

### Weight

probe	17 g
probe with 0.3 m cable	28 g

## Options and Accessories

### Sensor protection

plastic grid	DRW010522SP
membrane filter	DRW010525SP
stainless steel sintered filter	HM46670SP

### 4 ... 20 mA loop power converter

UI-CONVERTER-1CB

### Mounting bracket for converter

225979

### Plastic M12 installation nuts, pair

18350SP

### USB cable for PC connection

219690

### Probe mounting clamp set, 10 pcs

226067

### Probe mounting flange

226061

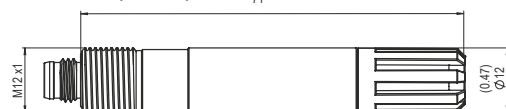
### Connection cables

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
connection cable for HM70	229980

## Dimensions

Dimensions in mm (inches)

(2.8)  
71



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