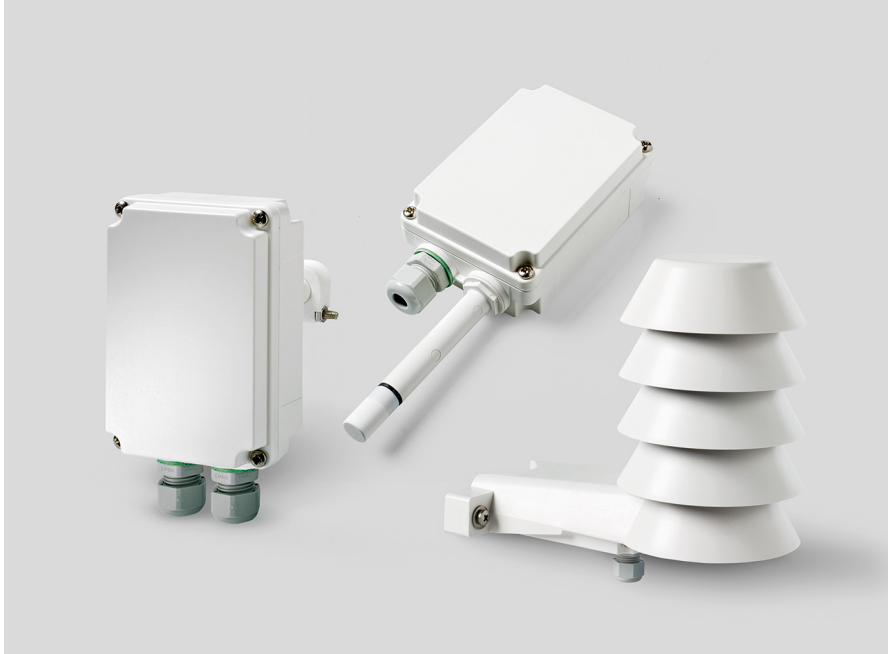




# HMDW110 Series Humidity and Temperature Transmitters

For High-Accuracy Measurements in HVAC Applications



## Features

- Accurate humidity and temperature transmitters for measurements in HVAC and cleanroom applications
- Outdoor transmitter with professional-grade radiation shield
- Proven Vaisala HUMICAP® 180R sensor for superior long-term stability
- $\pm 2$  %RH accuracy
- 3-point traceable calibration (certificate included)
- On-site calibration with Vaisala Handheld Meter HM70 or Vaisala Insight PC software
- Current (4 ... 20 mA) or Modbus RTU output variants

Vaisala HUMICAP® Humidity and Temperature Transmitter Series HMDW110 measure relative humidity and temperature in multiple HVAC applications. The series includes transmitters for duct mounting, IP65-rated wall transmitters, and outdoor transmitters with integrated radiation shields.

Optional output parameters are dew point temperature, wet bulb temperature, and enthalpy, which are selectable with Vaisala Insight PC software.

### Proven Vaisala HUMICAP® Performance

The cost-efficient HMDW110 series transmitters are equipped with the trusted HUMICAP® 180R sensor. The sensor's superior long-term stability minimizes maintenance needs throughout the transmitter's lifetime. If necessary, the transmitter can be field-calibrated using either a Vaisala Handheld Humidity and Temperature Meter HM70 or Vaisala Insight PC software.

HMDW110 series instruments are individually adjusted and delivered with a traceable calibration certificate.

### Unrivaled Outdoor Humidity Measurements

The integrated radiation shield of the outdoor models HMS110 and HMS112 enables unrivaled measurement performance. It reduces the impact of sunshine on temperature and humidity measurements, and ensures measurement accuracy in outdoor conditions. The most popular control parameters in free cooling – dew point temperature, wet bulb temperature, and enthalpy – are available as output parameters.

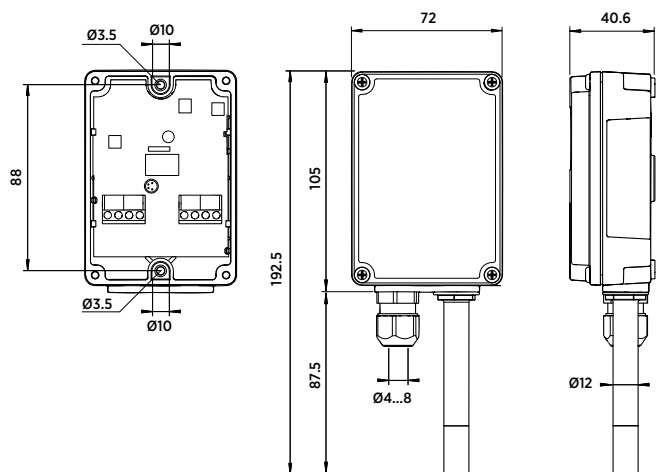
### Well-Suited for Cleanroom Monitoring

The HMD110 and HMW110 transmitters can be ordered with the catalytic HUMICAP® 180V sensor. The catalytic sensor improves stability especially in hydrogen peroxide sterilized environments where repeated condensation is expected.

# Technical Data



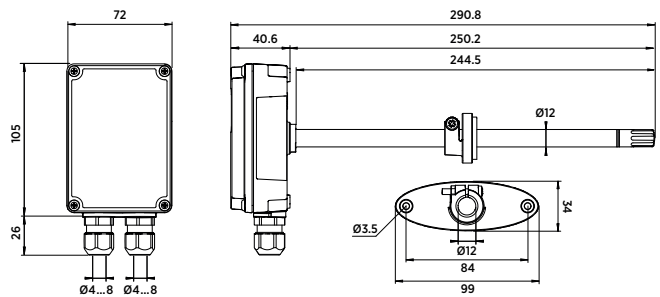
HMW110/112 RH+T transmitters for measurements in wet areas



Dimensions in mm



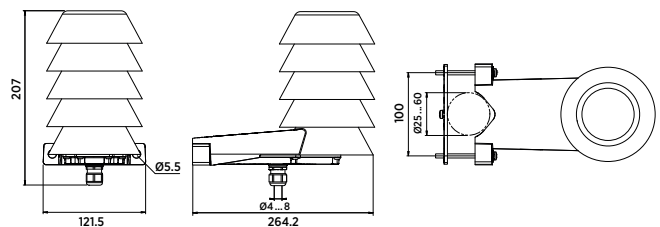
HMD110/112 RH+T transmitters for ducts



Dimensions in mm



HMS110/112 RH+T transmitters for outdoor measurements



Dimensions in mm

## Models

Model Number	Type	Output	Special Features	Ingress Protection
HMW110	Wall-mount, RH+T	2-wire current or Modbus RTU output	Configurable model <sup>1)</sup>	IP65
HMW112	Wall-mount, RH+T	2-wire current output		IP65
HMD110	Duct-mount, RH+T	2-wire current or Modbus RTU output	Configurable model <sup>1)</sup>	IP65
HMD112	Duct-mount, RH+T	2-wire current output		IP65
HMS110	Outdoor, RH+T	2-wire current or Modbus RTU output	Radiation shield, configurable model <sup>1)</sup>	IP65
HMS112	Outdoor, RH+T	2-wire current output	Radiation shield	IP65

<sup>1)</sup> Delivered with customer specific output settings, including calculated humidity parameters and custom scaling of outputs.

## Measurement Performance

### Relative Humidity

Measurement range	0 ... 100 %RH
Accuracy: <sup>1)</sup>	
at +10 ... +30 °C (+50 ... +86 °F)	±2 %RH (0 ... 90 %RH) ±3 %RH (90 ... 100 %RH)
at -20 ... +10 °C, +30 ... +60 °C (-4 ... +50 °F, +86 ... +140 °F)	±3 %RH (0 ... 90 %RH) ±4 %RH (90 ... 100 %RH)
at -40 ... -20 °C (-40 ... -4 °F)	±4 %RH (0 ... 100 %RH)
Stability in typical HVAC applications	±0.5 %RH/year
Humidity sensor types	HUMICAP <sup>®</sup> 180R HUMICAP <sup>®</sup> 180V

### Temperature

Measurement range	-40 ... +60 °C (-40 ... +140 °F)
Accuracy at +20 °C (+68 °F)	±0.2 °C (±0.36 °F)
Temperature dependence	±0.01 °C/°C
Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751

### Calculated Parameters

Measurement range for dew point temperature and wet bulb temperature	-40 ... +60 °C (-40 ... +140 °F)
Measurement range for enthalpy	-40 ... +460 kJ/kg (-17 ... +198 BTU/lb)
Accuracy at +20 °C (+68 °F) and 80 %RH: <sup>2)</sup>	
Dew point	±0.7 °C (1.2 °F)
Wet bulb temperature	±0.5 °C (0.9 °F)
Enthalpy	±1.6 kJ/kg (0.7 BTU/lb)
Factory calibration uncertainty at +20 °C (+68 °F)	±1.5 %RH/±0.2 °C

<sup>1)</sup> With HUMICAP<sup>®</sup> 180V sensor, accuracy is not specified below -20 °C (-4 °F) operating temperature.

<sup>2)</sup> Accuracy of the calculated parameters should be calculated at the actual condition based on the RH and temperature specification.

## Operating Environment (All Models)

Operating temperature	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity	0 ... 100 %RH
Maximum wind / flow speed	30 m/s
Storage temperature	-40 ... +60 °C (-40 ... +140 °F)
Electromagnetic compliance	EN61326-1, Industrial Environment

## Inputs and Outputs

### Devices Ordered with Analog Output

Outputs	4 ... 20 mA, loop powered
Loop resistance	0 ... 600 Ω
Supply voltage	20 ... 28 VDC at 600 Ω load 10 ... 28 VDC at 0 Ω load

### Devices Ordered with Modbus Output

Interface	RS-485, not isolated, no line termination
Default serial settings	19200 bps N 8 2
Protocols	Modbus RTU
Supply voltage	10 ... 28 VDC

## Spare Parts and Accessories

Conduit fitting + O-ring (M16 × 1.5 / NPT1/2")	210675SP
Conduit fitting + O-ring (M16 × 1.5 / PG9, RE-MS)	210674SP
Fastening set HMS110	237805
Fastening flange assembly (screws included)	ASM210771SP
Porous PTFE filter	DRW239993SP
Membrane filter	ASM210856SP
Terminal block, blue	236620SP
USB cable for PC connection	219690
Connection cable for HM70 handheld meter	219980SP
HUMICAP <sup>®</sup> 180R sensor	HUMICAP180R
HUMICAP <sup>®</sup> 180V sensor (catalytic)	HUMICAP180V

## Mechanical Specifications

Maximum wire size	1.5 mm <sup>2</sup> (AWG 16)
Standard housing color	White (RAL9003)
Housing material	PC + 10 %GF (UL-V0 approved)



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