

# HMDW110 Series Humidity and Temperature Transmitters for High-Accuracy Measurements in HVAC Applications



*HMDW110 Series Humidity and Temperature Transmitters for measurements in ducts, outdoor environments, and humid areas.*

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-classified wall transmitters, and outdoor transmitters with integrated radiation shields.

## Proven Vaisala HUMICAP® Performance

The cost-efficient HMDW110 series transmitters are equipped with trusted HUMICAP® 180R sensors. 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 an HM70 Hand-Held Humidity and Temperature Meter, or a PC connection.

HMDW110 series instruments are individually adjusted and delivered with a calibration certificate. The factory calibration is traceable to NIST.

## 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.

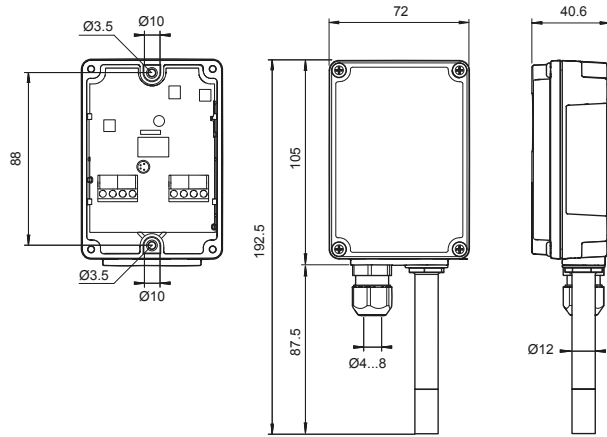
## Features/Benefits

- Accurate humidity and temperature transmitters for measurements in HVAC and cleanroom applications
- Outdoor transmitter with professional-grade radiation shield
- Proven HUMICAP® 180R sensor for superior long-term stability
- $\pm 2$  %RH accuracy
- 3-point NIST traceable calibration (certificate included)
- On-site calibration with HM70 Hand-Held Meter or PC connection
- Current output (4 ... 20 mA)
- Default output parameters are relative humidity and temperature. Dew point temperature, wet bulb temperature, and enthalpy outputs selectable with a PC connection.

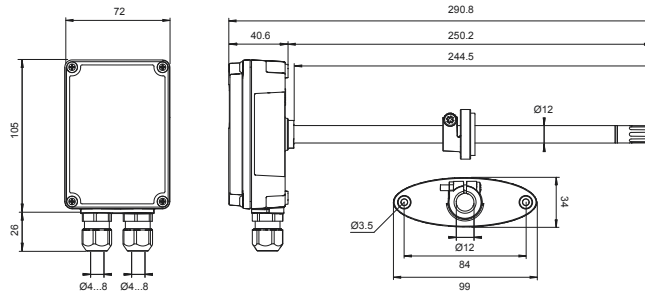
## Well-Suited for Cleanroom Monitoring

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

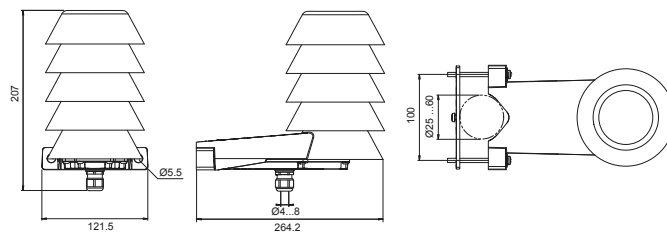
An optional panel display can be added for remote monitoring. Transmitters can be installed into difficult-to-reach locations, while measurement data can be read from a more convenient spot.



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



*HMD110/112  
RH+T transmitters  
for ducts*



*HMS110/112  
RH+T  
transmitters  
for outdoor  
measurements*

# Technical Data

## Models

Model number	Type	Output	Special Features	Ingress Protection
HMW110	Wall-mount, RH+T	2-wire, current output	Configurable model*	IP65
HMW112	Wall-mount, RH+T	2-wire, current output		IP65
HMD110	Duct-mount, RH+T	2-wire, current output	Configurable model*	IP65
HMD112	Duct-mount, RH+T	2-wire, current output		IP65
HMS110	Outdoor, RH+T	2-wire, current output	Radiation shield, configurable model*	IP65
HMS112	Outdoor, RH+T	2-wire, current output	Radiation shield	IP65

\*Delivered with customer specific output settings, including calculated humidity parameters and special scaling of outputs.

## Performance

### RELATIVE HUMIDITY

Measurement range 0 ... 100 %RH  
Accuracy

Temperature range +10 ... +30 °C (+50 ... +86 °F)  
0 ... 90 %RH ±2 %RH  
90 ... 100 %RH ±3 %RH

Temperature range -20 ... +10 °C, +30 ... +60 °C  
(-4 ... +50 °F, +86 ... +140 °F)

0 ... 90 %RH ±3 %RH  
90 ... 100 %RH ±4 %RH

Temperature range -40 ... -20 °C (-40 ... -4 °F)  
0 ... 100%RH ±4 %RH

Stability in typical HVAC applications ±0.5 %RH/year

Humidity sensor Vaisala HUMICAP® 180R

### 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 (-10 ... +190 BTU/lb)

Accuracy of the calculated parameters should be calculated at the actual condition based on the RH and temperature specification.

Accuracy at 20°C (68°F) and 80%RH:

Dew point ±0.7 °C (1.2 °F)

Wet bulb temperature ±0.5 °C (0.9 °F)

Enthalpy ±1.6kJ/kg (0.7 BTU/lb)

Factory calibration uncertainty at 20 °C (+68 °F) ±1.5%RH/±0.2 °C

## Operating Environment (All Models)

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

## Mechanics

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

## Inputs and Outputs

Analog output 4 ... 20 mA, loop powered  
Loop resistance 0 ... 600 Ω  
Supply voltage 20 ... 28VDC at 600 Ω load  
10 ... 28VDC at 0 Ω load  
Data input for RDP100 Remote RS485,  
Panel Display Vaisala proprietary protocol

## Spare Parts and Accessories

Remote Panel Display RDP100  
Conduit fitting + O-ring (M16x1.5 / NPT1/2 Inch) 210675SP  
Conduit fitting + O-ring (M16x1.5 / PG9, RE-MS) 210674SP  
Fastening set HMS110 237805  
Porous PTFE Filter DRW239993SP  
Membrane Filter ASM210856SP  
Terminal Block, Blue 236620SP  
USB cable for PC connection 219690  
Connection cable for HM70 hand-held meter 219980SP  
HUMICAP® 180R sensor HUMICAP180R  
Catalytic HUMICAP® sensor HUMICAP180VHP

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