



HMS110 Series Humidity and Temperature Transmitters

For high-accuracy outdoor measurements in building automation applications



Features

- Reliable outdoor transmitters with integrated radiation shields
- ± 2 %RH accuracy
- Proven HUMICAP® 180R sensor for long-lasting accuracy
- 3-point traceable calibration (certificate included)
- Default output parameters are relative humidity and temperature. Dew point temperature, wet bulb temperature, and enthalpy outputs selectable with a PC connection
- Current output (4 ... 20 mA) and Modbus RTU
- On-site calibration with HM70 Hand-Held Meter or PC connection
- Ingress protection IP65
- Compatible with Vaisala Insight PC software

Vaisala HMS110 Series HUMICAP® Humidity and Temperature Transmitters are designed for demanding outdoor measurements in building automation applications. These ± 2 % transmitters include an integrated radiation shield to reduce the influence of solar radiation on temperature and humidity measurements.

Proven Vaisala HUMICAP® performance for outdoor measurements

HMS110 transmitters are equipped with the trusted HUMICAP® 180R – a robust, general-purpose humidity sensor that functions well in high humidity. The sensor's superior stability ensures long-lasting accuracy and minimal maintenance throughout the transmitter's lifetime.

The integrated radiation shield allows unrivaled measurement performance, reducing the impact of sunshine on temperature and humidity measurements and ensuring measurement accuracy in outdoor conditions.

Easy installation and maintenance

HMS110 transmitters are easy to install. They can be mounted directly onto a wall or pole without any extra accessories. There are no loose parts, screws are retained in the enclosure, all connectors are clearly labeled, and the connectors are within easy reach.

The HUMICAP® sensor's excellent long-term stability and high-quality materials ensure minimal need for maintenance. If necessary, the transmitter can be field-calibrated using either HM70 Hand-Held Humidity and Temperature Meter, or a PC

connection. For easy-to-use access to configuration and calibration options, the transmitter can be connected to Vaisala Insight PC software.

Technical data

Models

Model	Type	Output	IP rating
HMS110	Outdoor, RH+T	2-wire, current output Modbus RTU (configurable model)	IP65
HMS112	Outdoor, RH+T	2-wire, current output	IP65

Inputs and outputs

Devices ordered with analog output

Analog outputs	4 ... 20 mA, loop powered
Loop resistance	0 ... 600 Ω
Supply voltage	20 ... 28V DC at 600 Ω load 10 ... 28V DC 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 V DC

Measurement performance

Relative humidity

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

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

Factory calibration uncertainty at 20 °C (+68 °F)	±1.5 %RH/±0.2 °C
Measurement range for dew point temperature and wet bulb temperature	-40 ... +60 °C (-40 ... +140 °F)
Measurement range for enthalpy	-40 ... 1530 kJ/kg (-9.6 ... 648 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	±1.6 kJ/kg (0.7 BTU/lb)

Operating environment

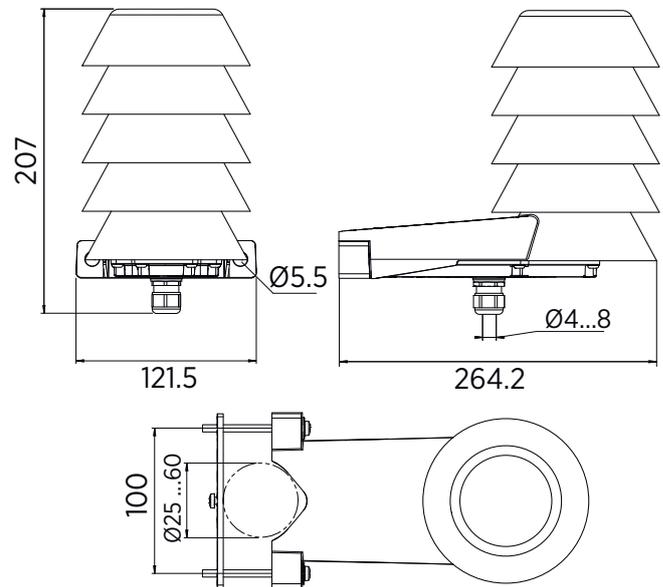
Operating temperature	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity	0 ... 100 %RH
Maximum wind/flow speed	30 m/s (67 mph)
Storage temperature	-40 ... +60 °C (-40 ... +140 °F)

Compliance

Property	Value/Description
EU directives and regulations	EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) amended by 2015/863
Electrical safety	EN 61326-1, industrial environment
EMC emissions	CISPR 32 / EN 55032, Class B
Compliance marks	CE, RCM

Mechanical specifications

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



Dimensions (in mm)

Spare parts and accessories

Conduit fitting + O-ring (M16 × 1.5 / NPT1/2 Inch)	210675SP
Conduit fitting + O-ring (M16 × 1.5 / PG9, RE-MS)	210674SP
Fastening set HMS110	237805
Membrane filter	ASM210856SP
Terminal block, blue	236620SP
USB cable for PC connection	219690 ¹⁾
Connection cable for HM70 hand-held meter	219980SP
HUMICAP® 180R sensor	HUMICAP180R

¹⁾ Vaisala Insight PC software for Windows available www.vaisala.com/insight.

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