



# VAISALA

## HMS110 Series Humidity and Temperature Transmitters

For high-accuracy outdoor measurements in building automation applications



### Features

- Reliable outdoor transmitters with integrated radiation shields
- $\pm 2$  %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  $\pm 2$  % 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<br>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<br>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

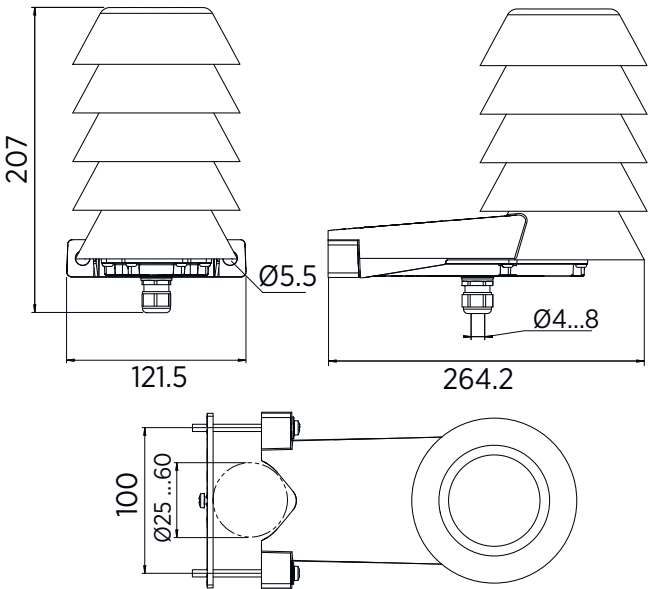
|                         |                                  |
|-------------------------|----------------------------------|
| Operating temperature   | -40 ... +60 °C (-40 ... +140 °F) |
| Operating humidity      | 0 ... 100 %RH                    |
| Maximum wind/flow speed | 30 m/s (67 mph)     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

## Compliance

| Property                      | Value/Description   |
|-------------------------------|---|
| EU directives and regulations | EMC Directive (2014/30/EU)<br>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 mm² (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](http://www.vaisala.com/insight).