



HMW90 Series Humidity and Temperature Transmitters

for High Performance HVAC Applications



Features

- Both analog and digital output
- Easy installation, configuration, and field adjustment
- Humidity parameter options: relative humidity, dew point, mixing ratio, enthalpy, wet bulb depression, and absolute humidity
- Full 0 ... 100 %RH measurement range
- Up to ± 1.7 %RH accuracy
- User exchangeable humidity and temperature module
- Traceable calibration (certificate included)
- Available in two colors

Wall-mounted Vaisala HMW90 Series HUMICAP® Humidity and Temperature Transmitters measure relative humidity and temperature in indoor HVAC applications, where high accuracy, stability, and reliable operation are required.

The flexible HMW90 series offers a variety of options and features. Transmitters include a display and a sliding cover with either an opening for the display or a solid front. Both analog and digital output options, including special scalings and calculated parameters, are available.

Quick and Easy to Install

HMW90 series transmitters are quick and easy to install. The wiring is connected through the back plate and the electronics with the sensors can be snapped on easily after the wiring is complete. The transmitter is configured using DIP switches, which are accessible when the enclosure is open.

Digital Communication Brings Benefits

The introduction of digital (BACnet/Modbus) communication to field level devices brings many advantages. For example, all sensors can be centrally accessed and their performance can be easily monitored. Wiring is simple when multiple sensors are installed on the same bus. Sensors can be set up using standardized tools, and the system can be expanded with additional sensors quickly and conveniently. In addition, parameters influencing measurements, such as pressure or site elevation, can be centrally set and updated.

Choose from a Wide Variety of Calibration Options

On-site calibration and adjustment is exceptionally easy. The sliding cover exposes offset trimmers for one-point calibration without disturbing measurement. The display instantly indicates the effects of changes, making it clear and convenient to make adjustments. A service port enables two-point calibration, using either a PC or Vaisala HUMICAP Handheld Humidity and Temperature Meter HM70. HMW90 series transmitters include a user-exchangeable measurement module, which can be ordered as a spare part.

Model	Measurements	Output
TMW92	T-only	2-wire, current output
TMW93	T-only	3-wire, voltage output
TMW90	T-only	Configurable analog output model
HMW92	RH+T	2-wire, current output
HMW92D	RH+T	2-wire, current output with display
HMW93	RH+T	3-wire, voltage output
HMW93D	RH+T	3-wire, voltage output with display
HMW90	RH+T	Configurable analog/digital model
HMW95	RH+T	Digital (BACnet, Modbus) model
HMW95D	RH+T	Digital (BACnet, Modbus) model with display

Technical Data

Measurement Performance

Relative Humidity

Measurement range 0 ... 100 %RH, non-condensing

Accuracy at temperature range +10 ... +40 °C (+50 ... +104 °F):

0 ... 90 %RH ±1.7 %RH

90 ... 100 %RH ±2.5 %RH

Accuracy at temperature range -5 ... +10 °C, +40 ... +55 °C
(+23 ... +50 °F, +104 ... +131 °F):

0 ... 90 %RH ±3 %RH

90 ... 100 %RH ±4 %RH

Stability in typical HVAC applications ±0.5 %RH/year

Humidity sensor Vaisala HUMICAP® 180R

Temperature

Measurement range -5 ... +55 °C (+23 ... +131 °F)

Accuracy at +20 ... +30 °C
(+68 ... +86 °F) ±0.2 °C (± 0.36 °F)

Accuracy at +10 ... +20 °C,
+30 ... +40 °C (+50 ... +68 °F,
+86 ... +104 °F) ±0.3 °C (± 0.54 °F)

Accuracy at -5 ... +10 °C, +40 ... +55 °C
(+23 ... +50 °F, +104 ... +131 °F) ±0.5 °C (± 0.90 °F)

Temperature sensor Digital temperature sensor

Operating Environment

Operating temperature -5 ... +55 °C (+23 ... +131 °F)

Storage temperature -30 ... +60 °C (-22 ... +140 °F)

EMC compliance EN61326-1, Industrial Environment

Mechanical Specifications

IP rating IP30

Weight 155 g (5.5 oz)

Standard housing color White (RAL9003¹⁾)

Optional housing color (configurable
models only) Black (RAL9005¹⁾)

Housing material ABS/PC, UL-V0 approved

Output connector Screw terminals
Max. wire size 2 mm² (AWG14)

Service port connector 4-pin M8

¹⁾ RAL code is only indicative with potential small variations in color shade.

Spare Parts and Accessories

Humidity and Temperature Module HTM10SP

Temperature Module (for T-only
models) TM10SP

Decorative cover set (10 pcs.) 236285

Connection cable for HM70 hand-held
meter 219980

USB cable for PC connection 219690

Inputs and Outputs

Service port

RS-485 line for temporary service use

Current Output Models

Outputs 2 x 4 ... 20 mA, loop powered

Loop resistance 0 ... 600 Ω

Supply voltage 20 ... 28 VDC at 500 Ω load
10 ... 28 VDC at 0 Ω load

Isolation between output channels 500 VDC

Voltage Output Models

Outputs 2 x 0 ... 5 V or 2 x 0 ... 10 V

Load resistance 10 kΩ min.

Supply voltage 18 ... 35 VDC, 24 VAC ±20 % 50/60 Hz

Max. current consumption

12 mA

Max. with relay 25 mA

Relay

1 pc (max 50 VDC/50 VAC, 500 mA)

Digital Models

Supply voltage 18 ... 35 VDC, 24 VAC ± 20 % 50/60 Hz

Max. current consumption (with 120 Ω

termination)

30 mA at 24 VDC

Output type

RS-485 (galvanic isolation, 1.5 kV)

RS-485 end of line termination

Enable with jumper, 120 Ω

Supported protocols

BACnet MS/TP or Modbus RTU
(selectable by DIP switch)

BACnet MS/TP Operating mode

Selectable Master/Slave

Address range, master mode

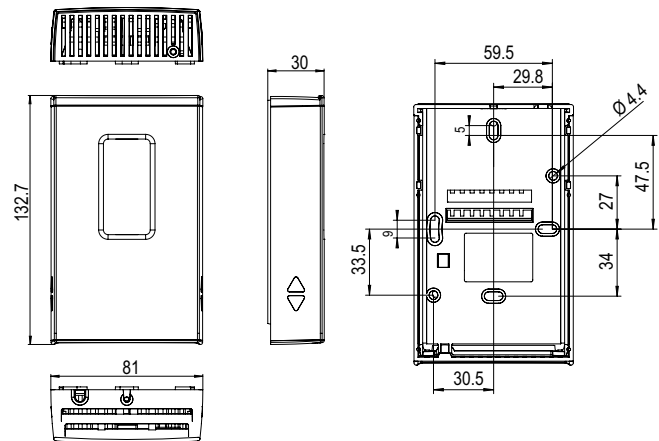
0 ... 127

Address range, slave mode

128 ... 255

Modbus RTU address range

0 ... 247



Dimensions in mm