HMDW80 Series Humidity and Temperature Transmitters for Building Automation Applications

HMDW80 Series Humidity and Temperature Transmitters for multiple applications within building automation.

Features/Benefits

- Reliable transmitters for basic HVAC humidity measurements
- ±3.0 %RH accuracy
- Full 0 ... 100 %RH measurement range
- Optimized for easy installation and low maintenance
- User exchangeable INTERCAP® sensor for easy field replacement
- Output parameters: relative humidity and temperature with optional dew point temperature, wet bulb temperature and enthalpy parameters
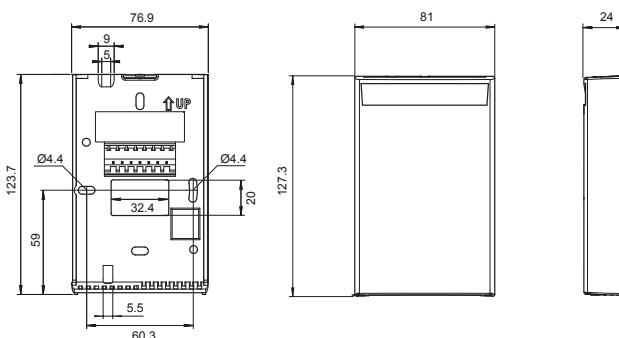- UL- V0 flammability rating

Typical Installation Locations

- Ventilation ducts
- Walls
- Wash-down areas
- Outdoor locations

Vaisala INTERCAP® Humidity and Temperature Transmitter Series HMDW80 measure relative humidity and temperature in various building automation applications. Transmitters combine easy installation and reliable operation with a low requirement for maintenance.

The versatile HMDW80 series includes transmitters for wall and duct mounting, IP65-classified transmitters for humid areas, and transmitters with a radiation shield for outdoor use. It also includes temperature-only transmitters and transmitters with an optional display.

Calculated humidity parameters – dew point temperature, wet bulb temperature, and enthalpy – are also available.

Easy Installation

HMDW80 series transmitters are optimized for easy installation. There are no loose parts, screws are retained in the enclosure, all connectors are clearly labeled, and the connectors are within easy reach.

The duct mount transmitters are well suited to a variety of duct sizes, the outdoor transmitters can be mounted directly onto a wall or pole without any extra accessories, and the wall
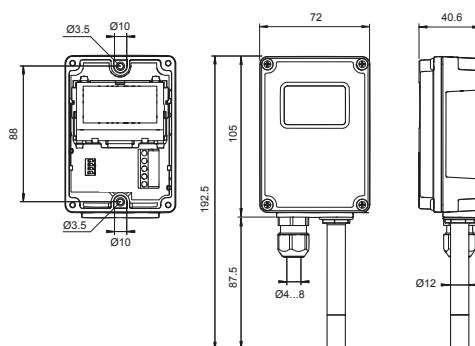
mount transmitters can be installed without the need to make holes in the transmitter enclosure.
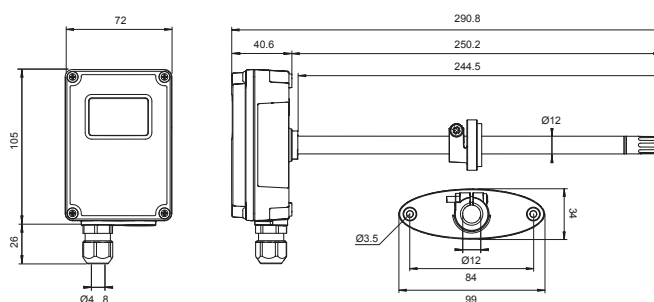
Reliable Operation

HMDW80 series transmitters require minimal maintenance thanks to their excellent sensor stability and high-quality materials. If necessary, the INTERCAP® sensor can be easily exchanged in the field with minimum downtime.
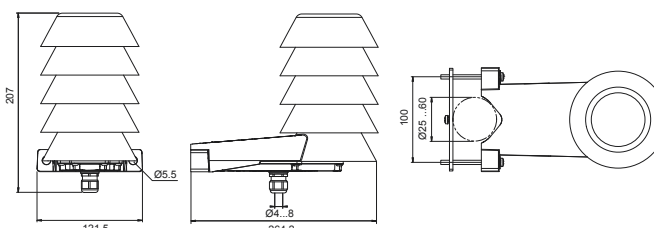
*HMW82/83 RH+T
and TMW82/83
T-only
transmitters
for wall-mounting*

*HMW88/89(D)
and TMW88 RH+T
transmitters
for measurements
in wet areas*

*HMD82/83(D)
and TMD82/83
RH+T and
T-only
transmitters
for ducts*

*HMS82/83
RH+T
transmitters
for outdoor
measurements*

Technical Data

Models

Model number	Type	Output	Special Features	Ingress Protection
TMW82	Wall-mount, T-only	2-wire, current output		IP30
TMW83	Wall-mount, T-only	3-wire, voltage output		IP30
HMW82	Wall-mount, RH+T	2-wire, current output		IP30
HMW82P100	Wall mount, RH+T	2-wire, current output	Additional Pt100 sensor	IP30
HMW83	Wall-mount, RH+T	3-wire, voltage output		IP30
TMW88	Wall-mount, T-only	2-wire, current output		IP65
HMW88	Wall-mount, RH+T	2-wire, current output	Calculated parameters*	IP65
HMW88D	Wall-mount, RH+T	2-wire, current output	Display, calculated parameters*	IP65
HMW89	Wall-mount, RH+T	3-wire, voltage output	Calculated parameters*	IP65
HMW89D	Wall-mount, RH+T	3-wire, voltage output	Display, calculated parameters*	IP65
TMD82	Duct-mount, T-only	2-wire, current output		IP65
TMD83	Duct-mount, T-only	3-wire, voltage output		IP65
HMD82	Duct-mount, RH+T	2-wire, current output	Calculated parameters*	IP65
HMD82D	Duct-mount, RH+T	2-wire, current output	Display, calculated parameters*	IP65
HMD83	Duct-mount, RH+T	3-wire, voltage output	Calculated parameters*	IP65
HMD83D	Duct-mount, RH+T	3-wire, voltage output	Display, calculated parameters*	IP65
HMS82	Outdoor, RH+T	2-wire, current output	Radiation shield, calculated parameters*	IP65
HMS82C	Outdoor, RH+T	2-wire, current output	HMS82 with NPT ½" conduit fitting*	IP65
HMS83	Outdoor, RH+T	3-wire, voltage output	Radiation shield, calculated parameters*	IP65
HMS83C	Outdoor, RH+T	3-wire, voltage output	HMS83 with NPT ½" conduit fitting*	IP65

*Output parameters for humidity: relative humidity, dew point temperature, wet bulb temperature, and enthalpy.

Specifications for Models HMW82/83 and TMW82/83

Performance

Operating temperature range	-5 ... +55 °C (+23 ... +131 °F)
Operating humidity range	0 … 100 %RH, non-condensing

RELATIVE HUMIDITY

Measurement range	0 ... 100 %RH
Accuracy	
Temperature range	+10 ... +30 °C (+50 ... +86 °F)
0 ... 70 %RH	±3 %RH
70 ... 100 %RH	±5 %RH
Temperature range	-5 ... +10 °C, +30 ... + 55 °C (+23 ... +50 °F, +86 ... +131 °F)
0 …100 %RH	±7 %RH
Stability in typical HVAC applications	±2 %RH over 2 years
Humidity sensor	Vaisala INTERCAP®

TEMPERATURE

Measurement range	-5 ... +55 °C (+23 ... +131 °F)
Accuracy	
+10 ... +30 °C (+50 °F ... +86 °F)	±0.5 °C (±0.9 °F)
-5 ... +10 °C, +30 ... +55 °C (+23 ... +50 °F, +86 ... +131 °F)	±1.0 °C (±1.8 °F)
Temperature sensor	Digital temperature sensor
Temperature sensor HMW82P100	Pt100 Class F 0.1 IEC 60751, 3-wire connection

Specifications for Models HMD82/83, TMD82/83, HMW88/89, TMW88 and HMS82/83

Performance

Operating temperature range	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity range	0 ... 100 %RH

RELATIVE HUMIDITY

Measurement range	0 ... 100 %RH
Accuracy	
Temperature range	+10 ... +30 °C (+50 ... +86 °F)
0 ... 90 %RH	±3 %RH
90 … 100 %RH	±5 %RH
Temperature range	-20 ... +10° C, +30 ... +60 °C (-4 ... +50 °F, +86 ... +140 °F)
0 … 90 %RH	±5 %RH
90 … 100 %RH	±7 %RH
Temperature range	-40 ... -20 °C (-40 ... -4 °F)
0 ... 100%RH	±7 %RH
Stability in typical HVAC applications	±2 %RH over 2 years
Humidity sensor	Vaisala INTERCAP®

TEMPERATURE

Measurement range	-40 ... +60 °C (-40 ... +140 °F)
Accuracy	
At +20 °C (+68 °F)	±0.3 °C (±0.54 °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)

Technical Data

Specifications for Models HMD82/83D and HMW88/89D

Performance

Operating temperature range	-5 … +60 °C (+23 … +140 °F)
Operating humidity range	0…100 %RH, non-condensing

RELATIVE HUMIDITY

Measurement range	0 … 100 %RH
Accuracy	
Temperature range	+10 ... +30 °C (+50 ... +86 °F)
0 ... 90 %RH	±3 %RH
90 … 100 %RH	±5 %RH
Temperature range	-5 ... +10 °C, +30 ... +60 °C
	(+23 ... +50 °F, +86 ... +140 °F)
0 … 90 %RH	±5 %RH
90 … 100 %RH	±7 %RH
Stability in typical HVAC applications	±2 %RH over 2 years
Humidity sensor	Vaisala INTERCAP®

TEMPERATURE

Measurement range	(Analog output scaling)
	-40 ... +60 °C (-40 ... +140 °F)
Operating temperature range of the display	-5 ... +60 °C (+23 ... +140 °F)
Accuracy	
At +20 °C (+68 °F)	±0.3 °C (±0.54 °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)

Operating Environment (All Models)

Operating Environment (All Models)	See model specifications
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 mm² (AWG 16)
Standard housing color	White (RAL9003)
Housing material	
HMW82/83, TMW82/83	ABS/PC (UL-V0 approved)
HMW88/89(D), HMD82/83(D), TMW88,	PC + 10%GF
TMD82/83, HMS82/83	(UL-V0 approved)

Inputs and Outputs

Current output models (2-wire)

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

Voltage output models (3-wire)

Outputs	0...10 V
Load resistance	10 kΩ min
Supply voltage	18 ... 35 VDC
	24 VAC ±20 % 50/60 Hz

Spare Parts and Accessories

INTERCAP® sensor	15778HM
10 pcs of INTERCAP® sensors	INTERCAPSET-10PCS
Conduit fitting + O-ring (M16x1.5 / NPT1/2 Inch)	210675SP
Conduit fitting + O-ring (M16x1.5 / PG9, RE-MS)	210674SP
Fastening set HMS80	237805
Porous PTFE Filter	DRW239993SP
Membrane Filter	ASM210856SP
Terminal Block, Blue	236620SP
HMD80 display lid	ASM210793SP