VAISALA

HMDW80 Series Humidity and Temperature Transmitters for Building Automation Applications



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

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 and IP65-classified transmitters for humid areas. 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 variable duct sizes and the wall mount transmitters can be installed without the need to make holes in the transmitter enclosure.

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- VO flammability rating

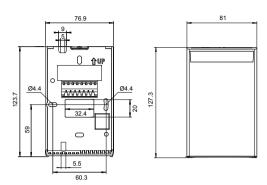
Typical Installation Locations

- Ventilation ducts
- Walls
- Wash-down areas

Reliable Operation

HMD80 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.

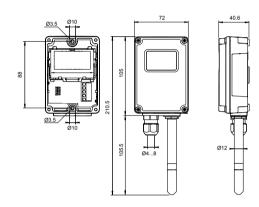






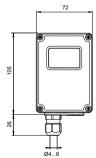
HMW82/83 RH+T and TMW82/83 T-only transmitters for wall-mounting

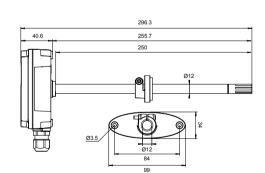




HMW88/89(D) RH+T transmitters for measurements in wet areas







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

Technical Data

Models

Model number	Туре	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
HMW83	Wall-mount, RH+T	3-wire, voltage output		IP30
HMW88	Wall-mount, RH+T	2-wire, current output	Calculated parameters*	IP65
HMW88D	Wall-mount, RH+T	2-wire, current output	Display, calculated parameters*	IP54
HMW89	Wall-mount, RH+T	3-wire, voltage output	Calculated parameters*	IP65
HMW89D	Wall-mount, RH+T	3-wire, voltage output	Display, calculated parameters*	IP54
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*	IP54
HMD83	Duct-mount, RH+T	3-wire, voltage output	Calculated parameters*	IP65
HMD83D	Duct-mount, RH+T	3-wire, voltage output	Display, calculated parameters*	IP54

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

Specifications for Models HMW82/83 and TMW82/83

Performance

Periormance	
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)
0100 %RH	±7 %RH
Stability in typical HVAC	±2 %RH over 2 years
applications	
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 °C)
Temperature sensor	Digital temperature sensor

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

Performance

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	-4020 °C (-404 °F)	
0 100%RH	±7 %RH	
Stability in typical HVAC application	ons ±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	ature -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 Operating humidity range Operating humidity range RELATIVE HUMIDITY Measurement range Accuracy Temperature range $0 \dots 100 \text{ %RH}$, non-condensity $0 \dots 90 \text{ %RH}$ $0 \dots 90 \text{ %RH}$ $0 \dots 90 \text{ %RH}$ $0 \dots 100 \text{ %RH}$ $0 \dots 100 \text{ %RH}$ $0 \dots 90 %$
RELATIVE HUMIDITY Measurement range 0 100 %F Accuracy Temperature range +10 +30 °C (+50 +86 ° 0 90 %RH ±3 %F 90 100 %RH ±5 %F Temperature range -5 +10 °C, +30 +60 °C 0 90 %RH ±5 %F 90 100 %RH ±5 %F Stability in typical HVAC applications ±2 %RH over 2 year Humidity sensor Vaisala INTERCA TEMPERATURE (Analog output scaling 40 +60 °C (-40 +140 °)
Measurement range 0 100 %F Accuracy Temperature range +10 +30 °C (+50 +86 ° 0 90 %RH ±3 %F 90 100 %RH ±5 %F Temperature range -5 +10 °C, +30 +60 ° (+23 +50 °F, +86 +140 ° +40 ° 0 90 %RH ±5 %F 90 100 %RH ±7 %F Stability in typical HVAC applications ±2 %RH over 2 year Humidity sensor Vaisala INTERCAL TEMPERATURE (Analog output scaling the content of th
Accuracy Temperature range
Temperature range
0 90 %RH
90 100 %RH
Temperature range -5 +10 °C, +30 +60 °C (+23 +50 °F, +86 +140 °C (+23 +50 °C, +30 +60 °C (+30 +140 °C
(+23 +50 °F, +86 +140 ° 0 90 %RH 90 100 %RH \$\pmathbb{\pmathba\pmathbb{\pmathbb{\pmathbb{\pmathbb{\pmathbb{\pmathbb{\pmathbb{
0 90 %RH ±5 %F 90 100 %RH ±7 %F Stability in typical HVAC applications Humidity sensor Vaisala INTERCAL TEMPERATURE Measurement range (Analog output scalin 40 +60 °C (40 +140 °
90 100 %RH ±7 %F Stability in typical HVAC applications Humidity sensor Vaisala INTERCAL TEMPERATURE Measurement range (Analog output scalin 40 +60 °C (40 +140 °
Stability in typical HVAC applications Humidity sensor TEMPERATURE Measurement range (Analog output scalin 40 +60 °C (-40 +140 °C
Humidity sensor Vaisala INTERCAL TEMPERATURE Measurement range (Analog output scalin -40 +60 °C (-40 +140 °
TEMPERATURE Measurement range (Analog output scalin -40 +60 °C (-40 +140 °
Measurement range (Analog output scalin 40 +60 °C (40 +140 °
-40 +60 °C (-40 +140 °
•
Operating temperature range
of the display $+5 \dots +60$ °C ($+23 \dots +140$ °
Accuracy
At +20 °C (+68 °F) ±0.3 °C (±0.54 °
Temperature dependence ±0.01 °C/
Temperature sensor Pt1000 RTD Class F0.1 IEC 607
CALCULATED PARAMETERS
Measurement range for dew $-40 \dots +60 ^{\circ}\text{C} (40 \dots +140 ^{\circ}$
point temperature and wet
bulb temperature
Measurement range for enthalpy -40460 kJ/
(-10+190 BTU/I

Operating Environment (All Models)

Operating Environment (All Mod	dels) 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 mm ² (AWG 16)
Standard housing color	White (RAL9003)
Housing material	
HMW82/83, TMW82/83	ABS/PC (UL-V0 approved)
HMW88/89(D), HMD82/83(D),	
TMD82/83	PC + 10%GF (UL-V0 approved)

Inputs and Outputs

Current output models (2-wire)	
Outputs	4 20 mA, loop powered
Loop resistance	$0 \dots 600 \Omega$
Supply voltage	$20 \dots 28 \text{VDC}$ at $600~\Omega$ load
	$10 \dots 28 \text{VDC}$ at 0Ω load
Voltage output models (3-wire)	
Outputs	010 V
Load resistance	$10~\mathrm{k}\Omega$ 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 In	nch) 210675SP
Conduit fitting + O-ring (M16x1.5 / PG9, RE-M	S) 210674SP



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