



# VAISALA

## HMD60 Series Humidity and Temperature Transmitters

For Demanding HVAC and Light Industrial Applications



### Features

- Measurement accuracy up to  $\pm 1.5\% \text{RH}$  and  $\pm 0.1\text{ }^{\circ}\text{C}$  ( $\pm 0.18\text{ }^{\circ}\text{F}$ )
- 4 ... 20 mA analog outputs: HMD62 (RH and T) and TMD62 (T-only)
- 0 ... 10 V analog outputs: HMD65 (RH and T)
- BACnet MS/TP and Modbus RTU: HMD65
- All common humidity parameters available, including RH, dew point, enthalpy, and wet bulb temperature
- Resistant to chemicals and dust
- IP66-rated body
- Traceable calibration certificate
- Easy field adjustment and output configuration with quick access to electronics also when installed
- Compatible with Vaisala Insight PC software

The duct mounted HMD60 series HUMICAP® transmitters HMD62, TMD62, and HMD65 are designed for light industrial applications and demanding HVAC applications such as museums, cleanrooms, and laboratories.

### Analog or Digital Output with 3 Transmitter Options

HMD60 series transmitter options:

- HMD62: RH and T measurement, 4 ... 20 mA analog output
- TMD62: T-only transmitter, 4 ... 20 mA analog output
- HMD65: RH and T measurement, 0 ... 10 V analog output, Modbus RTU, and BACnet MS/TP

### Robust Design, Stability, and Reliability

The all-metal body is suitable for building sites and industrial settings. HMD60 series transmitters provide state-of-the-art stability and environmental resistance, thanks to the Vaisala HUMICAP® R2 sensor.

For applications where hydrogen peroxide disinfection is used, the HUMICAP® 180V catalytic sensor option provides improved stability during  $\text{H}_2\text{O}_2$  exposure.

### Traceable Accuracy

HMD60 series transmitters are always delivered with a traceable (ISO9001) calibration certificate. Upon request, accredited (ISO17025) calibration certificates can also be provided.

### Field Configurable Outputs

The analog HMD62 and TMD62 transmitter models use floating 4 ... 20 mA loop powered outputs. The HMD65 model has two 0 ... 10 V outputs in addition to BACnet MS/TP and

Modbus RTU interfaces (RS-485). The analog outputs are field configurable with easy humidity parameter selection using DIP switches.

For special scaling and other additional configuration and adjustment options, you can use the convenient Vaisala Insight PC software for Windows® (see [www.vaisala.com/insight](http://www.vaisala.com/insight)).

When required, HMD60 series transmitters can also be intuitively field adjusted using trimmers or with the Vaisala HM70 handheld meter.

# Technical Data

## Relative Humidity Measurement Performance

### Humidity Sensor Options

HUMICAP® R2	Latest generation industrial sensor with improved corrosion resistance
HUMICAP® 180V	Humidity sensor with a catalytic surface for processes with H <sub>2</sub> O <sub>2</sub>

Measurement range	0 ... 100 %RH
Stability	±0.5 %RH/year in typical HVAC applications

### Accuracy at 0 ... +40 °C (+32 ... +104 °F) <sup>1)</sup>

0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH

### Accuracy at +40 ... +80 °C (+104 ... +176 °F) and -40 ... 0 °C (-40 ... +32 °F) <sup>1) 2)</sup>

0 ... 90 %RH	±2.5 %RH
90 ... 100 %RH	±3.5 %RH
Factory calibration uncertainty	±1.0 %RH

### Start-up and Response Time

Start-up time at +20 °C (+68 °F)	8 s
Response time (T63) at +20 °C (+68 °F)	15 s

### Calculated Humidity Parameters (Default Analog Output Scale)

Dew point	-40 ... +80 °C (-40 ... +176 °F)
Dew point / frost point	-40 ... +80 °C (-40 ... +176 °F)
Absolute humidity	0 ... 300 g/m <sup>3</sup> (0 ... 131.1 gr/ft <sup>3</sup> )
Wet bulb temperature	-40 ... +80 °C (-40 ... +176 °F)
Enthalpy	-40 ... 1600 kJ/kg (-9.5 ... 695.6 Btu/lb)
Mixing ratio	0 ... 600 g/kg (0 ... 4200 gr/lb)

1) Including non-linearity, hysteresis, and repeatability

2) With HUMICAP® 180V sensor, accuracy is not specified below -20 °C (-4 °F) operating temperature

## Temperature Measurement Performance

Temperature sensor	Pt1000 RTD Class F 0.1 IEC 60751
Measurement range	-40 ... +80 °C (-40 ... +176 °F)
Default analog output scale	-20 ... +80 °C (-4 ... +176 °F)
Accuracy at +20 °C (+68 °F)	±0.1 °C (0.18 °F)
Temperature dependence	±0.005 °C/°C
Factory calibration uncertainty	±0.1 °C (0.18 °F)
Response time (T63) with free convection	8 min

## Analog Output Performance

Accuracy at +20 °C (68 °F):	±0.01 mA (HMD62 and TMD62) ±5 mV (HMD65)
Temperature dependence	±0.0008 mA/°C (HMD62 and TMD62) ±0.2 mV/°C (HMD65)

## Operating Environment

Operating temperature, electronics	-40 ... +60 °C (-40 ... +140 °F)
Operating temperature, probe	-40 ... +80 °C (-40 ... +176 °F)
Storage temperature range	-40 ... +80 °C (-40 ... +176 °F)
Maximum flow speed	50 m/s with sintered filter
Electromagnetic compatibility	EN61326-1, Industrial Environment



## Inputs and Outputs

Power supply input	HMD62 and TMD62: 10 ... 35 VDC (RL = 0 Ω) 20 ... 35 VDC (RL = 600 Ω)  HMD65: 15 ... 35 VDC 16 ... 24 VAC
Power consumption (HMD65)	1.0 W (typical, for both AC and DC)
Analog outputs	TMD62: 1 × T output 4 ... 20 mA  HMD62: 1 × RH output 4 ... 20 mA, 1 × T output 4 ... 20 mA <sup>1)</sup>  HMD65: 1 × RH output 0 ... 10 V, 1 × T output 0 ... 10 V <sup>1)</sup> (load resistance: 10 kΩ min.)
Digital output (RS-485)	HMD65: Isolated, supports Modbus RTU and BACnet MS/TP protocols
BACnet MS/TP	Address range: 0 ... 127 (master mode only)
Modbus RTU	Address range: 1 ... 247
Service port	M8 4-pin male connector: • MI70 handheld indicator (requires cable 219980SP) • Vaisala Insight PC software <sup>2)</sup> (requires USB cable 219690)
Screw terminal wire size	0.5 ... 2.5 mm <sup>2</sup>

1) Calculated output parameters for HMD62 and HMD65 include  $T_{db}$ ,  $T_{wb}$ ,  $A$ ,  $X$ ,  $T_{wp}$  and  $H$ .

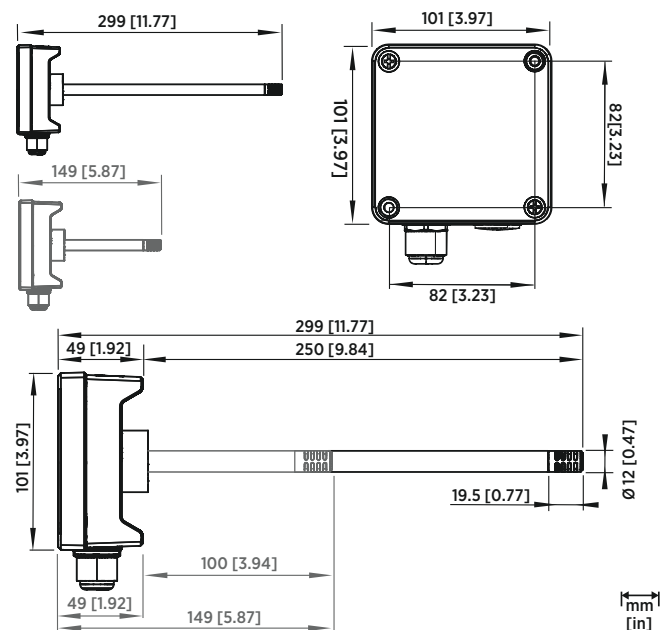
2) Vaisala Insight software for Windows® available at [www.vaisala.com/insight](http://www.vaisala.com/insight).

## Spare Parts and Accessories

USB cable for PC operation (Vaisala Insight software)	219690
Connection cable for HM70 (MI70) handheld meter	219980SP
Membrane filter	ASM212652SP
Sintered filter	HM46670SP
Sintered teflon filter	DRW244938SP
Conduit fitting and O-ring (M16×1.5 / NPT1/2")	210675SP

## Mechanical Specification

Housing material	Cast aluminum
Probe material	Stainless steel
IP rating	IP66 (NEMA 4X)
Weight	511 g (18 oz)



HMD60 Dimensions (Long and Short Probe Options)

Model	Measurement Parameters	Outputs and Scaling
HMD62	Humidity and Temperature	2 analog outputs, 4 ... 20 mA
TMD62	Temperature	1 analog output, 4 ... 20 mA
HMD65	Humidity and Temperature	2 analog outputs, 0 ... 10 V Digital output: BACnet MS/TP, Modbus RTU
HMD60	Humidity and Temperature	Configurable outputs and scale, short probe option
TMD60	Temperature	1 analog output (4 ... 20 mA, configurable scale), short probe option