

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 H_2O_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).

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 ₂ O ₂ |
| Measurement range | 0 ... 100 %RH |
| Stability | ±0,5 %RH/year in typical HVAC applications |
| Accuracy at 0 ... +40 °C (+32 ... +104 °F) ¹⁾ | |
| 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) ^{1) 2)} | |
| 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 ³ (0 ... 131.1 gr/ft ³) |
| 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 ¹⁾ HMD65: 1 × RH output 0 ... 10 V, 1 × T output 0 ... 10 V ¹⁾ (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 ²⁾ (requires USB cable 219690) |
| Screw terminal wire size | 0.5 ... 2.5 mm ² |

¹⁾ Calculated output parameters for HMD62 and HMD65 include T₀, T₀, A, X, T_w, and H.

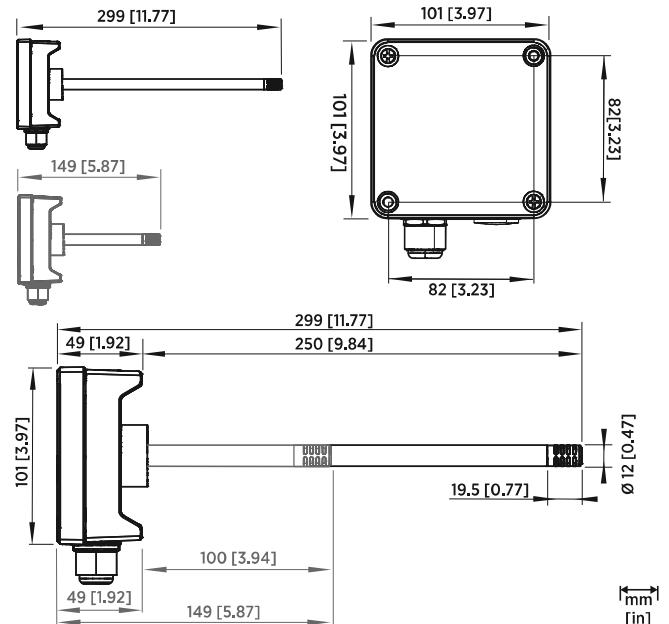
²⁾ Vaisala Insight software for Windows® available at www.vaisala.com/insight.

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

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|------------------|-----------------|
| 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 |