🏵 VAISALA

HMD/W60/70 Humidity and Temperature Transmitters for HVAC Applications



Vaisala HUMICAP^{*} Humidity and Temperature Transmitters HMD/W60 and HMD/W70 are designed for use in air conditioning applications where accurate and stable control of relative humidity and temperature are required.

The duct and wall-mounted Vaisala HUMICAP^{*} Humidity and Temperature Transmitters HMD/W60 and HMD/ W70 are designed for monitoring relative humidity and temperature in building energy management systems. The combination of high accuracy, stability and reliable operation, make these products the ideal choice for demanding applications.

Resistant to chemicals and dust

The duct mount HMD60 and HMD70 transmitters can also be used in many industrial humidity monitoring applications, where their stability and resistance to chemicals and dust are of great value. A novel feature of these duct mount transmitters is the ability to remove the electronics without removing the unit from the duct.

Measures both humidity and temperature

The HMD/W60 and HMD/W70 transmitters are available in three

measurement, and T for temperature only. **Fast, on-site calibration** The accuracy of the transmitters is simple to shack using either the Veige

simple to check using either the Vaisala HUMICAP[®] Hand-Held Humidity and Temperature Meter HM70 or the Vaisala HUMICAP[®] Humidity Indicator HMI41. The calibration can be done in seconds with a single potentiometer without disturbing the operation, resulting in great savings both in maintenance time and costs.

models: U for humidity measurement-

only, Y for humidity and temperature

Customized calibration and maintenance contracts are available on request.

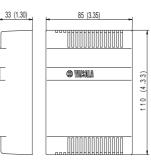
Features/Benefits

- Full 0 ... 100 %RH measurement
- Accuracy up to ±2 %RH
- True two-wire transmitters with 4 ... 20 mA loop powered output (HMD60 and HMW60)
- Selectable signal output of 0 ... 1 V, 0 ... 5 V or 0 ... 10 V (HMD70 and HMW70) with optional current module also 0 ... 20 mA (HMD70)
- Vaisala HUMICAP[®] Sensor for excellent accuracy and long-term stability, negligible hysteresis and resistance to dust and most chemicals.
- Temperature compensated
- IP65 (NEMA 4) housing (duct unit only)
- Also available as temperature-only transmitters HMD/W 60T/70T
- NIST traceable (certificate included)
- Compatible with Vaisala HUMICAP[®] Hand-Held Humidity and Temperature Meter HM70

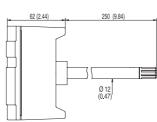
Dimensions

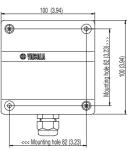
Dimensions in mm (inches) HMW60/70





HMD60/70





Vaisala Instruments Catalog 2008 Ref. B210712en rev. A

Technical Data

| Wall mount | wire, 4 to 20 m RH only | HMW60U |
|---|---|---|
| | RH & T | HMW60Y |
| Duct mount | RH only RH & T | HMD60U HMD60Y |
| | iui & i | 111110001 |
| 70 series: 3-\ | wire, variable | voltage output |
| Wall moun | RH only | HMW70U |
| | RH & T | HMW70Y |
| Duct mount | RH only RH & T | HMD70U HMD70Y |
| | Iur & r | 111110701 |
| <u>Relative hum</u> | idity | |
| Aeasurement rang | | |
| duct mount | | 0 100 %RH* |
| wall mount accuracy at +20 °C | | 0 95 %RH* |
| 5 | | |
| △ %RH | | |
| 3 - 2 - | | |
| 1 - | | |
| 0 -1 - 0 10 20 | 0 30 40 50 60 7 | 0 80 90 100 %RH |
| -2 | | |
| -3 - | | |
| Cemperature depend | lence | |
| 2.0 — | | |
| 1.5 1.0 – | | |
| 0.5 - | | |
| -0.520 - 10 - 0 | 10 20 30 40 | 50 60 70 80 •C |
| -1.5 - | (dark grov | area for duct model only) |
| -2.0 ⊣ Response time at +20 | | area for duct model only) |
| | | |
| 00% response | | 5 s (with membrane filter) |
| 00% response Sensor | 15 | HUMICAP [®] 180 |
| 00% response Sensor | | HUMICAP [®] 180 |
| 00% response Sensor <u>Output signal corre</u> | 15 esponds to 0 100 %RF | HUMICAP* 180 |
| 00% response Sensor Output signal corre Cemperature | 15 | HUMICAP* 180 I y) better than 0.1 °C |
| 10% response Sensor <u>Output signal corre</u> Cemperature Linearity Sensor | 15 esponds to 0 100 %RF (Y-models onl | ı y) |
| 0% response Sensor Output signal corre Cemperature Linearity Sensor IMD60Y and HMD | 15 esponds to 0 100 %RF (Y-models onl) 70Y | HUMICAP* 180 H better than 0.1 °C Pt 1000 IEC 751 class B |
| 0% response ensor <u>Output signal corre</u> Emperature inearity ensor IMD60Y and HMD Aeasurement range | 15 esponds to 0 100 %RF (Y-models onl) 70Y | HUMICAP [*] 180 I y) better than 0.1 °C |
| 0% response ensor <u>Output signal corre</u> Cemperature Linearity lensor IMD60Y and HMD Aeasurement range Accuracy | 15 esponds to 0 100 %RF (Y-models onl) 70Y | HUMICAP* 180 H better than 0.1 °C Pt 1000 IEC 751 class B |
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| 0% response ensor <u>Output signal corre</u> inearity ensor IMD60Y and HMD Aeasurement range accuracy | 15 esponds to 0 100 %RF (Y-models onl) 770Y -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
| 0% response ensor <u>Output signal corre</u> Eemperature inearity ensor IMD60Y and HMD Aeasurement range accuracy | 15 esponds to 0 100 %RF (Y-models onl) 770Y -2 | HUMICAP* 180 H better than 0.1 °C Pt 1000 IEC 751 class B |
| 0% response ensor <u>Output signal corre</u> Temperature inearity ensor IMD60Y and HMD Aeasurement range accuracy Ac | 15 esponds to 0 100 %RF (Y-models onl) 770Y -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
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| 0% response ensor <u>Output signal corre</u> Temperature inearity ensor IMD60Y and HMD Aeasurement range accuracy Ac | 15 esponds to 0 100 %RF (Y-models onl) 770Y -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
| 0% response ensor <u>Output signal corre</u> <u>Emperature</u> inearity ensor HMD60Y and HMD Aeasurement range Accuracy | 15 sponds to 0 100 %RF (Y-models onl 770Y -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
| 0% response ensor <u>Output signal corre</u> <u>Temperature</u> inearity ensor IMD60Y and HMD Aeasurement range accuracy | 15 sponds to 0 100 %RF (Y-models onl 770Y -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
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| 0% response ensor <u>Output signal corre</u> <u>Comperature</u> inearity lensor IMD60Y and HMD Aeasurement range Accuracy Acuracy Acuracy Acuracy Acuracy Acuracy | 15 sponds to 0 100 %RF (Y-models onl 770Y -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
| 10% response Sensor Output signal corre Femperature Linearity Sensor HMD60Y and HMD Measurement range Accuracy A • C 0.8 - 0.4 - 0.2 - 0.4 - 0.5 - 0.4 - 0.4 - 0.8 - 0.4 - 0.6 - 0.4 - 0.8 - 0.4 - 0.6 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.6 - 0.8 - 0.4 - 0.6 - 0.8 - 0.8 - 0.4 - 0.6 - 0.8 - 0.4 - 0.6 - 0.8 - 0.4 - 0.6 - 0.8 - 0.4 - 0.6 - 0.8 - 0.6 - 0.8 - 0.6 - 0.8 - 0.6 - 0.8 - 0.8 - 0.6 - 0.8 - 0.6 - 0.6 - 0.8 - 0.6 - 0.6 - 0.8 - 0.5 | 15 sponds to 0 100 %RF (Y-models onl 770Y -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
| 00% response Sensor Coutput signal corrections Femperature Linearity Sensor HMD60Y and HMD Measurement range Accuracy A -C 0.8 - 0.4 - 0.2 - 0.4 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.4 - 0.8 - 0.8 - 0.9 - 0.1 - 0 - 0.1 - 0 - 0.2 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.8 - 0.4 - 0.8 - 0.8 - 0.8 - 0.4 - 0.8 - 0.8 - 0.1 - 0 - 0.5 - 0.4 - 0.2 - 0.5 - 0.4 - 0.2 - 0.5 - 0.4 - 0.5 - 0 | 15 esponds to 0 100 %RH (Y-models onl) 770Y -2 0 10 20 30 40 V70Y -5 | HUMICAP* 180 <u>J</u> better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** <u>50 '60 '70</u> 80 •C +55 °C (+23 131 °F) ** |
| 10% response Sensor Output signal corrections Sensor Femperature Linearity Sensor HMD60Y and HMD Measurement range Accuracy A •C 0.8 - 0.4 - 0.2 - 0.4 - 0.4 - 0.8 - 0.4 - 0.4 - 0.4 - 0.4 - 0.4 - 0.5 - 0.5 - 0.4 - 0.5 - 0.4 - 0.5 - 0.4 - 0.5 - 0.4 - 0.5 - 0.4 - 0.5 - 0.5 - 0.4 - 0.5 - 0. | 15 sponds to 0 100 %RF (Y-models onl 770Y -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 | HUMICAP* 180 HUMICAP* 180 better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** |
| 10% response Sensor Output signal corrections Sensor Femperature Linearity Sensor HMD60Y and HMD Measurement range Accuracy A •C 0.8 - 0.4 - 0.2 - 0.4 - 0.5 - 0.4 - 0.4 - 0.5 - 0.5 - 0.4 - 0.5 - 0. | 15 esponds to 0 100 %RH (Y-models onl) 770Y -2 0 10 20 30 40 V70Y -5 | HUMICAP [*] 180 <u>J</u> better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** <u>50 '60 '70</u> 80 •C +55 °C (+23 131 °F) ** |
| 10% response Sensor Output signal corrections Sensor Senso | 15 esponds to 0 100 %RH (Y-models onl) 970Y -2 0 10 20 30 40 V70Y -5 | HUMICAP [*] 180 <u>J</u> better than 0.1 °C Pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** <u>50 '60 '70</u> 80 •C +55 °C (+23 131 °F) ** |
| 10% response Sensor Output signal corrections Sensor Femperature Linearity Sensor HMD60Y and HMD Measurement range Accuracy A •C 0.8 - 0.4 - 0.2 - 0.4 - 0.4 - 0.8 - 0.4 - 0.4 - 0.4 - 0.4 - 0.4 - 0.4 - 0.4 - 0.4 - 0.5 - 0.4 - 0.5 - 0.4 - 0.5 - 0.4 - 0.5 - 0.5 - 0.4 - 0.5 - 0.5 - 0.4 - 0.5 - 0.5 - 0.5 - 0.4 - 0.5 - 0.5 - 0.5 - 0.5 - 0.4 - 0.5 - 0. | 15 esponds to 0 100 %RH (Y-models onl) 970Y -2 0 10 20 30 40 V70Y -5 | HUMICAP* 180 HUMICAP* 180 pt 1000 IEC 751 class B 0 +80 °C (-4 176 °F) ** 60 ·· c |

General - 60 series

| Supply voltage | 10 35 VDC (RL = 0 ohm) |
|----------------|--------------------------|
| | 20 35 VDC (RL = 500 ohm) |
| Output signal | 4 20 mA |

General - 70 series

| Supply voltage range depends on the selected output signal | | | | |
|--|---------|---------------|--|--|
| | DC | AC | | |
| 0 1V | 10 35 V | 9 24 V | | |
| 0 5 V | 14 35 V | 12 24 V | | |
| 0 10 V | 19 35 V | 16 24 V | | |
| **0 20 mA (RL = 0 ohm) | 10 35 V | 11 24 V | | |
| **0 20 mA (RL = 500 ohm) | 20 35 V | 17 24 V | | |
| ** HMD models only. | | | | |
| Power consumption @ 24 VAC | | | | |
| HMD/W70U | | 10 mA typical | | |
| HMD/W70Y | | 12 mA typical | | |
| | | | | |

General

| Ucilciai | |
|--------------------------------|---|
| Operating temperature range | |
| electronics | -5 +55 °C (+23 +131 °F) |
| probe (duct mount) | -20 +80 °C (-4 +176 °F) |
| Storage temperature range | -40 +80 °C (-40 +176 °F) |
| Long-term humidity range for | |
| electronics (wall mount) | 0 85 %RH |
| Housing | |
| probe (duct mount) | stainless steel |
| electronics (duct mount) | cast aluminum |
| electronics (wall mount) | ABS plastic |
| Connections | screw terminals 0.5 1.5 mm ² |
| Sensor protection (duct mount) | |
| standard men | nbrane filter (part no. DRW010525) |
| optional | stainless steel sintered filter |
| ł | (part no. HM46670) |
| For duct mount units: | <u>,</u> |
| Cable thread-through | |
| bushing for 7 10 mm (PG9) | |
| cable housing IP65 (NEMA 4) | part no. 18941HM |
| or | r |
| armoured cable glands | part no. 10528HM |
| (must be ordered separately) | r |
| (| |
| For field check | |
| TT (TO 1 11 11) | . 1., 1., |

HM70 hand-held humidity and temperature meter or HMI41 humidity indicator

Complies with EMC standard EN61326-1:1997 + Am1:1998 + Am2:2001; Generic Environment.

Wiring

HMD60/70 wiring diagram

HMW60/70 wiring diagram

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0 2 RHout

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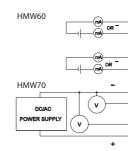
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GND