VAISALA

HUMICAP® Humidity and Temperature Transmitters HMT120 and HMT130

Vaisala HUMICAP® Humidity and Temperature Transmitters HMT120 and HMT130 are designed for humidity and temperature monitoring in cleanrooms and are also suitable for other demanding HVAC and light industrial applications.

Options

- Humidity parameter options: relative humidity, dew point/frost point, wet bulb temperature, enthalpy, absolute humidity, mixing ratio, vapor pressure, and saturation vapor pressure
- 2-wire loop-powered or 3-wire voltage output configurations
- Optional LCD display
- Wall-mounted transmitter with a fixed or remote probe
- Constant output probe available
- Can be mounted outdoors using a Vaisala installation kit and Vaisala Radiation Shield DTR504A

Performance

The HMT120 and HMT130 transmitters incorporate Vaisala HUMICAP® humidity sensor technology that measures relative humidity accurately and reliably. Vaisala HUMICAP® sensors are resistant to dust and most chemicals.

The HMT120 and HMT130 transmitter enclosure is optimized for use in cleanrooms. The smooth surface of the enclosure makes it easy to clean and the enclosure material is chosen to tolerate cleaning agents. Furthermore, cabling can be done through the back wall of the transmitter.

Interchangeable probe

The HMT120 and HMT130 transmitters use a fully interchangeable relative humidity probe. The probe can be easily removed and replaced with a new one without having to adjust the transmitter, which allows for easy and quick recalibration of the transmitter. The probe can be adjusted using one of Vaisala's handheld meters as a reference.

Also available is a constant output probe with fixed RH and T output for convenient inspection of the monitoring system and signal transfer line.

Available options

The HMT120 and HMT130 transmitters are available as wall mounted with a fixed or remote probe. For high temperature applications or where space is limited, the remote probe is ideal.

The optional LCD display shows the measurement values of the selected parameters in selected units. The parameters are displayed simultaneously on two separate rows on the display.

Technical data

Models

Model	Measured parameters	Probe options	Output
HMT120	RH + T	HMP110, HMP113	2 analog outputs, 4–20 mA (loop-powered)
HMT130	RH + T	HMP110, HMP113	2 analog outputs, 0–1 V, 0–5 V, 0–10 V, or user-defined between 0–10 V

Measurement performance

Relative humidity	
Measurement range	0–100 %RH
Accuracy [1] [2]	
At 0 ... +40 °C (+32 ... +104 °F)	±1.5 %RH (0–90 %RH) ±2.5 %RH (90–100 %RH)
With HMP110 probe: At −40 ... 0 °C and +40 ... +80 °C (−40 ... +32 °F and +104 ... +176 °F) With HMP113 probe: At −40 ... 0 °C and +40 ... +60 °C (−40 ... +32 °F and +104 ... +140 °F)	±3.0 %RH (0–90 %RH) ±4.0 %RH (90–100 %RH)
Factory calibration uncertainty at +20 °C (+68 °F)	±1.1 %RH (0–90 %RH) ±1.8 %RH (90–100 %RH)
Humidity sensor types	HUMICAP® 180R HUMICAP® 180V [3]
Stability	±2 %RH over 2 years
Stability in typical HVAC applications	±0.5 %RH per year
Temperature	
Measurement range	HMP110: −40 ... +80 °C (−40 ... +176 °F) HMP113: −40 ... +60 °C (−40 ... +140 °F)
Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751
Accuracy over temperature range:	
HMP110:	
At +15 ... +25 °C (+59 ... +77 °F)	±0.1 °C (±0.18 °F)
At 0 ... +15 °C and 25 ... +40 °C (+32 ... +59 °F and 77 ... +104 °F)	±0.15 °C (±0.27 °F)
At −40 ... +0 °C and +40 ... +80 °C (−40 ... +32 °F and +104 ... +176 °F)	±0.4 °C (±0.72 °F)
HMP113:	
At 0... +40 °C (+32 ... +104 °F)	±0.2 °C (±0.36 °F)
At −40 ... 0 °C and +40 ... +60 °C (−40 ... +32 °F and +104 ... +140 °F)	±0.4 °C (±0.72 °F)
Other output parameters (optional)	
Dew point/frost point, wet bulb temperature, enthalpy, absolute humidity, mixing ratio, vapor pressure, saturation vapor pressure	

1) Including non-linearity, hysteresis, and repeatability.
2) With HUMICAP® 180V sensor, accuracy is specified only in operating temperature −20 ... +80 °C (−4 ... +176 °F).
3) Not available with HMP113.

Operating environment

IP rating (transmitter body)	IP65 [1]
Operating temperature of transmitter body, no display	−40 ... +60 °C (−40 ... +140 °F)
Operating temperature of transmitter body with display	−20 ... +60 °C (−4 ... +140 °F)
Operating temperature, probe	HMP110: −40 ... +80 °C (−40 ... +176 °F) HMP113: −40 ... +60 °C (−40 ... +140 °F)
Storage temperature	−50 ... +70 °C (−58 ... +158 °F)

1) IP65 for the HMP110 probe only when using stainless steel sintered filter (HM46670SP) or PTFE sintered filter (item code DRW244938SP).

Inputs and outputs

HMT120 2-wire transmitter (loop-powered)	
Current output signals	4–20 mA
External loop voltage	10–30 V DC (R_L = 0 Ω) 20–30 V DC (R_L < 500 Ω)
HMT130 3-wire transmitter	
Voltage output signals	0–1 V, 0–5 V, 0–10 V or user-defined between 0–10 V
Min. output resistance	1 kΩ
Serial output	RS-485, non-isolated
Relay output	1 relay (max. 50 V DC, 200 mA)
Supply voltage	10–35 V DC 15–35 V DC (when output 0–10 V) 24 V AC (±20 %)
Current consumption at 24 V DC	8 mA, if relay closed 15 mA
Max. additional error caused by the analog outputs after calibration at +20 °C (+68 °F) ambient temperature	±0.1 % of FS output signal
Temperature dependence of the analog outputs	±0.005 % of FS output signal

Mechanical specifications

Weight	270 g (9.5 oz)
Probe connection cable lengths	3 m, 5 m, 10 m - up to 50 m (9.8 ft, 16 ft, 33 ft - up to 164 ft)
Display (optional)	128 × 64 resolution full graphics B&W display without backlight
Material	
Transmitter housing	PBT plastic
Display window	PC plastic
Probe body	HMP110: Stainless steel (AISI 316) HMP113: PC/ABS blend
Probe grid filter	HMP110: Chrome coated ABS plastic HMP113: PC (glass reinforced)
Connections	
Inputs and outputs	Screw terminals 0.5–1.5 mm^2 (AWG 20–AWG 15)
Probe interface	4-pin M8 female panel connector

Compliance

EU directives and regulations	EMC, RoHS
Electromagnetic compatibility (EMC)	EN 61326-1, basic electromagnetic environment CISPR 32 / EN 55032, Class B
Compliance marks	CE, RCM

Spare parts and accessories

| Probes [1]	
Humidity and temperature probe	HMP110
Constant output probe	HMP110REF
Humidity and temperature probe	HMP113
Sensors	
HMP110 and HMP113 probes:	
Standard humidity sensor	HUMICAP180R
Catalytic humidity sensor for H_2O_2	HUMICAP180V [2]
Sensor protection	
HMP110 probe:	
Plastic grid filter	DRW010522SP
Plastic grid with membrane filter	DRW010525SP
Stainless steel sintered filter	HM46670SP
PTFE membrane filter with stainless steel grid	ASM212652SP
PTFE sintered filter	DRW244938SP
HMP113 probe:	
Plastic grid filter	DRW240185SP
Plastic grid with membrane filter	ASM210856SP
Stainless steel sintered filter	HM47280SP
Porous PTFE filter	219452SP
Probe installation	
HMP110 and HMP113 (remote probe models):	
Probe mounting clamp, 1 pc	225501
Probe mounting clamps, 10 pcs	226067
Probe mounting flange	226061
Probe holder, 5 pcs	ASM213382SP
Probe connection cables [3]	
Probe connection cable 3 m (9.8 ft)	HMT120Z300
Probe connection cable 5 m (16 ft)	HMT120Z500
Probe connection cable 10 m (33 ft)	HMT120Z1000
Probe connection cable 20 m (66 ft)	HMT120Z2000
Probe connection cable 5 m (16 ft), plenum-rated	HMT120Z500CMP
Probe connection cable 10 m (33 ft), plenum-rated	HMT120Z1000CMP
Probe connection cable 20 m (66 ft), plenum-rated	HMT120Z2000CMP
Other cables	
HM70 connection cable	211339
USB serial interface cable	219685
Transmitter protection and installation	
Radiation shield [3]	DTR504A
Rain shield with installation kit	215109
Duct installation kit [3]	215619

1) See the separate HMP110 and HMP113 order forms.
2) Not available with HMP113.
3) For use with remote probe models.
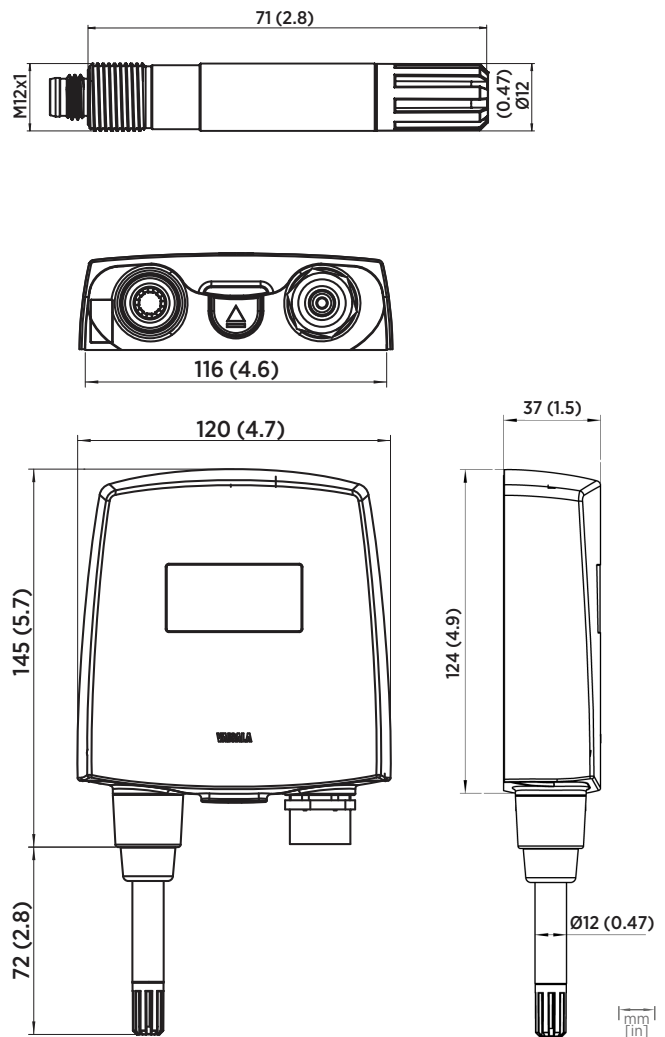
Dimensions of HMP110 remote probe (top image) and HMT120 and HMT130 transmitters