Vaisala HUMICAP® Humidity and Temperature Transmitters HMT120 and HMT130

The HMT120/130 with and without a display.

Features/Benefits

- Vaisala HUMICAP® technology with humidity sensor HUMICAP® 180R
- 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
- Interchangeable probe (easy field calibration)
- Accurate and reliable
- Resistant to dust and most chemicals
- Optional LCD display
- USB cable available for a PC connection for maintenance
- Wall-mounted or with a remote probe
- Constant output probe available
- Can be mounted outdoors using a Vaisala installation kit and the Vaisala Radiation Shield DTR504A
- Enclosure IP65
- 3-point NIST traceable calibration (certificate included)
- Suitable for cleanrooms and demanding HVAC and light industrial applications

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

Performance

The HMT120/130 incorporates Vaisala HUMICAP® technology that measures relative humidity accurately and reliably. The Vaisala HUMICAP® is resistant to dust and most chemicals.

The 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 purifying agents. Furthermore, the cabling can be done through the back wall of the transmitter.

Interchangeable Probe

The HMT120/130 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 portable 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 or with remote probe. For high temperature applications or where space is limited, the remote

probe is ideal. The transmitters come with an optional LCD display, which shows the measurement results of selected parameters in selected units. The parameters are displayed simultaneously at two separate rows on the display.

Technical Data

Performance

RELATIVE HUMIDITY

Measurement range	0 ... 100 %RH

Accuracy including non-linearity, hysteresis, and repeatability

temperature range	0 °C ...+40 °C (32 °F ... 104 °F)
0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH
temperature range	-40 ... 0 °C, +40 ...+80 °C
	(-40 °F ... 32 °F, 104 °F ... 176 °F)
0 ... 90 %RH	±3.0 %RH
90 ... 100 %RH	±4.0 %RH

Factory calibration uncertainty at +20 °C (+68 °F)

0 ... 90 %RH	±1.1 %RH
90 ... 100 %RH	±1.8 %RH
Humidity sensor	Vaisala HUMICAP® 180R
Stability	±2 %RH over 2 years
In typical HVAC applications	±0.5 %RH per year

TEMPERATURE

Measurement range	-40 °C ...+80 °C
	(-40 °F ... 176 °F)

Accuracy over temperature range

at +15 °C ...+25 °C (59 °F...77 °F)	±0.2 °C (±0.36 °F)
at 0 ...+15 °C and at +25 °C ...+40 °C	±0.25 °C
(at 32 °F ...59 °F and at 77 °F ... 104 °F)	(±0.45 °F)
at -40 °C ...+0 °C and at +40 °C ...+80 °C	±0.4 °C
(at -40 °F ...32 °F and at 104 °F ... 176 °F)	(±0.72 °F)
Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751

OTHER VARIABLES (OPTIONAL)

dew point/frost point, wet bulb temperature, enthalpy, absolute humidity, mixing ratio, vapor pressure, and saturation vapor pressure

Inputs and Outputs

HMT120 TWO-WIRE TRANSMITTER (LOOP POWERED)

Current output signals	4 ... 20 mA
External loop voltage	10 ... 30 VDC (R_L= 0 ohms)
	20 ... 30 VDC (R_L< 500 ohms)

HMT130 THREE-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 kohm
Serial output	RS485, non-isolated
Relay output	1 relay (max. 50 VDC, 200 mA)
Supply voltage	10 ... 35 VDC
	15 ... 35 VDC (when output 0 ... 10 V)
	24 VAC (±20 %)
Current consumption at 24 VDC	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

Operating Environment

Operating temperature range	
transmitter body, no display	-40 °C ...+60 °C (-40 °F ... 140 °F)
transmitter body, with display	-20 °C ...+60 °C (-4 °F ... 140 °F)
HMP110 probe	-40 °C ...+80 °C (-40 °F ... 176 °F)
Storage temperature range	-50 °C ...+70 °C (-58 °F ... 158 °F)
Electromagnetic compatibility	EN 61326-1 and EN 55022

Mechanics

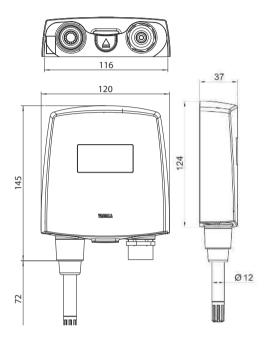|	
Material	
transmitter housing	PBT plastic
display window	PC plastic
probe body	Stainless steel (AISI 316)
probe grid filter	Chrome coated ABS plastic
Housing classification	IP65
Connections	
inputs and outputs	Screw terminals 0.5 ... 1.5 mm^2
probe interface	4-pin M8 female panel connector
Probe cable lengths	3 m, 5 m, 10 m - up to 50 m
Display (optional)	128 x 64 resolution full graphics B&W display without backlight
Weight (including probe)	270 g

Accessories

Humidity and temperature probe	HMP110*
Humidity and temperature replacement probe	HMP110R*
Constant output probe	HMP110REF*
Standard humidity sensor	HUMICAP® 180R
Catalytic humidity sensor for H_2O_2	HUMICAP® 180V
Probe mounting flange	226061
Probe mounting clamps, 10 pcs	226067
HMP110 sensor protection	
plastic grid filter	DRW010522SP
plastic grid with membrane filter	DRW010525SP
stainless steel sintered filter	HM46670SP
Probe cable 3 m	HMT120Z300
Probe cable 5 m	HMT120Z500
Probe cable 10 m	HMT120Z1000
Probe cable 20 m	HMT120Z2000
Radiation shield	DTR504A
Rain shield with installation kit	215109
Duct installation kit	215619
HM70 connection cable	211339
USB serial interface cable	219685

*See separate order form

Dimensions

Dimension in mm

Remote probe dimensions