



# HMP8 Relative Humidity and Temperature Probe

For Pressurized and Vacuum Processes



## Features

- RH accuracy up to 0.8 %RH
- Temperature accuracy up to 0.1 °C (0.18 °F)
- Temperature measurement range -70 ... +180 °C (-94 ... +356 °F)
- Sensor purge provides superior chemical resistance
- Probe installation depth can be freely adjusted and probe can be hot-swapped from pressurized pipelines with an installation valve
- Modbus RTU over RS-485
- Plug & play compatible with Indigo™ series of transmitters
- Traceable calibration certificate: 5 points for humidity, 1 point for temperature

Vaisala HUMICAP® Humidity and Temperature Probe HMP8 is designed for pressurized applications in compressed air systems, refrigerant dryers, and other pressurized industrial applications, where easy insertion and removal of the probe and adjustable installation depth into the pipeline are needed.

## Proven Vaisala HUMICAP® Performance

Vaisala is the original innovator of the thin-film capacitive humidity measurement technology, which has now become the industry standard in humidity measurement.

HUMICAP® technology results from Vaisala's 40-year experience in industrial humidity measurement, providing the best stability, fast response time, and low hysteresis in a wide range of applications.

## Chemical Purge Minimizes Effects of Contaminants

In environments with high concentrations of chemicals and cleaning agents, the chemical purge option helps to maintain measurement accuracy between calibration intervals.

The chemical purge involves heating the sensor to remove harmful chemicals. The function can be initiated manually or programmed to occur at set intervals.

## Flexible Connectivity

The probe is plug and play compatible with Vaisala Indigo™ series of transmitters, or it can be used as a standalone digital Modbus RTU transmitter over RS-485 serial bus. For easy-to-use access to field calibration, device analytics, and configuration functionality, the probe can be connected to Vaisala Insight™ Software (see [www.vaisala.com/insight](http://www.vaisala.com/insight)).

## Vaisala Indigo™ Product Family

Indigo transmitters offer a variety of connectivity options through analog signals or digital outputs, configurable relays, and wireless (WLAN)

configuration interface, providing a suitable solution for all industrial humidity measurements. The cable length between the probe and transmitter can be extended to up to 30 meters. For more information, see [www.vaisala.com/indigo](http://www.vaisala.com/indigo).

## Services You Can Count On

Each probe is manufactured and individually calibrated in Vaisala's world-class facility in Finland. The traceable factory calibration certificate is included also in electronic format in the probe.

The interchangeable probes minimize the downtime associated with maintenance. Validate and maintain the accuracy by calibrating the instrument on the field or use the easy and thorough calibration service in Vaisala's service facilities in Helsinki, Boston, Beijing and Tokyo.

# Technical Data

## Measurement Performance

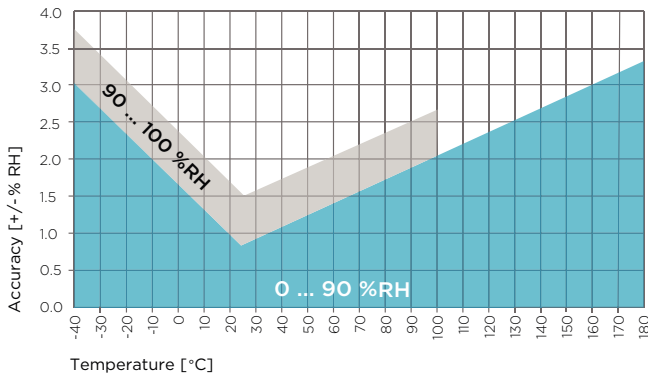
### Relative Humidity

Sensor	HUMICAP R2 Composite
Measurement range	0 ... 100 %RH
Accuracy at +23 °C (+73.4 °F) <sup>1)</sup>	±0.8 %RH (0 ... 90 %RH)
T <sub>63</sub> response time	15 s

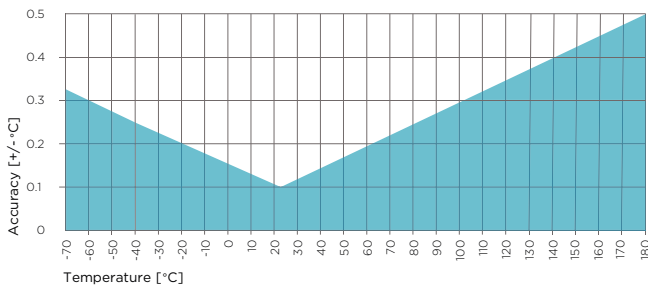
### Temperature

Sensor	Pt100 RTD Class F0.1 IEC 60751
Measurement range	-70 ... +180 °C (-94 ... +356 °F)
Accuracy at +23 °C (+73.4 °F) <sup>1)</sup>	±0.1 °C (±0.18 °F)

<sup>1)</sup> Defined against calibration reference



HMP8 Humidity Measurement Accuracy as a Function of Temperature (Including Non-Linearity and Repeatability)



HMP8 Temperature Measurement Accuracy over Full Range (Including Non-Linearity and Repeatability)

## SI Traceable Calibration

Uncertainty of relative humidity calibration ( $k = 2$ )	±0.5 %RH (0 ... 40 %RH) ±0.8 %RH (40 ... 95 %RH)
Uncertainty of temperature calibration ( $k = 2$ )	±0.1 °C (±0.18 °F) at +23 °C (+73.4 °F)

## Operating Environment

Operating temperature range for probe body	-40 ... +80 °C (-40 ... +176 °F)
Operating temperature range for probe head	-70 ... +180 °C (-94 ... +356 °F)
Operating environment	Suitable for outdoor use
IP rating	IP66
Electromagnetic compatibility	Complies with EMC standard EN61326-1, Electrical equipment for measurement, control and laboratory use - EMC requirements - Industrial environment
Operational pressure	< 40 bar

## Inputs and Outputs

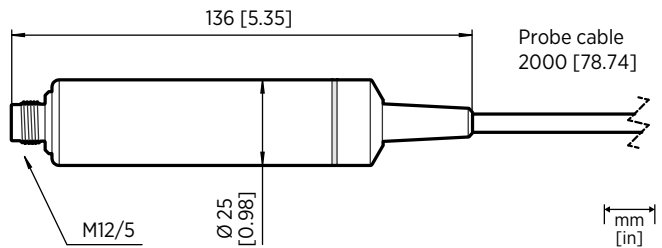
Operating voltage	15 ... 30 VDC
Current consumption	10 mA typical 500 mA max.
Digital output	RS-485, non-isolated
Default serial settings	19200 bps N 8 2
Protocols	Modbus RTU

### Output Parameters

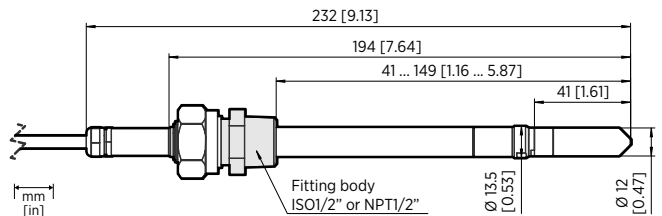
Relative humidity, temperature, dew point temperature, wet-bulb temperature, absolute humidity, mixing ratio, water concentration, water mass fraction, water vapor pressure, enthalpy

## Mechanical Specifications

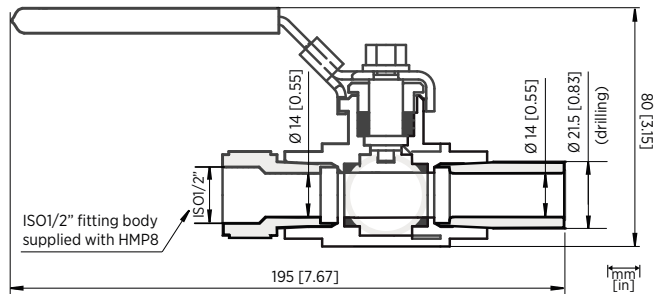
Probe fitting	ISO1/2" and NPT1/2" fittings included
Connector	M12/5
Weight	570 g (20.1 oz)
<b>Materials</b>	
Probe	AISI316L
Probe body	AISI316L
Cable jacket	FEP



Probe Body Dimensions



HMP8 Probe Head Dimensions



Optional Ball Valve Installation Kit Dimensions

## Accessories

### Transmitters

Indigo 200 Series	See order form
-------------------	----------------

### Connection Cables

Connection cable to Indigo (1 m)	INDIGOCABLE1M
Connection cable to Indigo (3 m)	INDIGOCABLE3M
Connection cable to Indigo (5 m)	INDIGOCABLE5M
Connection cable to Indigo (10 m)	INDIGOCABLE10M
Open wires 1.5 m	223263SP
Open wires 10 m	216546SP
Open wires and 90° plug	244669SP
Flat cable 1 m M12/5	CBL210493SP
USB PC connection cable <sup>1)</sup>	242659

### Filters

Sintered stainless steel filter <sup>2)</sup>	HM47280SP
Stainless steel grid	HM47453SP
Metallized PPS plastic grid with stainless steel mesh filter	DRW010281SP
Metallized PPS plastic grid filter	DRW010276SP

### Accessories

Ball valve 1/2" with ISO 1/2" welding joint	BALLVALVE-1
---	-------------

<sup>1)</sup> Vaisala Insight software for Windows available at [www.vaisala.com/insight](http://www.vaisala.com/insight)

<sup>2)</sup> Standard in delivery