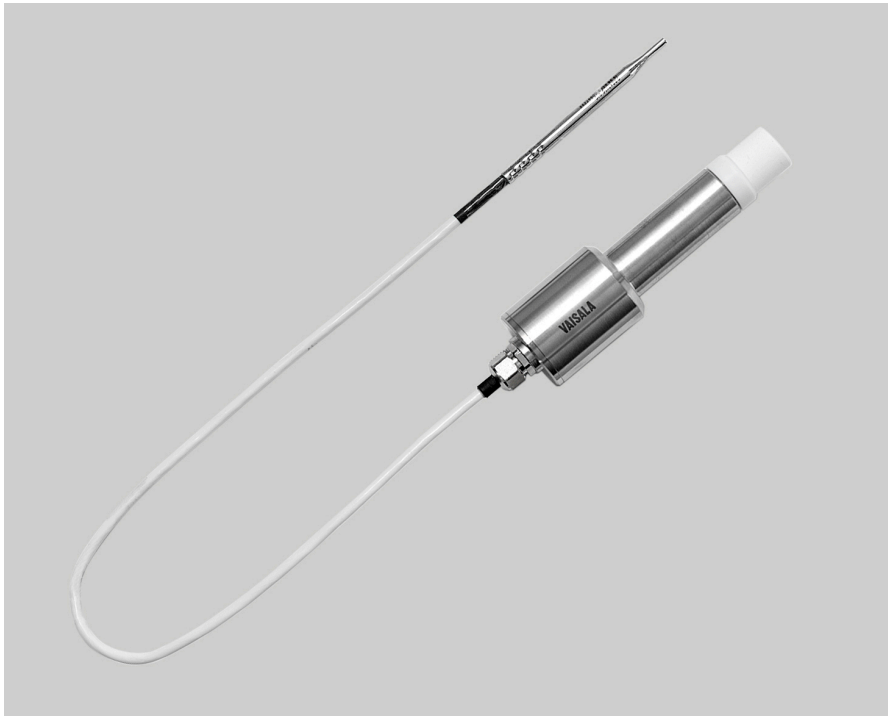




# HPP270 Series for Hydrogen Peroxide, Humidity, and Temperature Measurement



## Features

- Compact 3-in-1 probe with real-time measurement for H<sub>2</sub>O<sub>2</sub> vapor concentration, humidity, and temperature
- Superior long-term stability and repeatability with proprietary PEROXCAP® technology
- Corrosion-resistant stainless steel housing (IP65)
- Traceable calibration certificate: 2 points for H<sub>2</sub>O<sub>2</sub>, 3 points for humidity, 1 point for temperature
- Standalone probe with digital Modbus RTU over RS-485 or 2 analog outputs
- Compatible with Indigo transmitters with 3 analog outputs, optional display, relays, and smartphone user interface

The Vaisala PEROXCAP® Hydrogen Peroxide, Humidity, and Temperature Probe HPP270 series is designed for demanding hydrogen peroxide bio-decontamination where repeatable, stable, and accurate measurement is essential. The probe is suitable for a variety of applications such as isolator, material transfer hatch and room bio-decontamination.

### Up to Three Measurements in One Compact Unit

The HPP270 series contains all the parameters you need to measure during bio-decontamination processes: hydrogen peroxide vapor, temperature, and humidity as relative saturation and relative humidity.

### Relative Saturation for Comprehensive Humidity Monitoring

Similar to water, hydrogen peroxide vapor affects the humidity level of the decontaminated air. By measuring relative saturation, HPP270 series

indicates the total humidity level caused by water vapor and H<sub>2</sub>O<sub>2</sub> vapor together. This tells you reliably when the bio-decontaminated air starts to condense.

### Repeatable Measurement for Highly Condensing Environments

Intelligent measurement technology including the chemical purge function helps to maintain accuracy between calibrations in challenging hydrogen peroxide environments. The purging process involves rapid heating of the sensor to remove possible contamination.

HPP270 PEROXCAP sensor is warmed, which prevents condensation from forming on the sensor. This provides reliable measurement even in condensing conditions.

### Traceable Calibration at Vaisala

Every probe and sensor is manufactured and individually calibrated at Vaisala world-class facilities.

# HPP272 Technical Data

## Measurement Performance

### Hydrogen Peroxide

Sensor	PEROXCAP®
Measurement range	0 ... 2000 ppm
Measurement temperature range	+5 ... +50 °C (+41 ... +122 °F)
Repeatability at +25 °C (+77 °F), 500 ppm H <sub>2</sub> O <sub>2</sub>	±20 ppm
Accuracy (including non-linearity, hysteresis, and repeatability) at +25 °C (77 °F), 10 ... 2000 ppm H <sub>2</sub> O <sub>2</sub>	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H <sub>2</sub> O <sub>2</sub> <sup>1)</sup>	±10 ppm
Response time at +23 °C (+73 °F), still air:	
T <sub>90</sub>	200 s

### Relative Saturation

Measurement range	0 ... 100 %RS
Measurement temperature range	+5 ... +50 °C (+41 ... +122 °F)
Repeatability at +25 °C (+77 °F), 500 ppm H <sub>2</sub> O <sub>2</sub>	±0.5 %RS
Accuracy (including non-linearity, hysteresis, and repeatability) at +25 °C (+77 °F):	
at 0 ppm H <sub>2</sub> O <sub>2</sub>	±2 %RS
at 500 ppm H <sub>2</sub> O <sub>2</sub>	±6 %RS
Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H <sub>2</sub> O <sub>2</sub> <sup>1)</sup>	±2 %RS

### Relative Humidity

Measurement range	0 ... 100 %RH
Measurement temperature range	+5 ... +70 °C (+41 ... +158 °F)
Accuracy (including non-linearity, hysteresis, and repeatability):	
at 0 ppm H <sub>2</sub> O <sub>2</sub> , 0 ... 60 %RH, +25 °C (77 °F)	±1 %RH
at 0 ppm H <sub>2</sub> O <sub>2</sub> , 0 ... 95 %RH, over temperature range	±2 %RH
at 500 ppm H <sub>2</sub> O <sub>2</sub> , 0 ... 95 %RH, +25 °C (77 °F)	±2 %RH
Factory calibration uncertainty, at +25 °C (77 °F), 0 ppm H <sub>2</sub> O <sub>2</sub> : <sup>1)</sup>	
at 0 ... 95 %RH	±1 %RH

### Temperature

Sensor	Pt-1000 RTD Class F0.1
Accuracy over temperature range	±0.2 °C (±0.36 °F)

### Other Parameters

Absolute H<sub>2</sub>O<sub>2</sub>, absolute H<sub>2</sub>O, H<sub>2</sub>O ppm by volume, saturation vapor pressure

<sup>1)</sup> Defined as ±2 standard deviation limits. See also calibration certificate.

## Operating Environment

Operating temperature	+0 ... +70 °C (+32 ... +158 °F)
Storage temperature	-20 ... +70 °C (-4 ... +158 °F)
Ambient pressure	Normal atmospheric pressure
EMC compliance	EN61326-1, Controlled Environment

## Inputs and Outputs

Operating voltage	With digital output: 15 ... 30 VDC With analog output: 15 ... 25 VDC (use lowest available operating voltage to minimize heating)
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### Current Consumption at +25 °C (+77 °F)

In digital mode	Max. 15 mA
In analog mode	Max. 50 mA
During purge	Max. 200 mA

### Digital Output

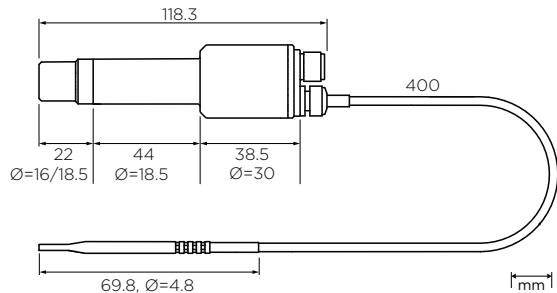
Interface	RS-485, not isolated, no line termination
Communication protocol	Modbus RTU v1.02

### Analog Output

Outputs	2 × 4 ... 20 mA 3-wire current outputs
Max. load	500 Ω

## Mechanical Specifications

IP rating	IP65
Connector	M12/5 male
<b>Materials</b>	
Probe body	AISI316L stainless steel
Filter cap	Porous PTFE
Temperature probe	AISI316L stainless steel
Temperature probe cable	PTFE



HPP272 Dimensions

## Spare Parts and Accessories

USB cable for PC connection	242659
Probe cable with open wires (1.5 m)	223263SP
Probe cable with open wires (3 m)	26719SP
Probe cable with open wires (5 m)	26720SP
Probe cable with open wires (10 m)	216546SP
Filter	DRW246363SP
Gland set for through-wall installation, HPP272	HPP272MOUNTINGSET1
<b>Transmitters</b>	
Indigo 200 series	See <a href="http://www.vaisala.com/indigo">www.vaisala.com/indigo</a>

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[www.vaisala.com](http://www.vaisala.com)

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