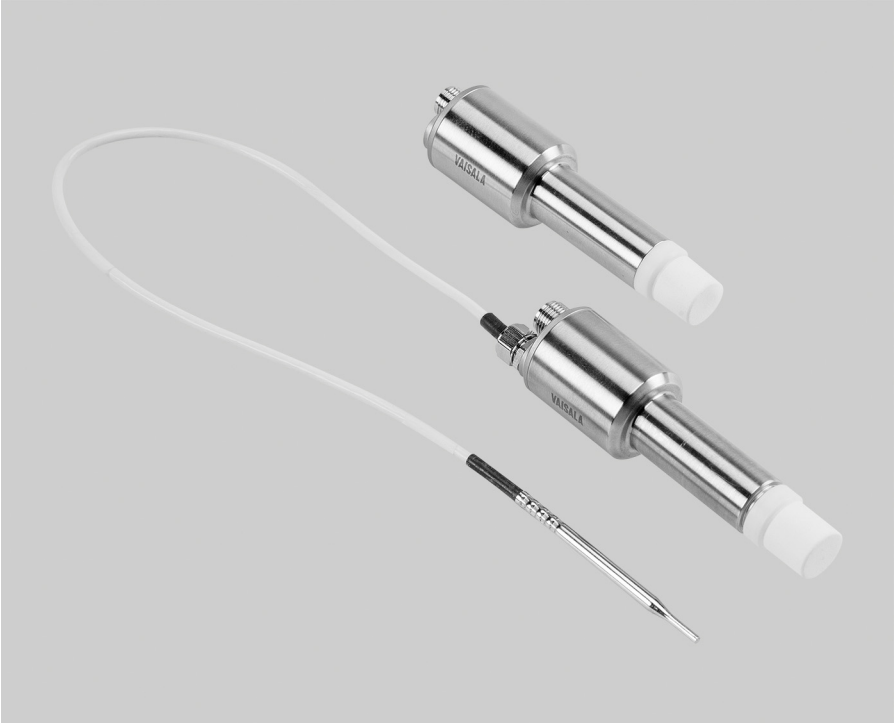
HPP270 Series Probes

For hydrogen peroxide, humidity, and temperature measurement



Features

- Basic probe option HPP271 for H_2O_2 vapor concentration measurement
- Advanced probe option HPP272: compact 3-in-1 probe with real-time measurement of H_2O_2 vapor concentration, humidity, and temperature
- Superior long-term stability and repeatability with proprietary PEROXCAP® technology
- Corrosion-resistant stainless steel housing (IP65)
- Traceable calibration certificate
- Standalone probe with digital Modbus RTU over RS-485 or 2 analog outputs
- Compatible with Vaisala Indigo products and Insight PC software

The Vaisala PEROXCAP® Hydrogen Peroxide, Humidity, and Temperature Probes HPP271 and HPP272 are designed for demanding hydrogen peroxide bio-decontamination where repeatable, stable, and accurate measurement is essential. The HPP270 series probes are 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 advanced HPP272 probe option provides 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, H_2O_2 vapor affects the humidity level of decontaminated air. The advanced HPP272 probe option enables the measurement of relative saturation, which indicates the total humidity level caused by water vapor and H_2O_2 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 sensor purge function helps to maintain accuracy between calibrations in challenging H_2O_2 environments. The purging process involves rapid heating of the sensor to remove possible contamination.

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

Indigo and Insight compatible

The probe can be connected to Vaisala Indigo transmitters and the Indigo80 handheld indicator to extend the selection of availabe features.

Indigo products provide a range of additional display, output, and relay options, as well as convenient interfaces for monitoring, configuration, and calibration and adjustment. For more information, see www.vaisala.com/indigo.

For easy-to-use access to configuration, calibration, and adjustment, the probe can be connected to Vaisala Insight PC software. See www.vaisala.com/insight.

Traceable calibration at Vaisala

Every probe and sensor is manufactured and individually calibrated at Vaisala world-class facilities. Available traceable calibration certificates: 2 points for H_2O_2, 3 points for humidity, 1 point for temperature.

HPP271 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) up to 500 ppm H_2O_2	±10 ppm
Accuracy at +10 ... +25 °C (+50 ... +77 °F) , 10 ... 2000 ppm H_2O_2 [1]	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty at +25 °C (+77 °F), 500 ppm H_2O_2 [2]	±10 ppm
Response time (T_{63})	70 s
Other parameters	
H_2O ppm by volume	

1) Including non-linearity, hysteresis, and repeatability.
2) Defined as ±2 standard deviation limits. See also calibration certificate.

Inputs and outputs

Operating voltage	Digital output: 15 ... 30 VDC Analog output: 15 ... 25 VDC
Current consumption at +25 °C (+77 °F)	
In digital mode	Max. 10 mA
In analog mode	Max. 50 mA
During sensor purge	Max. 250 mA
Digital output	
Interface	RS-485, not isolated; do not use termination on the RS-485 line
Communication protocol	Modbus RTU v.1.02
Analog output	
Outputs	2 × 4 ... 20 mA 3-wire current outputs
Max. load	500 Ω
Accuracy (typical)	±0.1 % of full scale
Analog output temperature dependence	0.005 %/°C (0.003 %/°F) full scale

Operating environment

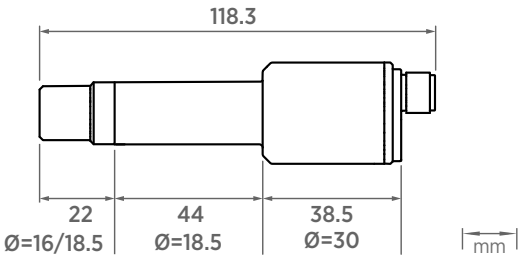
Operating temperature	+0 ... +70 °C (+32 ... +158 °F)
Storage temperature	−20 ... +70 °C (−4 ... +158 °F)
Ambient pressure	Normal atmospheric pressure
IP rating	IP65

Compliance

EU directives and regulations	EMC, RoHS
EMC compatibility	EN 61326-1, industrial environment
EMC emissions	CISPR 32 / EN 55032, Class B
Compliance marks	CE, China RoHS, RCM

Mechanical specifications

Connector	M12/5 male
Materials	
Probe body	AISI316L stainless steel
Filter cap	Porous PTFE



HPP271 dimensions

Spare parts and accessories

Indigo USB adapter [1]	USB2
Probe cable with open wires, 1.5 m (4.9 ft)	254294SP
Probe cable with open wires, 3 m (9.8 ft)	254295SP
Probe cable with open wires, 5 m (16 ft)	254296SP
Probe cable with open wires, 10 m (33 ft)	254297SP
Flat cable, M12-5F - M12-5M, 1 m (3.3 ft)	CBL210493SP
Filter	DRW246363SP
Gland set for through-wall installation, HPP271	HPP271MOUNTINGSET1
Flange for through-wall installation, HPP271	HPP271MOUNTINGSET2
Wall mount for HPP271 and HPP272	HPP272WALLMOUNT
Indigo transmitters	See www.vaisala.com/indigo
Indigo80 handheld indicator	See www.vaisala.com/indigo

1) Vaisala Insight software for Windows available at www.vaisala.com/insight.

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) up to 500 ppm H_2O_2	±10 ppm
Accuracy at +10 ... +25 °C (+50 ... +77 °F) , 10 ... 2000 ppm H_2O_2 [1)]	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty at +25 °C (+77 °F), 500 ppm H_2O_2 [2)]	±10 ppm
Response time (T_{63})	70 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_2O_2	±0.5 %RS
Accuracy at +25 °C (+77 °F) [1)]	±4 %RS
Factory calibration uncertainty at +25 °C (+77 °F), 500 ppm H_2O_2 [2)]	±2 %RS
Relative humidity	
Measurement range	0 ... 100 %RH
Measurement temperature range	+5 ... +70 °C (+41 ... +158 °F)
Accuracy: [1)]	
at +25 °C (77 °F), 0 ppm H_2O_2, 0 ... 90 %RH	±1 %RH
over full temperature measurement and H_2O_2 range	±2 %RH
Response time (T_{63})	20 s
Factory calibration uncertainty at +25 °C (77 °F), 0 ppm H_2O_2, 0 ... 95 %RH [2)]	±1 %RH
Temperature	
Sensor	Pt1000 RTD Class F0.1
Accuracy over temperature range	±0.2 °C (±0.36 °F)
Other parameters	
Absolute H_2O_2 and H_2O, H_2O ppm by volume, water vapor saturation pressure (H_2O and H_2O+H_2O_2), dew point temperature, vapor pressure (H_2O and H_2O_2)	

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Materials	
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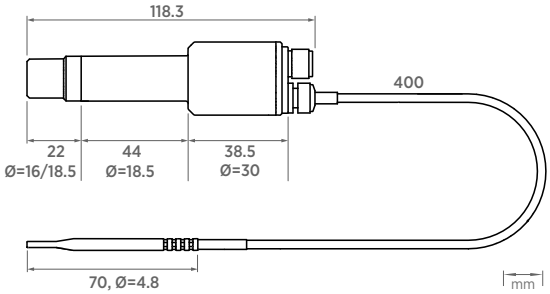
Filter cap	Porous PTFE
Temperature probe	AISI316L stainless steel
Temperature probe cable	PTFE



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Indigo80 handheld indicator	See www.vaisala.com/indigo

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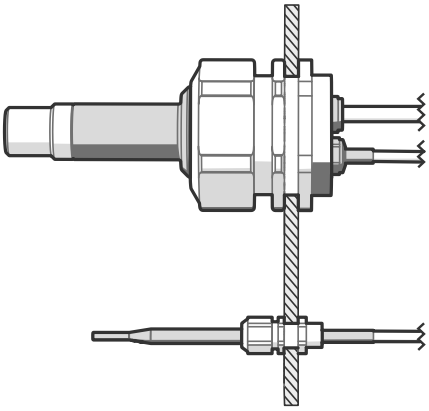
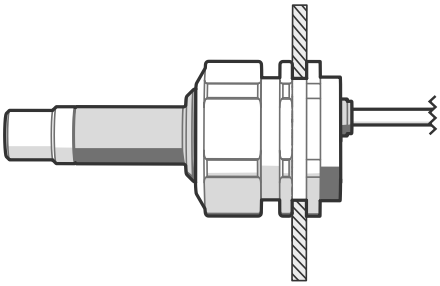
HPP271 and HPP272 installation accessories

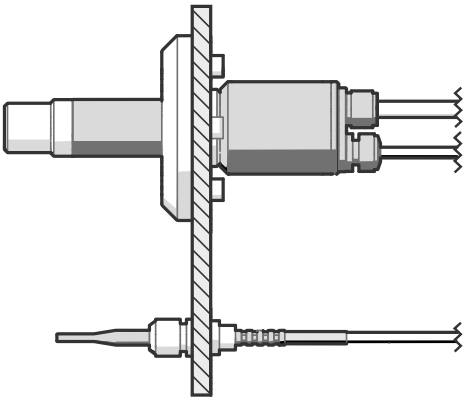
HPP272MOUNTINGSET1



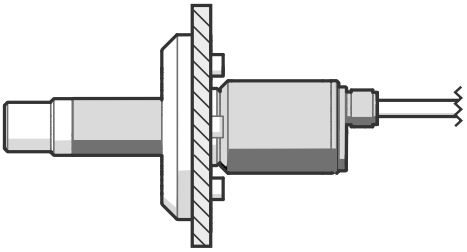
HPP271MOUNTINGSET1



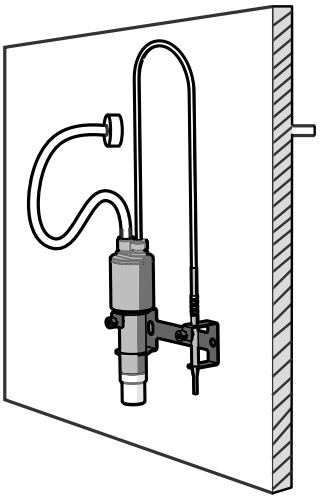
HPP272MOUNTINGSET2

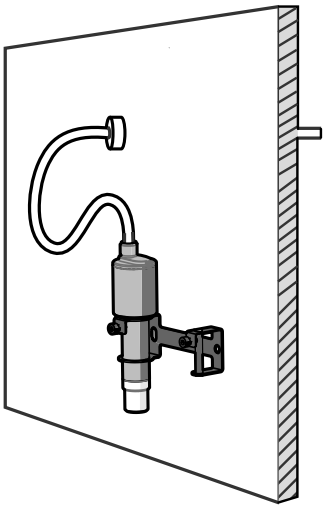


HPP271MOUNTINGSET2



HPP272WALLMOUNT





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