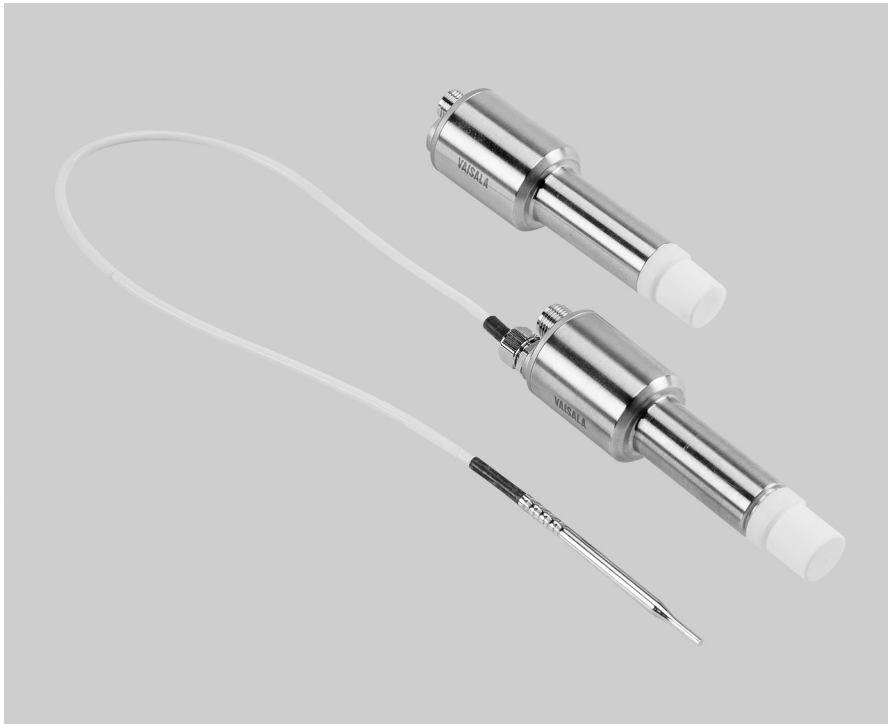




HPP270 Series Probes

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 Insight PC software and Indigo transmitters

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.

Repeatable measurement for highly condensing environments

Intelligent measurement technology including the chemical 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.

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.

Indigo and Insight compatible

Vaisala Indigo transmitters provide additional features such as analog and digital outputs, relays, and a smartphone configuration interface. For easy-to-use access to configuration, calibration, and adjustment, the probe can be connected to Vaisala Insight PC software. See www.vaisala.com/indigo and 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 ₂ O ₂	±10 ppm
Accuracy at +10 ... +25 °C (+50 ... +77 °F), 10 ... 2000 ppm H ₂ O ₂ ¹⁾	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty at +25 °C (+77 °F), 500 ppm H ₂ O ₂ ²⁾	±10 ppm
Response time (T ₆₃)	70 s

Other parameters

H₂O 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
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Current consumption at +25 °C (+77 °F)

In digital mode	Max. 10 mA
In analog mode	Max. 50 mA
During 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

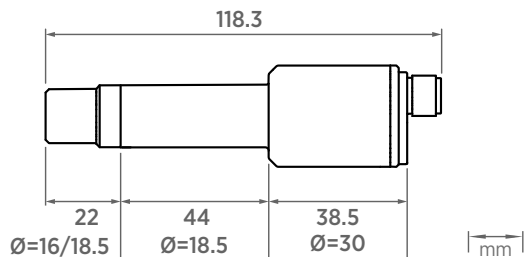
Operating temperature	+0 ... +70 °C (+32 ... +158 °F)
Storage temperature	-20 ... +70 °C (-4 ... +158 °F)
Ambient pressure	Normal atmospheric pressure
IP rating	IP65

Compliance

EU directives	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

Transmitters

Indigo transmitters	See www.vaisala.com/indigo
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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 ₂ O ₂	±10 ppm
Accuracy at +10 ... +25 °C (+50 ... +77 °F), 10 ... 2000 ppm H ₂ O ₂ ¹⁾	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty at +25 °C (+77 °F), 500 ppm H ₂ O 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 ₂ O ₂	±0.5 %RS
Accuracy at +25 °C (+77 °F) ¹⁾	±4 %RS
Factory calibration uncertainty at +25 °C (+77 °F), 500 ppm H ₂ O 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 ₂ O ₂ , 0 ... 90 %RH	±1 %RH
over full temperature measurement and H ₂ O ₂ range	±2 %RH
Response time (T ₆₃)	20 s
Factory calibration uncertainty at +25 °C (77 °F), 0 ppm H ₂ O 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 H₂O₂ and H₂O, H₂O ppm by volume, water vapor saturation pressure (H₂O and H₂O+H₂O₂), dew point temperature, vapor pressure (H₂O and H₂O₂)

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
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Current consumption at +25 °C (+77 °F)

In digital mode	Max. 10 mA
In analog mode	Max. 50 mA
During purge	Max. 250 mA

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Communication protocol	Modbus RTU v.1.02

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Operating environment

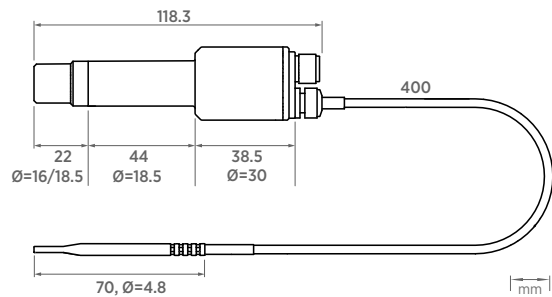
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Ambient pressure	Normal atmospheric pressure
IP rating	IP65

Compliance

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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
Temperature probe	AISI316L stainless steel
Temperature probe cable	PTFE



HPP272 dimensions

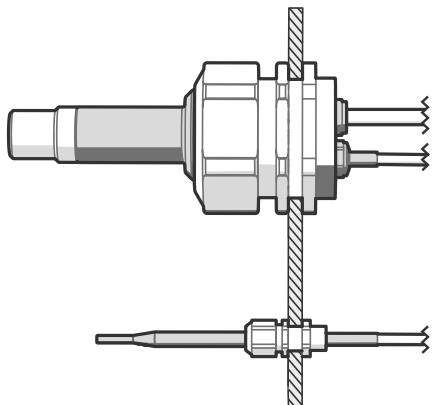
Spare parts and accessories

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Filter	DRW246363SP
Gland set for through-wall installation, HPP272	HPP272MOUNTINGSET1
Flange for through-wall installation, HPP272	HPP272MOUNTINGSET2
Wall mount for HPP271 and HPP272	HPP272WALLMOUNT
Indigo transmitters	See www.vaisala.com/indigo

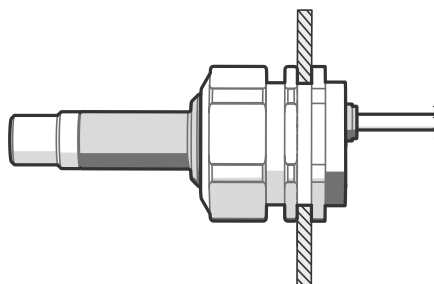
¹⁾ Vaisala Insight software for Windows available at www.vaisala.com/insight.

HPP271 and HPP272 installation accessories

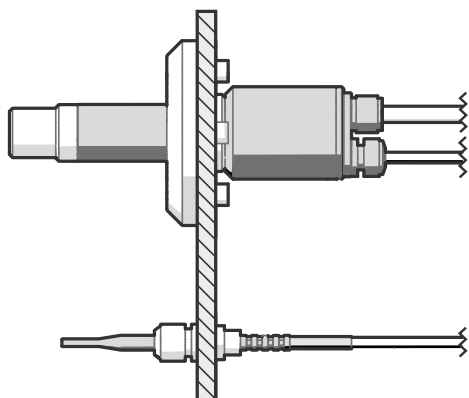
HPP272MOUNTINGSET1



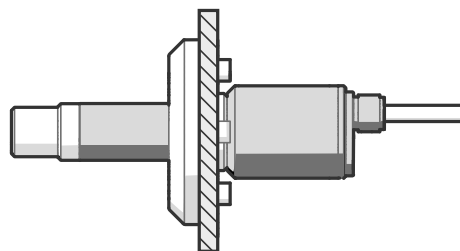
HPP271MOUNTINGSET1



HPP272MOUNTINGSET2



HPP271MOUNTINGSET2



HPP272WALLMOUNT

