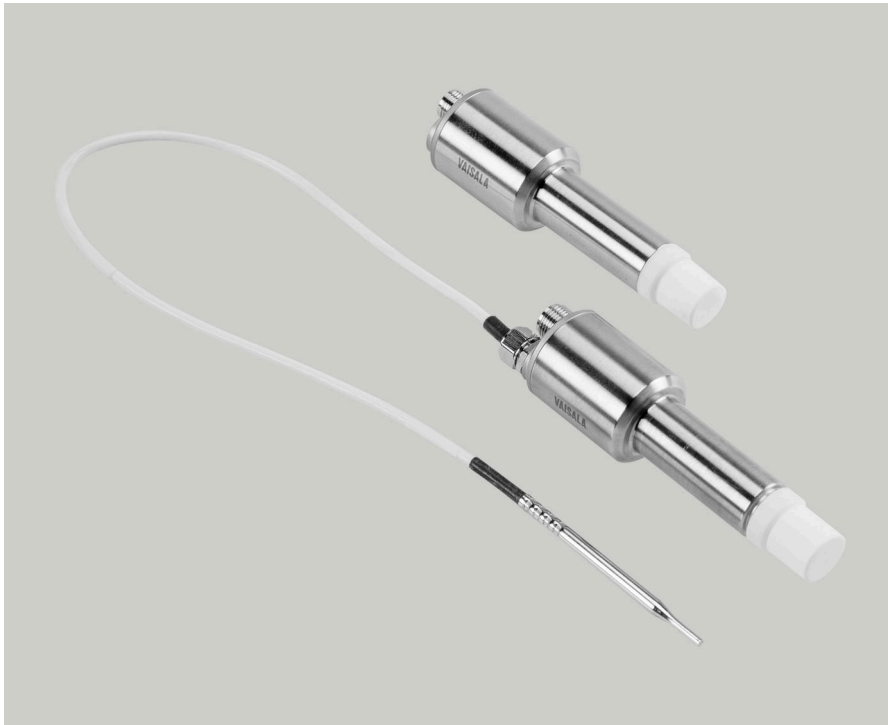




HPP270 Series Probes for Hydrogen Peroxide, Humidity, and Temperature Measurement



Features

- Basic probe option HPP271 for H₂O₂ vapor concentration measurement
- Advanced probe option HPP272: compact 3-in-1 probe with real-time measurement of H₂O₂ 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 Probe HPP270 series probes HPP271 and HPP272 are designed for demanding hydrogen peroxide bio-decontamination where repeatable, stable, and accurate measurement is essential. 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 H₂O₂ 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, H₂O₂ vapor affects the humidity level of the decontaminated air. The advanced HPP272 probe option enables the measurement of relative saturation, which indicates the total humidity level caused by water vapor and H₂O₂ 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 H₂O₂, 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 (including non-linearity, hysteresis, and repeatability) at +10 ... +25 °C (+50 ... +77 °F), 10 ... 2000 ppm H ₂ O ₂	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H ₂ O ₂ ¹	±10 ppm
Response time (T ₆₃)	70 s

Other Parameters

H ₂ O ppm by volume	
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¹⁾ 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 v1.02

Analog Output

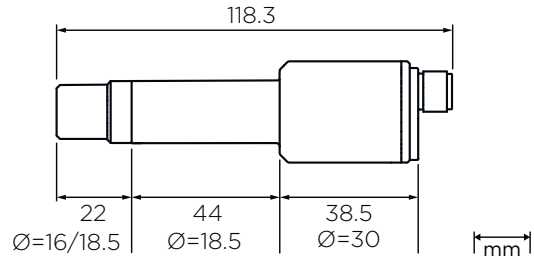
Outputs	2 × 4 ... 20 mA 3-wire current outputs
Max. load	500 Ω

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	EN/IEC 61326-1, Industrial Environment

Mechanical Specifications

IP rating	IP65
Connector	M12/5 male
Materials	
Probe body	AISI316L stainless steel
Filter cap	Porous PTFE



HPP271 Dimensions

Spare Parts and Accessories

USB cable for PC connection ¹⁾	242659
Probe cable with open wires (1.5 m)	254294SP
Probe cable with open wires (3 m)	254295SP
Probe cable with open wires (5 m)	254296SP
Probe cable with open wires (10 m)	254297SP
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 (including non-linearity, hysteresis, and repeatability) at +10 ... +25 °C (+50 ... +77 °F), 10 ... 2000 ppm H ₂ O ₂	±10 ppm or 5 % of reading (whichever is greater)
Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H ₂ O ₂ ¹⁾	±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 (including non-linearity, hysteresis, and repeatability) at +25 °C (+77 °F):	±4 %RS
Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H ₂ O ₂ ¹⁾	±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 ₂ O ₂ , 0 ... 90 %RH, +25 °C (77 °F)	±1 %RH
over full H ₂ O ₂ and temperature measurement range:	±2 %RH
Response time (T ₆₃)	20 s
Factory calibration uncertainty, at +25 °C (77 °F), 0 ppm H ₂ O ₂ ¹⁾	
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 H₂O₂ and H₂O, H₂O ppm by volume, water vapor saturation pressure (H₂O and H₂O+H₂O₂), dew point temperature, vapor pressure (H₂O and H₂O₂)

¹⁾ 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	EN/IEC 61326-1, Industrial Environment



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 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

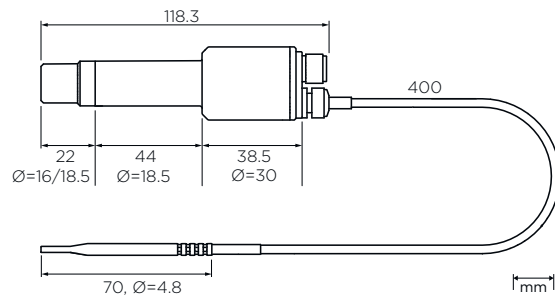
Outputs	2 × 4 ... 20 mA 3-wire current outputs
Max. load	500 Ω

Mechanical Specifications

IP rating	IP65
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

USB cable for PC connection ¹⁾	242659
Probe cable with open wires (1.5 m)	254294SP
Probe cable with open wires (3 m)	254295SP
Probe cable with open wires (5 m)	254296SP
Probe cable with open wires (10 m)	254297SP
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

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VAISALA

www.vaisala.com

HPP271 Hydrogen Peroxide Probe

		1 2 3 4 5					
Vaisala PEROXCAP Hydrogen Peroxide Probe		HPP271		0	0	PRICE	
Probe options are	4..20 mA output signals	OFF (typical for ch2) H2O2 0...2000 ppm (typical for ch1)		N A	N A		
	For future use	Channel 1 Channel 2					
Other options	Cable	no cable			N		
		<i>Probe cable with open wires (1.5 m)</i>			A		
		<i>Probe cable with open wires (3 m)</i>			B		
		<i>Probe cable with open wires (5 m)</i>			C		
	For Future use	<i>Probe cable with open wires (10 m)</i>			D		
					0		

Selections in bold are included in the prices of the basic version.
Selections in *italic* are available at an extra price.

Examples of order codes with typical settings:

Standard vaporized hydrogen peroxide probe for demanding decontamination application **HPP271** **A** **N** **0** **B** **0**

1 2 3 4 5

End customer: _____

Accessories

USB cable for PC connection	242659
Filter Cap Porous PTFE	DRW246363SP
Probe cable with open wires (1.5 m)	254294SP
Probe cable with open wires (3 m)	254295SP
Probe cable with open wires (5 m)	254296SP
Probe cable with open wires (10 m)	254297SP
Probe cable with open wires and 90° plug (0.6 m)	244669SP
Gland set for through-wall installation, HPP271	HPP271MOUNTINGSET1
Flange for Through-wall Installation, HPP271	HPP271MOUNTINGSET2
Wall Mount for HPP271 and HPP272	HPP272WALLMOUNT
Cable between HPP270 and Indigo 201 (1.5 m)	INDIGOCABLEHD1M5
Cable between HPP270 and Indigo 201 (3 m)	INDIGOCABLEHD3M
Cable between HPP270 and Indigo 201 (5 m)	INDIGOCABLEHD5M
Cable between HPP270 and Indigo 201 (10 m)	INDIGOCABLEHD10M

HPP272 Hydrogen Peroxide, Humidity and Temperature Probe

		1	2	3	4	5	6	
Vaisala PEROXCAP Hydrogen Peroxide and Humidity and Temperature Probe		HPP272		0	0	N	PRICE	
Probe options and sett	4..20 mA output signals	H2O2 0...2000 ppm (typical for ch1)		A	A			
	scaling for ch1 and ch2	RS (H2O2 and H2O) 0...100% (typical for ch2)		B	B			
	Note! Includes Modbus RTU over RS-485	Temperature Range +5...+70C		C	C			
		RH (H2O only) 0...100%		D	D			
		H2O 0... 445 870 ppm		E	E			
	Channel 1							
	Channel 2							
	For Future use			0				
Other options	Cable	no cable				N		
		<i>Probe cable with open wires (1.5 m)</i>				A		
		<i>Probe cable with open wires (3 m)</i>				B		
		<i>Probe cable with open wires (5 m)</i>				C		
		<i>Probe cable with open wires (10 m)</i>				D		
	For Future use			0				
	For Future use					N		

Selections in bold are included in the prices of the basic version.
Selections in italic are available at an extra price.

Examples of order codes with typical settings:

HPP272	A	B	0	N	0	N
	1	2	3	4	5	6

End customer: _____

Accessories

USB cable for PC connection
Filter Cap Porous PTFE
Probe cable with open wires (1.5 m)
Probe cable with open wires (3 m)
Probe cable with open wires (5 m)
Probe cable with open wires (10 m)
Probe cable with open wires and 90° plug (0.6 m)
Gland set for through-wall installation, HPP272

Item code

242659
DRW246363SP
254294SP
254295SP
254296SP
254297SP
244669SP
HPP272MOUNTINGSET1