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.

**Relative Saturation for Comprehensive Humidity Monitoring**

Similar to water, H$_2$O$_2$ 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 H$_2$O$_2$ 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 chemical purge function helps to maintain accuracy between calibrations in challenging H$_2$O$_2$ environments. The purging process involves rapid heating of the sensor to remove possible contamination.

**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$_2$O$_2$, 3 points for humidity, 1 point for temperature.

**Features**

- Basic probe option HPP271 for H$_2$O$_2$ vapor concentration measurement
- Advanced probe option HPP272: compact 3-in-1 probe with real-time measurement of H$_2$O$_2$ 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
## Measurement Performance

<table>
<thead>
<tr>
<th>Sensor</th>
<th>PEROXCAP®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement range</td>
<td>0 ... 2000 ppm</td>
</tr>
<tr>
<td>Measurement temperature range</td>
<td>+5 ... +50 °C (+41 ... +122 °F)</td>
</tr>
<tr>
<td>Repeatability at +25 °C (+77 °F) up to 500 ppm H₂O₂</td>
<td>±10 ppm</td>
</tr>
<tr>
<td>Accuracy (including non-linearity, hysteresis, and repeatability) at +10 ... +25 °C (+50 ... +77 °F), 10 ... 2000 ppm H₂O₂</td>
<td>±10 ppm or 5 % of reading (whichever is greater)</td>
</tr>
<tr>
<td>Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H₂O₂</td>
<td>±10 ppm</td>
</tr>
<tr>
<td>Response time (T₆₃)</td>
<td>70 s</td>
</tr>
</tbody>
</table>

### Other Parameters

H₂O ppm by volume

1) Defined as ±2 standard deviation limits. See also calibration certificate.

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### Inputs and Outputs

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>Digital output: 15 ... 30 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Consumption at +25 °C (+77 °F)</td>
<td>Analog output: 15 ... 25 VDC</td>
</tr>
<tr>
<td>In digital mode</td>
<td>Max. 10 mA</td>
</tr>
<tr>
<td>In analog mode</td>
<td>Max. 50 mA</td>
</tr>
<tr>
<td>During purge</td>
<td>Max. 250 mA</td>
</tr>
</tbody>
</table>

### 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 |

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### Mechanical Specifications

| IP rating | IP65 |
| Connector | M12/5 male |

### Materials

| Probe body | AISI316L stainless steel |
| Filter cap | Porous PTFE |

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### 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 |

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 H₂O₂**
±10 ppm

**Accuracy (including non-linearity, hysteresis, and repeatability) at +25 °C (+77 °F), 500 ppm H₂O₂**
±10 ppm or 5 % of reading (whichever is greater)

**Factory calibration uncertainty, at +25 °C (+77 °F), 500 ppm H₂O₂**
±10 ppm

**Response time (T₆₃)**
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 H₂O₂**
±0.5 %RS

**Accuracy (including non-linearity, hysteresis, and repeatability) at +25 °C (+77 °F):**
±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 H₂O₂, 0 ... 90 %RH, +25 °C (77 °F)
±1 %RH

over full H₂O and temperature measurement range:
±2 %RH

**Response time (T₆₃)**
20 s

**Factory calibration uncertainty, at +25 °C (77 °F), 0 ppm H₂O₂**
±1 %RH

at 0 ... 95 %RH, ±0.2 °C (±0.36 °F)

**Other Parameters**

Absolute H₂O₂ and H₂O, H₂O ppm by volume, water vapor saturation pressure (H₂O and H₂O₂), dew point temperature, vapor pressure (H₂O and H₂O₂)

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

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

Spare Parts and Accessories

**USB cable for PC connection**
242659

**Probe cable with open wires**
-1.5 m: 254294SP
-3 m: 254295SP
-5 m: 254296SP
-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

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