

## Phosphine Gas Sensor PH3/M-20

PH3 Gas Sensor in Miniature Housing

#### **Applications**

- Discontinuous Measurement
- Safety and Process Control
- For Portable Gas Detectors

#### **Measurement**

Operation Principle	3-Electrode Electrochemical
Nominal Range	0 - 20 ppm
Maximum Overload	100 ppm
Inboard Filter	-
Output Signal	1000 ± 300 nA/ppm
Resolution (Electronics dependent)	< 0.05 ppm
T90 Response Time	< 25 s
Typical Baseline Range (pure air, 20°C)	-0.2 ppm to 0.3 ppm
Maximum Zero Shift (+20°C to +40°C)	see Graph
Repeatability	< 2 % of signal
Output Linearity	Linear
Gain (Only applies to 4-Electrode sensors)	-

Rev.: Jul-20

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Membrapor AG Birkenweg 2 CH-8304 Wallisellen Switzerland

#### Performance data recorded at 20 – 25 °C, 30 - 50% RH, 900 - 1100 mbar



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#### **Electrical**

Rec. Load Resistor	10 - 33 Ω
Bias (V_Sens-V_Ref)	not recommended
Conformity to RoHS directive	RoHS Compliance

#### **Environmental**

Relative Humidity Range	15 % to 90 % RH non-condensing
Temperature Range	-40 °C to 50 °C
Pressure Range	Atmospheric ± 10%
Pressure Coefficient	N.D.
Humidity Effect	None

#### **Lifetime**

Expected Operation Life	2 years in air
Expected Long Term Output Drift in air	< 2 % signal loss per month
Filter Life	
Storage Life	6 months in container
Rec. Storage Temperature	5°C - 20°C
Warranty Period	12 months from date of dispatch

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#### **Miniature-Size Outline Dimensions**

BOTTOM VIEW SIDE VIEW 20.5 mm 20 mm Sensing +16.4 mm→ +15.7 mm→ Reference Counter 13.5 mm U 5 mm PCD Pin Projection Ø1.5 mm Pins 18 mm on 13.5 mm PCD

± 0.10 mm

#### **Mechanical**

Weight	5.5 g
Orientation	Any
Housing material	Polycarbonate

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#### **Cross Sensitivity Data**

The table below does not claim to be complete. Interfering gases should not be used for calibration. Please contact Membrapor AG for further support regarding cross sensitivities.

Interfering Gas	Concentration [ppm]	Reading [ppm]
AsH <sub>3</sub>	15	14
$C_2H_4$	100	< 0.5
CO	100	< 1
H <sub>2</sub>	1000	< 1
H₂S	20	5
HCI	20	< 1
NO	100	0
NO <sub>2</sub>	100	~ -30
SiH <sub>4</sub>	10	5
SO <sub>2</sub>	5	1.2

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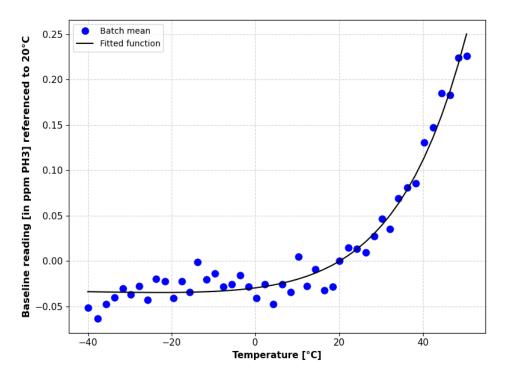


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#### Temperature dependence

The output of an electrochemical sensor varies with temperature. The graphs below show the temperature-dependent variation of baseline and sensitivity, respectively. The results shown here are raw data (batch average) without any post-processing steps. The sensitivity and baseline are referenced to the signal at 20°C (reference point).

Please note: It is highly recommended to acquire the temperature dependence curves with the whole instrument. The sampling system, the humidity, the electronics and the interaction between the electronics and the sensor have a significant impact on the temperature dependence of the final measurement reading.



Baseline shifted with respect to reference point at 20°C.

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