



Volatile Organic Compounds Gas Sensor VOC/M-20

VOC Gas Sensor in Miniature Housing

Applications

- Emission Monitoring
- For Portable Gas Detectors

Measurement

Operation Principle	3-Electrode Electrochemical
Nominal Range	0 - 20 ppm
Maximum Overload	100 ppm
Inboard Filter	-
Output Signal ¹	<u>Alcohols</u> Isopropanol: 1100 ± 300 nA/ppm Methanol: 1350 ± 400 nA/ppm Ethanol: 1200 ± 350 nA/ppm <u>Aldehydes and Ketones</u> Formaldehyde: 3500 ± 500 nA/ppm Acetone: 280 ± 200 nA/ppm <u>Aromatic Hydrocarbons</u> Xylene (isomeric mixture): 180 ± 60 nA/ppm Toluene: 55 ± 15 nA/ppm Benzene: None

¹ These output signal values were recorded at a bias voltage of +300 mV between sensing and reference electrode. Further gases are listed in the cross-sensitivity data table.

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

For further information about usage of Membrapor sensors, see application note [MEM1](#). The data contained in this document is for guidance only. Membrapor AG accepts no liability for any consequential losses, injury or damage resulting from the use of this document or from any omissions or errors herein. Customers should test under their own conditions to ensure that the sensors are suitable for their own requirements.



Organic acids

Formic acid: 1200 ± 200 nA/ppm

Acetic acid: 25 ± 15 nA/ppm

Commercial vinegar²: 900 ± 850 nA/ppm

Unsaturated Hydrocarbons

Isobutylene (**Reference**): 1600 ± 400 nA/ppm

Ethylene: 1400 ± 400 nA/ppm

Resolution (Electronics dependent) < 0.1 ppm

T90 Response Time < 100 s

Typical Baseline Range (pure air, 20°C) 0.1 ppm to 1.5 ppm³

Maximum Zero Shift (+20°C to +40°C) 4.7 ppm

Repeatability < 2 % of signal

Output Linearity Linear

Gain (Only applies to 4-Electrode sensors) -

² The gas phase concentration was estimated using Henry's law.

³ **Important Note:** Fresh sensors with bias need 24 – 72 hours for stabilization of the baseline.

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Electrical

Rec. Load Resistor	10 - 33 Ω
Bias ($V_{Sens}-V_{Ref}$)	+300 mV
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 $\pm$ 10%
Pressure Coefficient	N.D.
Humidity Effect	None

Lifetime

Expected Operation Life	5 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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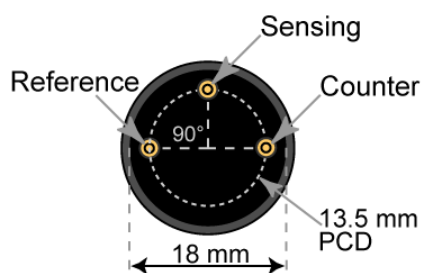
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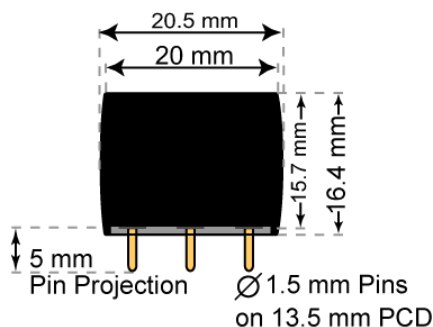
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Miniature-Size Outline Dimensions

BOTTOM VIEW



SIDE VIEW



± 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]
CO	100	45
H ₂	200	0
H ₂ S	20	80
NO ₂	20	< 4

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