



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.



	<u>Organic acids</u>
	Formic acid: 1200 ± 200 nA/ppm
	Acetic acid: 25 ± 15 nA/ppm
	Commercial vinegar ² : 900 ± 850 nA/ppm
	<u>Unsaturated Hydrocarbons</u>
	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 ppm ³
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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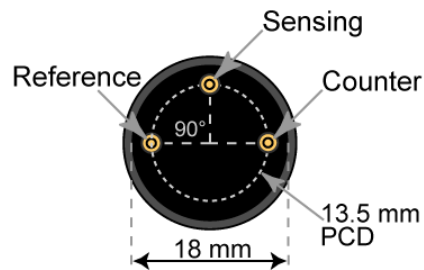
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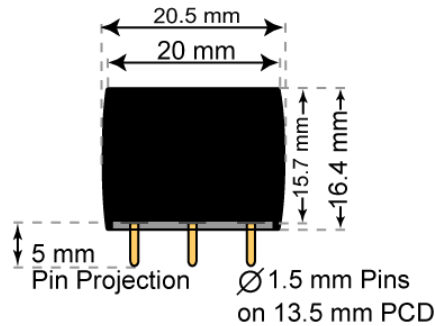
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Miniature-Size Outline Dimensions

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

Important Application Notes

- Exposure to any volatile organic compounds (VOCs) such as dichloromethane (DCM) and methyl ethyl ketone (MEK), that can dissolve the polycarbonate housing, should be avoided.

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