



Ammonia Gas Sensor NH3/MR-10000

NH3 Gas Sensor in Miniature Housing

Applications

- Discontinuous Measurement
- Spot Measurement
- For Portable Gas Detectors

Measurement

| | |
|--|-----------------------------|
| Operation Principle | 3-Electrode Electrochemical |
| Nominal Range | 0 - 10000 ppm |
| Maximum Overload | 20000 ppm |
| Inboard Filter | - |
| Output Signal | 2.5 ± 0.6 nA/ppm |
| Resolution (Electronics dependent) | < 20 ppm |
| T90 Response Time | < 35 s |
| Typical Baseline Range (pure air, 20°C) | -160.0 ppm to 160.0 ppm |
| Maximum Zero Shift (+20°C to +40°C) | see Graph |
| Repeatability | < 3% of signal |
| Output Linearity | < 5 % full scale |
| Gain (Only applies to 4-Electrode sensors) | - |

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.



Ammonia Gas Sensor NH3/MR-10000

Electrical

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

Environmental

| | |
|-------------------------------|--------------------------------|
| Relative Humidity Range | 15 % to 90 % RH non-condensing |
| Temperature Range | -10 °C to 50 °C |
| Pressure Range | Atmospheric |
| Pressure Coefficient | N.D. |
| Humidity Effect ¹⁾ | < 180 ppm |

1) Abrupt changes in rel. humidity causes a short-term transient signal.

Lifetime

| | |
|--|---------------------------------|
| Expected Operation Life | 2 years in air |
| Expected Long Term Output Drift in air | < 5 % signal loss per 6 months |
| Filter Life | not applicable |
| Storage Life | 3 months in container |
| Rec. Storage Temperature | 5°C - 20°C |
| Warranty Period | 12 months from date of dispatch |

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

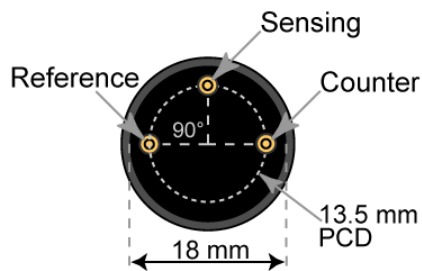
For further information about usage of Membrapor sensors, see application note [MEM1](#). The data contained in this document is for guidance only. Membrapor AG accepts no liability for any consequential losses, injury or damage resulting from the use of this document or from any omissions or errors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



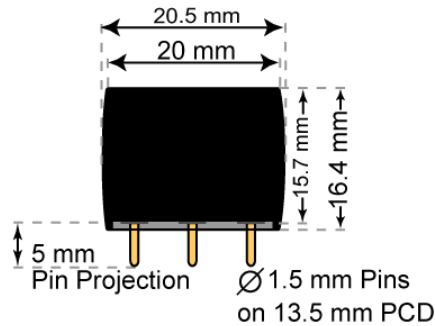
Ammonia Gas Sensor NH3/MR-10000

Miniature-Size Outline Dimensions

BOTTOM VIEW



SIDE VIEW



± 0.10 mm

Mechanical

| | |
|------------------|---------------|
| Weight | 5.5 g |
| Orientation | Any |
| Housing material | Polycarbonate |

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.



Ammonia Gas Sensor NH3/MR-10000

Cross Sensitivity Data

The table below does not claim to be complete. We recommend using the target gas for calibration purposes. Using surrogate (interfering) gases can result in inaccuracies in the final calibration. Please contact Membrapor AG for further support regarding cross sensitivities.

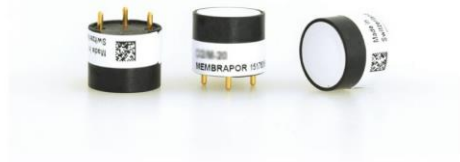
| Interfering Gas | Cross-Sens. [%] |
|------------------|-----------------|
| CO | 0 |
| CO ₂ | 0 |
| Cl ₂ | N.D. |
| H ₂ | 0 |
| H ₂ S | < 2.5 |
| NO | ~ -5 |
| NO ₂ | -100 |
| SO ₂ | 40 |

Important Notes

- Long term exposures and high concentrations of SO₂, H₂S, NO, NO₂ can affect the performance characteristics.

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.

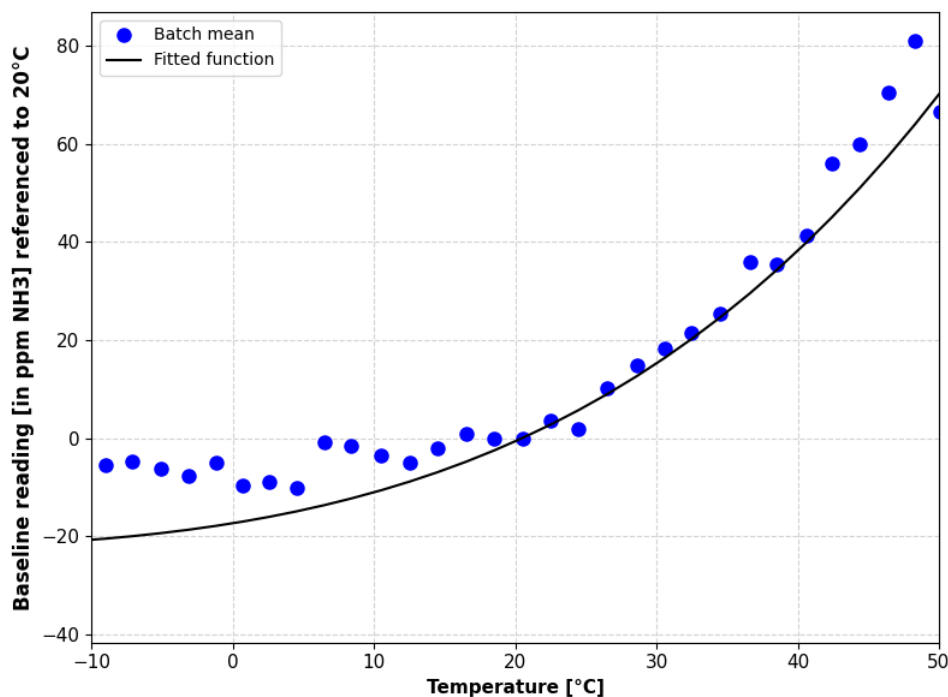


Ammonia Gas Sensor NH3/MR-10000

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.

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.