# **MEMBRAPOR**

## **SPECIFICATION SHEET FOR NO SENSOR TYPE NO/SF-1000**

### PERFORMANCE CHARACTERISTICS

Maximum Overload2500 ppmInboard FilterTo remove effect of $SO_2$ Expected Operation Life3 years in airOutput Signal $200 \pm 50$ nA/ppmResolution $0,5$ ppmTemperature Range $-20 ^{\circ}C$ to $50 ^{\circ}C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo dataT $_{90}$ Response Time $< 20$ secRelative Humidity Range $15 \%$ to $90 \%$ R.H. non-condensingTypical Baseline Range (pure air, $20^{\circ}C$ ) $+2$ to $+10 \text{ppm}^{-1}$ Maximum Zero Shift (+20°C to $+40^{\circ}C$ ) $30 \text{ppm}$ Long Term Output Drift $< 2\% \text{signal loss/month}$ Recommended Load Resistor $10 \text{Ohm}$ Bias Voltage $+ 300 \text{mV}$ Repeatability $< 2 \% \text{of signal}$		
Inboard FilterTo remove effect of $SO_2$ Expected Operation Life3 years in airOutput Signal $200 \pm 50 \text{ nA/ppm}$ Resolution $0,5 \text{ ppm}$ Temperature Range $-20 \degree C \text{ to } 50 \degree C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo dataT $_{90}$ Response Time $< 20 \sec$ Relative Humidity Range $15 \% \text{ to } 90 \% \text{ R.H.}$ non-condensingTypical Baseline Range (pure air, $20\degree C$ ) $+2 \text{ to } + 10 \text{ ppm}^{-1}$ Maximum Zero Shift (+ $20\degree C$ to + $40\degree C$ ) $30 \text{ ppm}$ Long Term Output Drift $< 2\% \text{ signal loss/month}$ Recommended Load Resistor $10 \text{ Ohm}$ Bias Voltage $+ 300 \text{ mV}$ Repeatability $< 2 \% \text{ of signal}$	Nominal Range	0 – 1000 ppm
SO2Expected Operation Life $3 \text{ years in air}$ Output Signal $200 \pm 50 \text{ nA/ppm}$ Resolution $0,5 \text{ ppm}$ Temperature Range $-20 \degree C \text{ to } 50 \degree C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo data $T_{90}$ Response Time $< 20 \sec C$ Relative Humidity Range $15 \% \text{ to } 90 \% \text{ R.H.}$ non-condensingTypical Baseline Range (pure air, $20\degree C$ ) $+2 \text{ to } + 10 \text{ ppm}^{-1}$ Maximum Zero Shift (+ $20\degree C$ to $+40\degree C$ ) $30 \text{ ppm}$ Long Term Output Drift $< 2\% \text{ signal loss/month}$ Recommended Load Resistor $10 \text{ Ohm}$ Bias Voltage $+ 300 \text{ mV}$ Repeatability $< 2 \% \text{ of signal}$	Maximum Overload	2500 ppm
Expected Operation Life3 years in airOutput Signal $200 \pm 50 \text{ nA/ppm}$ Resolution $0,5 \text{ ppm}$ Temperature Range $-20 \degree C$ to $50 \degree C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo dataT <sub>90</sub> Response Time $< 20 \sec$ Relative Humidity Range $15 \%$ to $90 \%$ R.H. non-condensingTypical Baseline Range (pure air, $20\degree C$ ) $+2 \text{ to } + 10 \text{ ppm}^{-1}$ Maximum Zero Shift (+ $20\degree C$ to $+40\degree C$ ) $30 \text{ ppm}$ Long Term Output Drift $< 2\% \text{ signal loss/month}$ Repeatability $< 2 \% \text{ of signal}$	Inboard Filter	To remove effect of
Output Signal $200 \pm 50 \text{ nA/ppm}$ Resolution0,5 ppmTemperature Range $-20 \degree C$ to $50 \degree C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo data $T_{90}$ Response Time $< 20 \sec$ Relative Humidity Range $15\%$ to $90\%$ R.H. non-condensingTypical Baseline Range (pure air, $20\degree C$ ) $+2$ to $+10$ ppm $^{1)}$ Maximum Zero Shift (+ $20\degree C$ to $+40\degree C$ ) $30$ ppmLong Term Output Drift $< 2\%$ signal loss/month Recommended Load ResistorBias Voltage $+ 300 \text{ mV}$ Repeatability $< 2\%$ of signal		SO <sub>2</sub>
Resolution $0,5 \text{ ppm}$ Temperature Range $-20 \degree C$ to $50 \degree C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo data $T_{90}$ Response Time $< 20 \sec$ Relative Humidity Range $15\%$ to $90\%$ R.H. non-condensingTypical Baseline Range (pure air, $20\degree C$ ) $+2$ to $+10$ ppm $^{1)}$ Maximum Zero Shift (+ $20\degree C$ to $+40\degree C$ ) $30$ ppmLong Term Output Drift $< 2\%$ signal loss/month Recommended Load ResistorBias Voltage $+300 \text{ mV}$ Repeatability $< 2\%$ of signal	Expected Operation Life	3 years in air
Temperature Range $-20 \ ^{\circ}C$ to $50 \ ^{\circ}C$ Pressure RangeAtmospheric $\pm 10\%$ Pressure CoefficientNo data $T_{90}$ Response Time $< 20 \ sec$ Relative Humidity Range $15 \ \% \ to \ 90 \ \% \ R.H.$ non-condensingTypical Baseline Range (pure air, $20^{\circ}C$ ) $+2 \ to + 10 \ ppm^{-1}$ Maximum Zero Shift (+ $20^{\circ}C$ to $+40^{\circ}C$ ) $30 \ ppm$ Long Term Output Drift $< 2\% \ signal \ loss/month$ Recommended Load Resistor $10 \ Ohm$ Bias Voltage $+ \ 300 \ mV$ Repeatability $< 2 \ \% \ of \ signal$	Output Signal	$200 \pm 50$ nA/ppm
Pressure RangeAtmospheric ± 10%Pressure CoefficientNo dataT <sub>90</sub> Response Time< 20 sec	Resolution	0,5 ppm
Pressure CoefficientNo dataT_{90} Response Time< 20 sec	Temperature Range	- 20 °C to 50 °C
T_{90} Response Time< 20 secRelative Humidity Range15 % to 90 % R.H. non-condensingTypical Baseline Range (pure air, 20°C)+2 to + 10 ppm 1)Maximum Zero Shift (+20°C to +40°C)30 ppmLong Term Output Drift< 2% signal loss/month	Pressure Range	Atmospheric ± 10%
Relative Humidity Range15 % to 90 % R.H. non-condensingTypical Baseline Range (pure air, 20°C)+2 to + 10 ppm 1)Maximum Zero Shift (+20°C to +40°C)30 ppmLong Term Output Drift< 2% signal loss/month	Pressure Coefficient	No data
Typical Baseline Range (pure air, 20°C)non-condensing +2 to + 10 ppm 1)Maximum Zero Shift (+20°C to +40°C)30 ppmLong Term Output Drift< 2% signal loss/month	T <sub>90</sub> Response Time	< 20 sec
Typical Baseline Range (pure air, 20°C)+2 to + 10 ppm 1)Maximum Zero Shift (+20°C to +40°C)30 ppmLong Term Output Drift< 2% signal loss/month	Relative Humidity Range	15 % to 90 % R.H.
air, 20°C)30 ppmMaximum Zero Shift (+20°C to +40°C)30 ppmLong Term Output Drift< 2% signal loss/month		non-condensing
Maximum Zero Shift (+20°C to +40°C)30 ppmLong Term Output Drift< 2% signal loss/month	Typical Baseline Range (pure	+2 to + 10 ppm <sup>1)</sup>
to +40°C)2% signal loss/monthLong Term Output Drift< 2% signal loss/month	air, 20°C)	
Long Term Output Drift< 2% signal loss/monthRecommended Load Resistor10 OhmBias Voltage+ 300 mVRepeatability< 2 % of signal	Maximum Zero Shift (+20°C	30 ppm
Recommended Load Resistor10 OhmBias Voltage+ 300 mVRepeatability< 2 % of signal	to +40°C)	
Bias Voltage+ 300 mVRepeatability< 2 % of signal	Long Term Output Drift	< 2% signal loss/month
Repeatability < 2 % of signal	Recommended Load Resistor	10 Ohm
	Bias Voltage	+ 300 mV
Output Linearity Linear	Repeatability	< 2 % of signal
	Output Linearity	Linear

 $^{1)}$  Sensors not older then a few weeks show typical baseline values of ~ 30 - 40 ppm after 12 h stabilization in biassed operation. After two days the baseline stabilises to the specified value. Sensors older then a few month will stabilize faster.

#### **CROSS-SENSITIVITY DATA**

Interfering Gas	Cross-Sensitivity (%)
CO	0
SO <sub>2</sub>	0
H <sub>2</sub> S	0
NO <sub>2</sub>	~ 1
H <sub>2</sub>	0

Performance data conditions: 20 °C, 50% RH and 1013 mbar

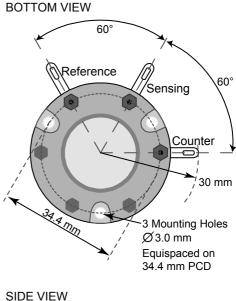
#### APPLICATIONS

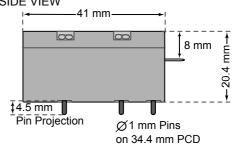
Safety and Environmental Control

### PHYSICAL CHARACTERISTICS

Weight	~ 32 g
Position Sensitivity	None
Storage Life	Six months in
	container
Recommended Storage	5 °C – 20 °C
Temperature	
Warranty Period	12 months from date
	of dispatch

#### **Standard-Size Outline Dimensions**





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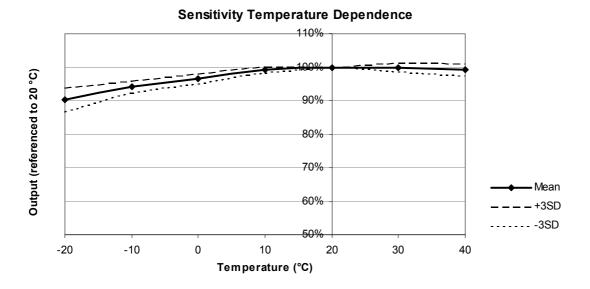
MEMBRAPOR AG Rautistrasse 164 CH-8048 Zürich Switzerland

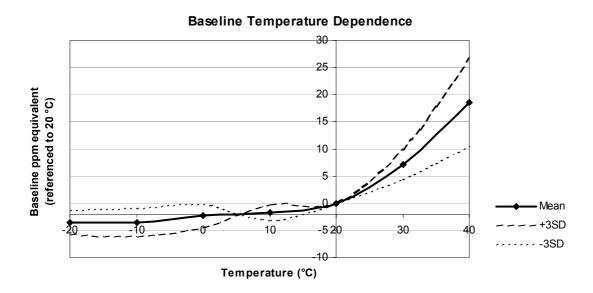
# **MEMBRAPOR**

## **SPECIFICATION SHEET FOR NO SENSOR TYPE NO/SF-1000**

#### **TEMPERATURE DEPENDENCE**

The output of an electrochemical sensor varies with temperature. The graphs below show the variation in output with temperature for this type of sensor. The results are shown in the graphs as a mean for a batch of sensors, along with confidence intervals corresponding to  $\pm 3$  times the standard deviation. The sensitivity dependence is expressed as a percentage of the signal at 20 °C. The shift in baseline is shown in ppm referenced to 20 °C.





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 the information contained within it. The data is given for guidance only. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.

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