

Membrapor's application guide



MEMBRAPOR
ELECTROCHEMICAL GAS SENSORS

Content

4	About us
6	Biogas and landfill gas
10	Flue gas and exhaust gas
14	Air quality monitoring
18	Odor emissions
22	Disinfection and sterilization processes
26	Semiconductor industry
30	Medical applications
34	Industrial safety and personal protection
38	Food and beverage industry
42	Energy industry
46	Agricultural industry
50	Confined spaces
54	Legal information

About us

Since 1995, Membrapor AG has stood for precision, quality, and reliability in the field of electrochemical gas sensing – proudly made in Switzerland. What began as a startup has grown into a globally recognized leader in gas sensor technology.

As a family-owned and independent company, we are deeply committed to meeting the needs of our customers. Over the past 30 years, we have expanded our product portfolio from our originally patented ammonia (NH₃) sensor to a comprehensive range of sensors for over 25 different gases, available in all major form factors.

Our long-term vision and sustainable business model make us a trusted partner for customers around the world. Today, we are proud to serve more than 500 satisfied customers globally, building strong, lasting partnerships based on innovation, quality, and trust.



1995

Founded by Dr. Christian Huggenberger based on patented NH₃ sensor

2003

Launch of first 4-electrode sensors for H₂-compensation

2010

Move to larger facility due to continuous growth

2015

Portfolio grows to more than 400 sensors and 20 gases

2023

First certification of quality management system according to ISO 9001 and ISO 14001

Biogas and landfill gas



Application

Biogas is a combustible gas mixture that is produced, among other things, by the anaerobic digestion of organic materials such as plant residues, food waste or liquid manure. The mixture consists of 40–70% CH_4 , 15–60% CO_2 and traces of CO , NH_3 and other gases such as H_2S . The latter gas is undesirable because it has a pungent odor, attacks materials and can damage equipment. It occurs in the ppm range. To use the biogas for electricity generation, H_2S is first filtered through activated carbon.

Your benefits with Membrapor sensors



Wide product range

H_2S sensors from 10 to 10'000 ppm with or without H_2 compensation



Outstanding performance

On average 2.5 × more sensitive sensors for enhanced detection of even smallest H_2S traces



Long service life

Designed for the most challenging conditions with on average 15% longer lifetime than other brands

Product selection

The product selection below reflects the recommendation for biogas and related applications.

Sensors

Compact*

CO	H ₂	H ₂ S	NH ₃
CO/CF-2000	H2/C-2000	H2S/CG-100	NH3/CR-5000
CO/CF-10000	H2/C-5000	H2S/CG-500	
		H2S/CG-2000	
		H2S/CG-10000	

Slim*

CO	H ₂	H ₂ S	NH ₃
CO/SF-2000-S	H2/S-2000-S	H2S/SG-200-S	NH3/SR-5000-S
		H2S/SG-2000-S	
		H2S/SG-10000-S	

* Also available as an H₂-compensated 4E sensor for H₂S and CO

Modules

Compact

CO	H ₂	H ₂ S	NH ₃
CAL	CAL	CAL	CAL
CO/CF-2000-CAL	H ₂ /C-2000-CAL	H ₂ S/CG-100-CAL	NH ₃ /CR-5000-CAL
CO/CF-10000-CAL	H ₂ /C-5000-CAL	H ₂ S/CG-500-CAL	CO/CR-5000-CAL
		H ₂ S/CG-2000-CAL	
AFE	AFE	AFE	AFE
CO/CF-2000-AFE	H ₂ /C-2000-AFE	H ₂ S/CG-100-AFE	CO/CF-2000-AFE
CO/CF-10000-AFE	H ₂ /C-5000-AFE	H ₂ S/CG-500-AFE	CO/CF-10000-AFE
		H ₂ S/CG-2000-AFE	

Slim

CO	H ₂	H ₂ S	NH ₃
CAL	CAL	CAL	CAL
CO/SF-2000-S-CAL	H ₂ /S-2000-S-CAL	H ₂ S/SG-200-S-CAL	NH ₃ /SR-2000-S-CAL
CO/SF-10000-S-CAL		H ₂ S/SG-500-S-CAL	
		H ₂ S/SG-2000-S-CAL	

Flue gas and exhaust gas



Application

The combustion of hydrocarbon-based fuels, such as coal or wood, produces flue gas that consists mainly of CO_2 and H_2O . However, undesirable and toxic gases such as SO_2 , NO or NO_2 also occur as traces. These gases must be monitored to measure the efficiency of the systems and their environmental friendliness.

Your benefits with Membrapor sensors



Wide range of products

Complete portfolio for flue gas analysis in various housings



High measuring accuracy

CO measurement with H_2 compensation



Low operating costs

Vantage sensors with replaceable filter doubles sensor lifetime and reduces services costs

Product selection

The product selection below reflects the recommendation for the flue gas application or similar applications.

Sensors

Compact

CO	H ₂	NO	NO ₂	SO ₂
CO/CF-2000	H2/C-2000	NO/CF-2000	NO2/C-500	SO2/CF-2000
CO/CFA-2000	H2/C-5000			SO2/CF-10000
CO/CF-2000-4E	H2/C-10000			
CO/CF-4000				
CO/CFA-4000				
CO/CF-4000-4E				
CO/CF-10000				
CO/CFA-10000				
CO/CF-10000-4E				

Vantage

CO	H ₂	NO	NO ₂	SO ₂
CO/VF-2000	H2/VA-1000	NO/VF-300-4E	NO2/V-500	SO2/VF-2000
CO/VF-2000-4E	H2/VA-5000	NO/VF-1000-4E		

Modules

Compact

CO	H ₂	NO	NO ₂	SO ₂
CAL	CAL	CAL	CAL	CAL
CO/CF-2000-CAL	H2/C-2000-CAL	NO/CF-1000-CAL	NO2/C-500-CAL	SO2/CF-2000-CAL
CO/CFA-2000-CAL	H2/C-5000-CAL			
CO/CF-4000-CAL	H2/C-10000-CAL			
CO/CFA-4000-CAL				
AFE	AFE	AFE	AFE	AFE
CO/CF-2000-AFE	H2/C-2000-AFE	NO/CF-1000-AFE	NO2/C-500-AFE	SO2/CF-2000-AFE
CO/CFA-2000-AFE	H2/C-5000-AFE			
CO/CF-2000-4E-AFE	H2/C-10000-AFE			
CO/CF-4000-AFE				
CO/CFA-4000-AFE				
CO/CF-4000-4E-AFE				

Air quality monitoring



Application

The monitoring of environmental pollutants in the air has developed considerably since the early 2000s. In urban areas in particular, the aim is to protect the population from constant exposure to pollutants. In addition to particulate matter (PM_{2.5}, PM₁₀), this also includes the gases CO, NO, NO₂, O₃, SO₂ and volatile organic compounds (VOC). There are many legislations worldwide with rigorous limit values (see for example EU 2024/2881).

Your benefits with Membrapor sensors



Best performance to meet legal limits

Highly sensitive sensors with long-term stability for the most accurate ppb-level measurements



Increased selectivity

Simultaneous and selective measurement of all relevant gases



Excellent know-how

We are the global leader in application implementation

Product selection

The product selection below reflects the recommendation for the air quality monitoring application.

Sensors

Compact

CO	NO	NO ₂	O ₃	SO ₂
CO/CF-200	NO/C-1	NO ₂ /CA-2	O ₃ /C-5	SO ₂ /C-1
CO/CFL-4E	NO/CL-1-4E			

Modules

Compact

CO	NO	NO ₂	O ₃	SO ₂
AFE	AFE	AFE	AFE	AFE
CO/CF-200-AFE	NO/C-1-AFE	NO ₂ /CA-2-AFE	O ₃ /C-5-AFE	SO ₂ /C-1-AFE
CO/CFL-4E-AFE	NO/CL-1-4E-AFE			

Odor emissions



Application

Odor emissions are caused by the release of gaseous substances of biological, chemical or industrial nature. Sources of such emissions include landfills, waste incineration plants and sewage treatment plants. Sulphureous substances such as H_2S or mercaptans are perceptible and disturbing even in the smallest quantities. Especially in warm areas, there are clear limit values for the measurement of H_2S and NH_3 (e.g. Chile DS N° 90/2000 or EU 2010/75). The low limit values are important to protect the population and the climate.

Your benefits with Membrapor sensors



Best performance

Highly sensitive sensors with long-term stability for accurate measurements in the ppb to low ppm range



Increased selectivity

Most accurate measurements without interference from other gases



Fast response time

Our sensors react on average 50% faster than other brands

Product selection

The product selection below reflects the recommendation for the emission monitoring application.

Sensors

Compact

H ₂ S	NH ₃	VOC
H2S/C-10	NH3/CR-50	VOC/C-20
H2S/C-50		

Miniature

H ₂ S	NH ₃	VOC
H2S/M-50	NH3/MR-100	VOC/M-20

Modules

Compact

H ₂ S	NH ₃	VOC
CAL	CAL	CAL
H2S/C-10-CAL	NH3/CR-50-CAL	VOC/C-20-CAL
AFE	AFE	AFE
H2S/C-10-AFE	NH3/CR-50-AFE	VOC/C-20-AFE
H2S/C-50-AFE		

Miniature

H ₂ S	NH ₃	VOC
CAL	CAL	CAL
H2S/M-10-CAL	NH3/MR-100-CAL	VOC/M-20-CAL

Disinfection and sterilization processes



Application

Disinfection reduces the bacterial count to a level where infections no longer occur. Germs are completely removed during sterilization. Both processes can be carried out in different ways. Most chemical disinfection processes use Cl_2 , ClO_2 , H_2O_2 or alcohols (Alc). Ethylene oxide (ETO) or CH_2O are frequently used in sterilization processes. All these substances are toxic and residual values – especially in closed rooms – must be monitored.

Your benefits with Membrapor sensors



Outstanding performance

On average 2 × higher sensitivity for optimal detection of small traces of disinfectants than other brands



Increased selectivity – no false readings

Best selectivity in the presence of alcohols



Wide range of products

Wide measuring range measuring threshold values (ppb-level) to germs-removing concentrations (high ppm-range)

Product selection

The product selection below reflects the recommendation for the application Disinfection and sterilization processes or similar applications.

Sensors

Compact

Alc	CH ₂ O	ETO	Cl ₂	ClO ₂	O ₃	H ₂ O ₂
Alc/C-100	CH ₂ O/CA-10	ETO/C-20	Cl ₂ /C-20	ClO ₂ /C-5	O ₃ /C-5	H ₂ O ₂ /CB-100
		ETO/CA-20			O ₃ /C-100	H ₂ O ₂ /CB-1000

Miniature

Alc	CH ₂ O	ETO	Cl ₂	ClO ₂	O ₃	H ₂ O ₂
Alc/M-100	CH ₂ O/MA-10	ETO/M-20	Cl ₂ /M-20	ClO ₂ /M-5	O ₃ /M-5	H ₂ O ₂ /MB-100
					O ₃ /M-100	H ₂ O ₂ /MB-1000

Modules

Compact

Alc	CH ₂ O	ETO	Cl ₂	ClO ₂	O ₃	H ₂ O ₂
CAL	CAL	CAL	CAL	CAL	CAL	CAL
Alc/C-100-CAL	CH ₂ O/CA-10-CAL	ETO/C-20-CAL	Cl ₂ /C-20-CAL	ClO ₂ /C-5-CAL	ClO ₂ /C-5-CAL	–
ETO/CA-20-CAL						
AFE	AFE	AFE	AFE	AFE	AFE	AFE
Alc/C-100-AFE	CH ₂ O/CA-10-AFE	ETO/C-20-AFE	Cl ₂ /C-20-AFE	ClO ₂ /C-5-AFE	ClO ₂ /C-5-AFE	–
ETO/CA-20-AFE						

Miniature

Alc	CH ₂ O	ETO	Cl ₂	ClO ₂	O ₃	H ₂ O ₂
CAL	CAL	CAL	CAL	CAL	CAL	CAL
Alc/M-100-CAL	CH ₂ O/MA-10-CAL	ETO/M-20-CAL	Cl ₂ /M-20-CAL	–	O ₃ /M-5-CAL	–
ETO/CA-20-CAL						

Semiconductor industry



Application

In the semiconductor industry, electronic components are manufactured based on silicon wafers. The properties of the semiconductors are modified through targeted doping. Hydrides such as AsH_3 , B_2H_6 or PH_3 are used for this purpose. Acids such as HCl or HF are used in etching and cleaning processes. Due to their high toxicity, they must be strictly monitored to ensure personal and equipment safety.

Your benefits with Membrapor sensors



Excellent performance

Most sensitive sensors on the market for monitoring ppb-levels



Low operating costs

On average 50% lower response times reduce the need for expensive calibration gas



Optimized process control

Improved gas consumption in etching and cleaning processes optimizes operational costs

Product selection

The product selection below reflects the recommendation for use in the semiconductor industry.

Sensors

Compact

AsH ₃	HF	HCN	HCl	PH ₃	SiH ₄
AsH3/C-1	HF/CI-10	HCN/C-50	HCl/C-20	PH3/C-5	SiH4/C-50

Miniature

AsH ₃	HF	HCN	HCl	PH ₃	SiH ₄
AsH3/M-1	HF/M-10	HCN/M-50	HCl/M-20	PH3/M-5	SiH4/M-50

Modules

Compact

AsH ₃	HF	HCN	HCl	PH ₃	SiH ₄
CAL	CAL	CAL	CAL	CAL	CAL
AsH ₃ /C-1-CAL	HF/CI-10-CAL	HCN/C-50-CAL	HCl/C-20-CAL	PH ₃ /C-5-CAL	SiH ₄ /C-50-CAL
AFE	AFE	AFE	AFE	AFE	AFE
AsH ₃ /C-1-AFE	HF/CI-10-AFE	HCN/C-50-AFE	HCl/C-20-AFE	PH ₃ /C-5-AFE	SiH ₄ /C-50-AFE

Miniature

AsH ₃	HF	HCN	HCl	PH ₃	SiH ₄
CAL	CAL	CAL	CAL	CAL	CAL
AsH ₃ /M-1-CAL	–	HCN/M-50-CAL	HCl/M-20-CAL	PH ₃ /M-5-CAL	SiH ₄ /M-50-CAL

Medical applications



Application

The most important gas in medicine is O_2 and is used for ventilation. One of the most important areas for electrochemical sensors is their use in non-invasive diagnostics. The presence of certain gases in the breath is an indication of metabolic diseases. The detection of hydrogen (H_2), ammonia (NH_3) or hydrogen sulphide (H_2S) can be used to detect lactose intolerance, liver dysfunction or intestinal dysbiosis.

Your benefits with Membrapor sensors



High stability

High temperature and moisture stability with excellent performance



Increased selectivity

Selective detection of the diagnostic gases without interference



Traceability

Use of high-quality medical grade products with 100% traceability

Product selection

The product selection below reflects the recommendation for the medical applications or similar.

Sensors

Compact

CO	H ₂	H ₂ S	NO	O ₂
CO/CFL-4E	H2/CA-1000	H2S/C-10	NO/C-1	–
			NO/CL-1-4E	

Miniature

CO	H ₂	H ₂ S	NO	O ₂
–	–	–	–	O2/MP-1
				O2/MP-100

Modules

Compact

CO	H ₂	H ₂ S	NO	O ₂
CAL	CAL	CAL	CAL	CAL
–	H2/CA-1000-CAL	H2S/C-10-CAL	NO/C-1-CAL	–
AFE	AFE	AFE	AFE	AFE
CO/CFL-4E-AFE	H2/CA-1000-AFE	H2S/C-10-AFE	NO/C-1-AFE	–
			NO/CL-1-4E-AFE	

Industrial safety and personal protection



Application

Gases are omnipresent in industrial processes, either as a product, by-product or starting material. Monitoring them is particularly important for personal safety. Gases are monitored in various industrial processes. A typical application is the measurement of leaks such as chlorine (Cl_2) or ammonia (NH_3). In addition to fixed installations, portable devices are also frequently used.

Your benefits with Membrapor sensors



Wide range of products

We offer more than 26 gases in 5 different housings



Fast response times

Our sensors react on average 50% faster than other brands reducing operational costs



Safety first

High sensitivity and excellent selectivity reduces false alarms and increases safety

Product selection

The product selection below reflects the recommendation for the application industrial processes. Depending on the exact process other gas sensors might be required.

Sensors

Compact

Acid	C ₂ H ₂	Cl ₂	CS ₂	NH ₃	O ₂	VOC
Acid/C-100	C2H2/CF-20	Cl2/C-20	CS2/CF-100	NH3/CR-1000	–	VOC/C-200
	C2H2/CF-200	Cl2/C-200	CS2/CF-500	NH3/CR-5000		VOC/C-2000
	C2H2/CF-2000			NH3/CR-10000		

Miniature

Acid	C ₂ H ₂	Cl ₂	CS ₂	NH ₃	O ₂	VOC
Acid/M-100	–	Cl2/M-20	CS2/MF-100	NH3/MR-1000	O2/MP-1	VOC/M-200
		Cl2/M-200		NH3/MR-5000	O2/MP-5	VOC/M-2000
				NH3/MR-10000	O2/MP-100	

Modules

Compact

Acid	C ₂ H ₂	Cl ₂	CS ₂	NH ₃	O ₂	VOC
CAL	CAL	CAL	CAL	CAL	CAL	CAL
Acid/C-100-CAL	C2H2/CF-20-CAL	Cl2/C-20-CAL	CS2/CF-100-CAL	NH3/CR-1000-CAL	–	VOC/C-200-CAL
	C2H2/CF-200-CAL		CS2/CF-500-CAL	NH3/CR-5000-CAL		VOC/C-2000-CAL
	C2H2/CF-2000-CAL			NH3/CR-10000-CAL		
AFE	AFE	AFE	AFE	AFE	AFE	AFE
Acid/C-100-AFE	C2H2/CF-20-AFE	Cl2/C-20-AFE	CS2/CF-100-AFE	NH3/CR-1000-AFE	–	VOC/C-200-AFE
	C2H2/CF-200-AFE	Cl2/C-200-AFE	CS2/CF-500-AFE	NH3/CR-5000-AFE		VOC/C-2000-AFE
	C2H2/CF-2000-AFE			NH3/CR-10000-AFE		

Miniature

Acid	C ₂ H ₂	Cl ₂	CS ₂	NH ₃	O ₂	VOC
CAL	CAL	CAL	CAL	CAL	CAL	CAL
Acid/M-100-CAL	–	Cl2/M-20-CAL	CS2/MF-100-CAL	NH3/MR-1000-CAL	–	VOC/M-200-CAL
				NH3/MR-5000-CAL		VOC/M-2000-CAL
				NH3/MR-10000-CAL		

Food and beverage industry



Application

Food is often at risk of spoilage during processing, storage and transportation, which requires the use of fast and effective quality assessment technologies. Food quality control is of paramount importance as it is directly linked to people's health and well-being as well as to the reduction of food waste. In addition, the food industry uses a variety of gases for different applications that play a crucial role in the production, preservation and safety of food. Gases like C_2H_4 are used to control ripening process. SO_2 for example is widely used as a conservation gas.

Your benefits with Membrapor sensors



Market leader

We are a global leader in providing solutions for reduction of food waste



Increased selectivity

Our sensors have the highest selectivity ensuring process safety and optimizing ripening processes



Excellent Knowhow

Our expertise is unbeaten

Product selection

The product selection below reflects the recommendation for the food & beverage industry.

Sensors

Compact

C ₂ H ₄	O ₂	SO ₂
C2H4/CA-10	–	SO2/C-20
C2H4/CA-200		SO2/C-100
C2H4/CA-1500		

Miniature

C ₂ H ₄	O ₂	SO ₂
C2H4/M-10	O2/M-1	SO2/M-20
C2H4/M-200	O2/M-100	SO2/MF-100
C2H4/M-1500		

Modules

Compact

C ₂ H ₄	O ₂	SO ₂
CAL	CAL	CAL
C2H4/CA-10-CAL	–	SO2/C-20-CAL
C2H4/CA-200-CAL		SO2/C-100-CAL
C2H4/CA-1500-CAL		
AFE	AFE	AFE
C2H4/CA-10-AFE	–	SO2/C-20-AFE
C2H4/CA-200-AFE		SO2/C-100-AFE
C2H4/CA-1500-AFE		

Miniature

C ₂ H ₄	O ₂	SO ₂
CAL	CAL	CAL
C2H4/M-10-CAL	–	SO2/M-20-CAL
C2H4/M-200-CAL		SO2/M-100-CAL
C2H4/M-1500-CAL		

Energy industry



Application

In the energy industry, a variety of gases are involved in different areas such as power generation, oil and gas exploration, refining and renewable energy. These gases can be either important fuels, by-products or pollutants. SF₆ for example is widely used as insulator gas. Because of its extraordinary high greenhouse potential, leaks need to be detected. Other gases such as O₂, NO_x or CO are measured in combustion processes to quantify the efficiency of the energy-generating process.

Your benefits with Membrapor sensors



Wide product selection

We offer different gases in different housings fitting your needs



Response time

SF₆-Leaks are detected twice as fast as with other brands



Enhanced performance

Outstanding performance optimizes your processes and reduces operational costs by at least 20% on average

Product selection

The product selection below reflects the recommendation for the energy industry.

Sensors

Compact

CO	HF	NO ₂	O ₂	SO ₂	VOC
CO/CF-1000	HF/CI-10	NO ₂ /C-20	–	SO ₂ /C-100	VOC/C-20
CO/CF-4000		NO ₂ /C-500		SO ₂ /C-500	VOC/C-200
CO/CFA-5000				SO ₂ /CF-2000	VOC/C-2000

Miniature

CO	HF	NO ₂	O ₂	SO ₂	VOC
CO/MF-500	HF/M-10	NO ₂ /M-20	O ₂ /M-100	SO ₂ /M-20	VOC/M-20
CO/MFA-500		NO ₂ /M-100	O ₂ /MP-100	SO ₂ /MF-200	VOC/M-2000
CO/MF-1000		NO ₂ /M-500	O ₂ /MT-100	SO ₂ /MF-2000	
CO/MF-2000					

Modules

Compact

CO	HF	NO ₂	O ₂	SO ₂	VOC
CAL	CAL	CAL	CAL	CAL	CAL
CO/CF-1000-CAL	–	–	–	SO ₂ /C-100-CAL	VOC/C-20-CAL
CO/CF-4000-CAL				SO ₂ /C-500-CAL	VOC/C-200-CAL
CO/CFA-5000-CAL				SO ₂ /CF-2000-CAL	VOC/C-2000-CAL
AFE	AFE	AFE	AFE	AFE	AFE
CO/CF-1000-AFE	HF/CI-10-AFE	NO ₂ /C-500-AFE	–	SO ₂ /C-100-AFE	VOC/C-20-AFE
CO/CF-4000-AFE				SO ₂ /C-500-AFE	VOC/C-200-AFE
				SO ₂ /CF-2000-AFE	VOC/C-2000-AFE

Miniature

CO	HF	NO ₂	O ₂	SO ₂	VOC
CAL	CAL	CAL	CAL	CAL	CAL
CO/MF-500-CAL	–	NO ₂ /M-100-CAL	–	SO ₂ /M-20-CAL	VOC/M-20-CAL
CO/MFA-500-CAL		NO ₂ /M-500-CAL		SO ₂ /MF-200-CAL	
CO/MF-1000-CAL				SO ₂ /MF-2000-CAL	
CO/MF-2000-CAL					

Agricultural industry



Application

In the agricultural industry there are many processes where gases are released or used. NH_3 is formed when animal feces and urine are decomposed in farms. It is pivotal to monitor the emissions to maintain animal health and environmental safety. Other gases such as PH_3 are commonly used as fumigation agents to reduce insect infestation.

Your benefits with Membrapor sensors



Wide product portfolio

We offer a variety of gases and measurement ranges



Selective sensors

Ammonia sensors with excellent performance for use in farms



Highest sensitivity

Ideal for use in fumigation processes

Product selection

The product selection below reflects the recommendation for the agricultural industry.

Sensors

Compact

NH ₃	PH ₃	VOC
NH3/CR-200	PH3/C-5	VOC/C-20
NH3/CR-1000	PH3/C-200	VOC/C-200
NH3/CR-5000		
NH3/CR-10000		

Miniature

NH ₃	PH ₃	VOC
NH3/MR-100	PH3/M-5	VOC/M-20
NH3/MR-1000	PH3/M-200	VOC/M-2000
NH3/MR-5000		

Modules

Compact

NH ₃	PH ₃	VOC
CAL	CAL	CAL
NH3/CR-200-CAL	PH3/C-5-CAL	VOC/C-20-CAL
NH3/CR-1000-CAL	PH3/C-200-CAL	VOC/C-200-CAL
NH3/CR-5000-CAL		
NH3/CR-10000-CAL		
AFE	AFE	AFE
NH3/CR-200-AFE	PH3/C-5-AFE	VOC/C-20-AFE
NH3/CR-1000-AFE	PH3/C-200-AFE	VOC/C-200-AFE
NH3/CR-5000-AFE		
NH3/CR-10000-AFE		

Miniature

NH ₃	PH ₃	VOC
CAL	CAL	CAL
NH3/MR-100-CAL	PH3/M-5-CAL	VOC/M-20-CAL
NH3/MR-1000-CAL	PH3/M-200-CAL	
NH3/MR-5000-CAL		

Confined spaces



Application

Confined spaces such as garages or tunnels require a ventilation system to maintain exhaust gas levels to a minimum. For garages many countries have legislations in place which determine safety and fire protection measures, constructive topics or maximal allowance values for gases (e.g. Germany: GarVo, USA: OSHA). CO and NO₂ are both continuously measured in garages. For well-ventilated places the values are typically below 10 ppm for CO and below 0.1 ppm for NO₂.

Your benefits with Membrapor sensors



Long lifetime

Sensors with 5+ years lifetime for use in garages



Fast response times

Our sensors respond on average 30% faster than other brands, reducing your operating costs



Safety first

High sensitivity and excellent selectivity reduces false alarms and increases safety

Product selection

The product selection below reflects the recommendation for applications in confined spaces.

Sensors

Compact

CO	NO	NO ₂
CO/CF-200	NO/C-25	NO2/C-20
CO/CF-1000		

Modules

Compact

CO	NO	NO ₂
CAL	CAL	CAL
CO/CF-200-CAL	NO/C-25-CAL	NO2/C-20-CAL
CO/CF-1000-CAL		
AFE	AFE	AFE
CO/CF-200-AFE	NO/C-25-AFE	NO2/C-20-AFE
CO/CF-1000-AFE		

Legal information

Contents

We strive to ensure the accuracy, timeliness, and completeness of the information provided in this document. The contents have been developed to the best of our knowledge. However, we do not assume any liability for the information offered and reserve the right to modify or update the content at any time without prior notice.

Copyright

All content (including text, images, and graphics) and their arrangement are protected by copyright and other intellectual property laws. Reproduction, modification, transmission, or publication of this document's contents for purposes other than private, non-commercial use is strictly prohibited without prior written consent.

All trademarks contained in this document (including protected brands, logos, and trade names) are the property of Membrapor AG or third parties and may not be used, reproduced, or distributed without prior written approval.

Amendments

We reserve the right to make amendments to this document at any time without notice.

Legal Notice

This document is provided for informational purposes only and does not constitute legal advice. While we make every effort to ensure the accuracy of the information, Membrapor AG accepts no responsibility or liability for any errors or omissions. Users are encouraged to seek professional legal counsel for specific legal concerns.

© 2025 Membrapor AG. All rights reserved.



Visitors:

MEMBRAPOR AG
Industriestrasse 33
8304 Wallisellen
Switzerland

Registered Office:

MEMBRAPOR AG
Birkenweg 2
8304 Wallisellen
Switzerland

+41 43 311 72 00
info@membrapor.ch
www.membrapor.ch



swiss made
since 1995