

Gas Detection.



Technical Datasheet



PolyGard®2

MC2 Sensor

with Semiconductor Sensor Element
for Toxic Gases with Analog Output

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Specifications subject to change without notice.

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■ Made
■ in Germany

DESCRIPTION

Exchangeable sensor unit including digital value processing and self-control for the continuous monitoring of the ambient air.

The sensor unit MC2 houses a module with μ Controller, analog output and power supply in addition to the semiconductor sensor element including amplifier. The μ Controller calculates a linear 4–20 mA (or 2–10 V) signal out of the measurement signal and also stores all relevant measured values and data of the sensor element.

Calibration is done either by simply replacing the sensor unit or by using the comfortable, integrated calibration routine directly at the system.

APPLICATION

The PolyGard®2 Sensor MC2 with semiconductor sensor is used for the detection of toxic gases in a variety of applications when a typical 4–20 mA (or 2–10 V) signal is required.

FEATURES

- Digital measurement value processing
- Internal function control with integrated watchdog
- Data / measured values in μ C of the sensor unit, therefore simple exchange uncalibrated <> calibrated
- Low zero-point drift
- Long sensor lifetime
- Easy maintenance and calibration by exchange of the sensor unit or by comfortable on-site calibration
- 4–20 mA (or 2–10 V) analog output with selectable signal output for special mode, fault etc.
- Reverse polarity protected, overload and short-circuit proof
- IP65 version
- Housing for integration of the sensor unit (option)
- Display (option)
- Display with 2 open-collector outputs for horn (resettable) and warning lamp (option)
- Duct mounting kit (accessory)

- Conformity to:
 - EN 378
 - EN 45544-1, -3
 - EN 61010-1
 - ANSI/UL 61010 1
 - CAN/CSA-C22.2 No. 61010-1

SPECIFICATIONS

ELECTRICAL	
Power supply	18–29 V DC, reverse-polarity protection; 18–27 V AC (only for output signal 2–10 V)
Power consumption	75 mA, max. (1.8 VA for 24 V)
Analog output signal	Proportional, overload and short-circuit proof, load $\leq 500 \Omega$ for current signal, $\geq 50 \text{ k}\Omega$ for voltage signal 4–20 mA or 2–10 V = measuring range 3–4 mA or 1.5–2 V = underrange > 20–21.2 mA or 10–10.6 V = overrange 2 mA or 1 V = fault > 21.8 mA or 10.9 V = fault High
SENSOR ELEMENT	
Gas type	See Ordering Information
Sensor element	Semiconductor sensor
Pressure range	90–110 kPa
Storage temperature range	0 °C to +50 °C (32 °F to 122 °F)
Storage time ¹	Ca. 12 months
Poisoning	The sensitivity of Semiconductor sensors can be influenced by substances containing silicon compounds and even poisoned and destroyed by them. The sensors are also susceptible to poisoning by organic solvents.
PHYSICAL	
Enclosure P (M25)	Polycarbonate: UL 94 V2
Colour	RAL 7032 (light grey)
Dimensions (Ø x H)	24 x 22 mm (0.94 x 0.87 in.)
Weight	Ca. 30 g (0.066 lb)
Protection class	IP65 (only if mounted in housing type A, D)
Mounting	Screw mounting / M25
Wire connection	Screw-type terminal min. 0.25 mm ² , max. 1.3 mm ² , 3-pin
REGULATIONS	
Directives	EMC directives 2014/30/EU, CE Compliance with: EN 378 EN 45544-1, -3 EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1
Warranty	1 year on sensor (not if poisoned or overloaded), 2 years on device
OPTIONS	
ENCLOSURE A	
Enclosure A for integration of sensor unit	Polycarbonate UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions (B x H x D)	94 x 130 x 57 mm (3.7 x 5.1 x 2.2 in.)
Weight / package volume	Ca. 0,2 kg (0.4 lb) / ca. 4,5 l
Protection class	IP65
Mounting	Wall mounting
Pre-embossing for cable entry / sensor unit	6 x M20/M25
LCD-DISPLAY	
LCD	2 lines, 16 characters each, monochrome
OPEN-COLLECTOR	
Transistor output (2)	For horn (resettable) and warning lamp
Switching capacity	24 V DC / 50 mA (+ switching)

¹ If stocked for a longer period, we recommend checking the zero point and recalibrating if necessary.

Gas type	Ordering No.	Measuring range	Repeatability	t ₉₀ time	Temperature range	Humidity range (non-condensing)	Lifetime ¹ in air	Relative gas density	Mounting height	Calibration interval ²
	MC2-	ppm	<± % sig.	≤ sec.	°C	% RH	> months	Air = 1	(m)	Months
NH ₃	S2125-C	0–1000	20	30	-30 / +60	15-90	60	0.60	Ceiling	12
NH ₃	S2125-F	0–10000	20	30	-30 / +60	15-90	60	0.60	Ceiling	12
C ₂ H ₄	S2189-A	20–2000	20	10	-30 / +60	15-90	60	0.97	1.5–1.8	12

¹ Expected service life for normal ambient conditions.

² Manufacturer-recommended calibration interval for normal ambient conditions.

All specifications were collected under optimal test conditions.

We confirm compliance with the minimum requirements of the applicable standard.

No cross-sensitivity data is available for these sensors. It is well known that all semiconductor sensors are also sensitive to combustible gases, e.g. alcohols, etc.

ORDERING INFORMATION

MC2-	X-	S2XXX-X-	X-	P						
				P	Sensor housing plastic					Sensor housing
				0	Without display					
				1	With display for indication of measurement values (only housing A/N)					
				2	With display for values & operation, 2x open collector for horn & warning lamp (only housing A / N)					Display
					Gas type	Measuring range				
					S2125-C* Ammonia, NH ₃	0–1000 ppm				
					S2125-F* Ammonia, NH ₃	0–10,000 ppm				Gas type/ Measuring range
					S2189-A Ethylene, C ₂ H ₄	20–2000 ppm				
				0	Without housing					
				A	Plastic housing type A, 94 x 130 x 57 mm					
				5*	Stainless steel housing type 5, 110 x 132 x 42.5 mm					Housing for the integration of the sensor
				D	Plastic housing type D, 94 x 65 x 57 mm					
				N	Plastic housing type N, 80 x 82 x 55 mm					

*On request

EXAMPLE

Ethylene sensor unit, measuring range 20–2000 ppm, in plastic housing type A, without display, sensor unit in plastic housing P

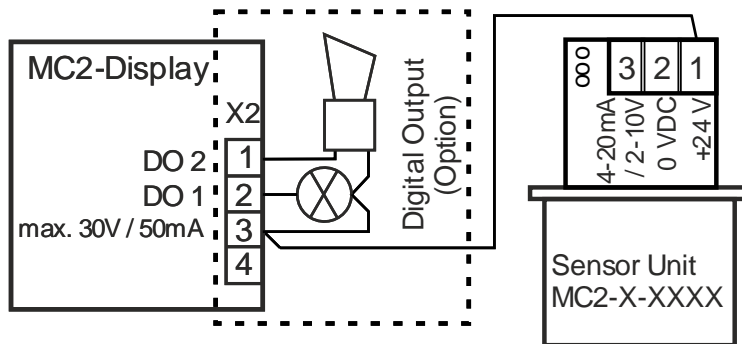
Ordering number: MC2-A-S2189-A-0-P

ACCESSORY

Duct mounting kit

Ordering number: C2-Z2

WIRING CONFIGURATION



Note:

The installation of the sensor unit MC2 directly on the MSC2 or MSB2 housing isn't possible, only external connection with separate housing!

For 4–20 mA output signal you have to remove the resistor between pin 2 and pin 3.