

## Technical Datasheet



### PolyGard®2

## MC2 Sensor

with Premium Infrared Sensor Element  
for Methane, Propane or CO<sub>2</sub>  
with Analog Output

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Specifications subject to change without notice.  
Up-to-date data sheets and user manuals can be found in the download area of [www.msr-24.com](http://www.msr-24.com).  
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■ All Products  
■ Made  
■ in Germany

## DESCRIPTION

### **Exchangeable premium sensor unit including digital value processing, temperature compensation and self-control for the continuous monitoring of the ambient air.**

The sensor unit MC2 houses a module with  $\mu$ Controller, analog output and power supply in addition to the high-quality infrared sensor element including amplifier. The IR measurement principle with integrated temperature compensation ensures highest accuracy, selectivity and reliability. The sensor head is gold-plated inside and therefore offers best performance characteristics in terms of drift, stability and reproducibility.

The  $\mu$ Controller calculates a linear 4–20 mA (or 2–10 V) signal out of the measurement signal and 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 IR is used for the detection of methane, propane and carbon dioxide in the non-Ex zone when a typical 4–20 mA (or 2–10 V) signal is required.

## FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal function control with integrated hardware watchdog
- Data / measured values in  $\mu$ C of the sensor unit, therefore simple exchange uncalibrated <> calibrated
- High accuracy, selectivity and reliability
- Low zero-point drift
- Long sensor lifetime
- Good poisoning immunity
- 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)
- Conformity to:
  - EN 61010-1
  - ANSI/UL 61010 1
  - CAN/CSA-C22.2 No. 61010-1
- Duct mounting kit (accessory)

## SPECIFICATIONS

<b>ELECTRICAL</b>	
Power supply	18–29 V DC, reverse-polarity protect.; 18–27 V AC (only for output signal 2–10 V)
Power consumption	75 mA, max. (1.6 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
<b>SENSOR ELEMENT</b>	
Gas type	See Ordering Information
Sensor element	Infrared sensor
Accuracy	$\pm 3 \%$ of range for $< 50 \%$ of range $\pm 5 \%$ of range for $> 50 \%$ of range
Pressure range	70–130 kPa
Storage temperature range	-40 °C to +80 °C (-40 °F to 176 °F)
Storage time <sup>1</sup>	Ca. 6 months
<b>PHYSICAL</b>	
Enclosure P (M25)	Polycarbonate: UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions	(D 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 <sup>2</sup> , max. 1.3 mm <sup>2</sup> , 3-pin, 24 to 16 AWG
<b>REGULATIONS</b>	
Directives (only in connection with the MSR Sensor-Boards)	EMC directives 2014/30/EU, CE  Compliance with: 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
<b>OPTIONS</b>	
<b>ENCLOSURE A</b>	
Enclosure A for integration of sensor unit	Polycarbonate UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions	(B x H x T) 94 x 130 x 57 mm (3.7 x 5.1 x 2.2 in.)
Weight	Ca. 0,2 kg (0.4 lb)
Package volume	Ca. 4,5 l
Protection class	IP65
Mounting	Wall mounting
Pre-embossing for cable entry / sensor unit	6 x M20/M25
<b>LCD DISPLAY</b>	
LCD	2 lines, 16 characters each, monochrome
<b>OPEN-COLLECTOR</b>	
Transistor output (2)	For horn (resettable) and warning lamp
Switching capacity	24 V DC / 50 mA (+ switching)

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

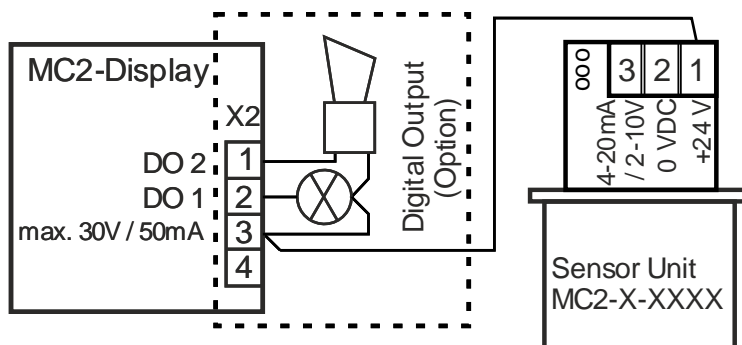


## ACCESSORY

Duct mounting kit

Ordering number: C2-Z2

## WIRING CONFIGURATION



### Note:

The installation of the sensor unit MC2 directly on the MSC2, MGC2 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.