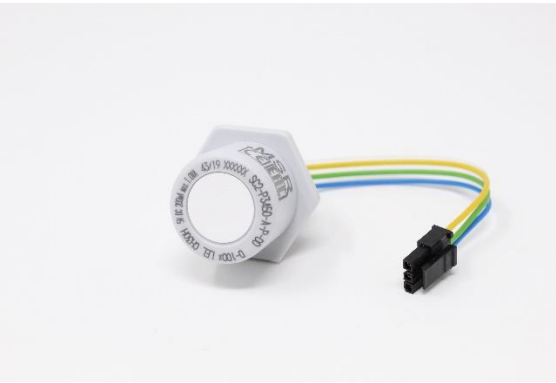
Gas Detection.

Technical Datasheet



PolyGard®2

Sensor SC2

with Catalytic Sensor Element
for Combustible Gases

DESCRIPTION

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

The Sensor SC2 includes a Pellistor sensor element and an amplifier as well as a µController for measured values processing. All important data and measured values of the sensor element are stored fail-safe in the µController and transmitted digitally via the local bus to the Sensor Board (e.g. SB2 or MSB2). The calibration management is also integrated in the µController of the Sensor.

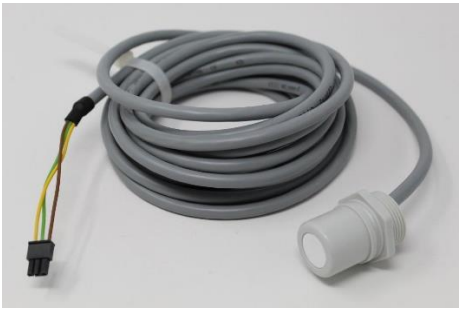
Calibration is done either by simply replacing the Sensor or by using the comfortable, integrated calibration routine directly at the system.

APPLICATION

The PolyGard®2 Sensor is used for the detection of combustible gases in non-Ex zones.

FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal functional control with integrated Watchdog
- Data/measured values in µC of the sensor, therefore simple exchange of sensor uncalibrated <> calibrated
- High accuracy, selectivity and reliability
- Sensor with long life expectancy
- Hardware and software according to SIL compliant development process
- Modular technology (plug-in and replaceable)
- Easy maintenance and calibration by exchange of the sensor or by comfortable on-site calibration
- Reverse polarity protected, overload and short-circuit proof
- IP65 version
- Conformity to:
  - EN 50545:2017
  - EN 50271
  - EN 61010-1
  - ANSI/UL 61010 1
  - CAN/CSA-C22.2 No. 61010-1
- Duct mounting kit (accessory)



Option: SC2 in plastic housing type L
with cable extension (fig. w/o laser engraving)

SPECIFICATIONS

ELECTRICAL		
Power supply	5 V DC from Sensor Board (e.g. SB2/MSB2), reverse polarity protected	
Power consumption:	200 mA, max. (1.0 VA)	
Serial interface local bus	1-wire / 19200 Baud	
SENSOR ELEMENT		
Gas type and measuring range	Combustible gases, see Ordering Information	
Sensor element	Pellistor (catalytic bead) sensor	
Temperature range	-30 °C to +60 °C (-22 °F to 140 °F)	
Humidity range	0–95 % RH not condensing	
Pressure range	90–110 kPa	
Oxygen concentration	21 % (standard) 18 % minimum level	
Storage temperature range	0 °C to +20 °C (32 °F to 68 °F)	
Storage time[1]	Ca. 6 months	
Sensor lifetime	5 years / normal ambient conditions	
Poisoning	Sensitivity of Pellistor 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		
Housing	**Plastic**	**Stainless steel**
Material	Polycarbonate	CrNi steel: 1.4404
Combustion	UL 94 V2	-
Housing colour	RAL 7032 (light grey)	Natural
Dimensions (Ø x H)	Type P: 24 x 22 mm (0.94 x 0.87 in.) Type L: 24 x 30 mm (0.94 x 1.18 in.)	Type S: 30 x 56 mm (1.18 x 2.20 in.)
Weight	Ca. 30 g (0.07 lb)	Ca. 150 g
Protection class	IP65	IP64 (with SplashGuard accessories IP66)
Mounting	Screw mounting	Screw mounting, external thread NPT ¾" ANSI/ B1.20.1
Connection type	3-pin connector	
Cable length	Ca. 150 mm (5.91 in.) standard version w/o cable extension	Cable extension (1–15 m in metre steps)
REGULATIONS		
Directives (only in connection with the Sensor-Boards from MSR)	EMC Directives 2014/30/EU CE Conformity to: EN 50545:2017 EN 50271 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	

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

Gas type	Ordering No.	Measuring range	Accuracy	Display resolution	Repeatability	t_{90} time	t_{90} time (stainless steel)	Zero-point variation	Drift in air		Calibration interval[1]
									Zero	Gain	
	SC2-	% LEL/ ppm	± % sig.	% LEL / ppm	<± % sig.	≤ sec.	≤ sec.	± % LEL	< % signal/ month		Months
CH_4	P3400-A	0–100 % LEL	1 (CH_4)	0.1	2 (CH_4)	15	28	0.5 (CH_4)	0.5 (CH_4)	2 (CH_4)	6
NH_3	P3408-A	0–100 % LEL	1 (CH_4)	0.1	2 (CH_4)	20	40	0.5 (CH_4)	0.5 (CH_4)	2 (CH_4)	6
NH_3	P3408-B	0–20 % LEL	1 (CH_4)	0.1	2 (CH_4)	10	25	0.5 (CH_4)	0.5 (CH_4)	2 (CH_4)	6
H_2	P3440-A	0–100 % LEL	1 (CH_4)	0.1	1 (CH_4)	10	10	0.5 (CH_4)	0.5 (CH_4)	2 (CH_4)	6
C_3H_8	P3480-A	0–100 % LEL	1 (CH_4)	0.1	2 (CH_4)	20	37	0.5 (CH_4)	0.5 (CH_4)	2 (CH_4)	6
C_3H_8	P3480-B	0–30 % LEL	2 (C_3H_8)	0.01	2 (C_3H_8)	15	40	0.5 (C_3H_8)	n.d.	2 (C_3H_8)	6
C_3H_8	P3480-C	0–5000 ppm	2 (C_3H_8)	1 (ppm)	2 (C_3H_8)	15	40	0.5 (C_3H_8)	n.d.	2 (C_3H_8)	6
C_3H_6	P3481-B	0–30 % LEL	2 (C_3H_6)	0.01	5 (C_3H_6)	15	30	1.0 (C_3H_6)	n.d.	2 (C_3H_6)	6
All others	PXXXX-A	0–100 % LEL	1 (CH_4)	0.1	2 (CH_4)	n.d.	n.d.	0.5 (CH_4)	0.5 (CH_4)	2 (CH_4)	6

[1] Manufacturer-recommended calibration interval for normal environmental conditions.

All specifications were collected under optimal test conditions.
We confirm compliance with the minimum requirements of the applicable standard.

ORDERING INFORMATION

SC2-	**P34XX-X-**	**X-**	**XX**	
			00 Without cable extension (standard) (Standard) **XX**[1] With cable extension: 01, 02, 03, 04, 05 ... 15 max. (in m)	**Cable**
		P	Sensor housing plastic (standard)	
		L	Sensor housing plastic long (only with cable extension)	
		S	Sensor housing stainless steel (only with cable extension)	**Sensor housing**

	Gas type	Measuring range	
P3400-A	Methane, CH_4	0–100 % LEL	
P3402-A	LPG	0–100 % LEL	
P3408-A*	Ammonia, NH_3	0–100 % LEL	
P3408-B*	Ammonia, NH_3	0–20 % LEL	
P3410-A	Ethylene, C_2H_4	0–100 % LEL	
P3415-A	Cyclohexane, C_6H_{12}	0–100 % LEL	
P3420-A	Ethane, C_2H_6	0–100 % LEL	
P3425-A	Ethyl alcohol, C_2H_5OH	0–100 % LEL	
P3427-A	Ethyl acetate, $C_4H_8O_2$	0–100 % LEL	
P3430-A	Benzene, C_6H_6	0–100 % LEL	
P3435-A	n-Hexane, C_6H_{14}	0–100 % LEL	
P3440-A	Hydrogen, H_2	0–100 % LEL	
P3448-A	Butyl acetate, $C_6H_{12}O_2$	0–100 % LEL	
P3450-A	Methanol, CH_3OH	0–100 % LEL	
P3458-A	Methyl ethyl ketone, C_4H_8O	0–100 % LEL	
P3460-A	Iso/n-Butane, C_4H_{10}	0–100 % LEL	
P3468-A	Isobutyl alcohol, $C_4H_{10}O$	0–100 % LEL	
P3470-A	Octane, C_8H_{18}	0–100 % LEL	
P3472-A	Cyclopentane, C_5H_{10}	0–100 % LEL	
P3473-A	Methyl acetate, $C_3H_6O_2$	0–100 % LEL	
P3475-A	Iso/n-Pentane, C_5H_{12}	0–100 % LEL	
P3480-A	Propane, C_3H_8	0–100 % LEL	
P3480-B	Propane, C_3H_8	0–30 % LEL	
P3480-C	Propane, C_3H_8	0–5000 ppm	
P3481-B	Propene, C_3H_6	0–30 % LEL	
P3482-A	Isopropyl alcohol, C_3H_8O	0–100 % LEL	
P3485-A	Acetone, C_3H_6O	0–100 % LEL	
P3490-A	Toluene, C_7H_8	0–100 % LEL	
P3491-A	n-Heptane, C_7H_{16}	0–100 % LEL	
P3494-A	Butadiene, C_4H_6	0–100 % LEL	
P3495-A	Nonane, C_9H_{20}	0–100 % LEL	**Gas type/ measuring range**
P3496-A	Petrol Vapours	0–100 % LEL	

[1] Sensor housing plastic in combination with cable extension only type L
* Only on request

EXAMPLE
CH_3OH Sensor, plastic housing without cable extension, measuring range 0–100 % LEL
Order number: SC2-P3450-A-P-00

ACCESSORY
Duct mounting kit
Order number: C2-Z2