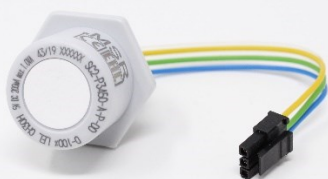


Gas Detection.



Technical Datasheet



PolyGard®2

Sensor SC2

with Catalytic Sensor Element
for Combustible Gases

DESCRIPTION

APPLICATION

FEATURES

SPECIFICATIONS

ORDERING INFORMATION

FURTHER MEASURING PRINCIPLES

Specifications subject to change without notice.
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DESCRIPTION

Catalytic sensor including digital value processing and integrated self-diagnosis, for the continuous monitoring of the ambient air to detect combustible gases.

The intelligent SC2 Sensor for detection of combustible gases includes a catalytic sensor element (Pellistor) and electronics with a measuring amplifier and a μ Controller for the digital processing of the measured values. All relevant data and measured values of the sensor are stored fail-safe in the internal memory of the μ Processor and are transmitted digitally to the Board (SB2, WSB2, MSC2, MSB2) via the MSR local bus.

The maintenance of a device can be done either by simply exchanging the sensor or by using the integrated, comfortable calibration routine directly at the system.

APPLICATION

The PolyGard®2 SC2 Sensor is used to detect combustible gases in non-exlosive areas.



FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal functional control with integrated Watchdog
- Easy maintenance and calibration by exchange of the sensor or by comfortable on-site calibration
- High accuracy and reliability
- Sensor with long life expectancy
- Hardware and software according to SIL compliant development process
- Reverse polarity protected, overload and short-circuit proof
- IP65 protection (when installed)

SPECIFICATIONS

ELECTRICAL		
Power supply	5 V DC from Board (SB2/WSB2/MSB2/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	See Ordering Information	
Measuring principle	Catalytic (Pellistor, catalytic bead principle)	
Temperature range	-30 °C to +60 °C (-22 °F to 140 °F)	
Humidity range	0–95 % RH non-condensing	
Pressure range	90–110 kPa	
Sensor lifetime ¹ in air	> 5 years	
Poisoning	Pellistors can be poisoned by silicone-containing substances or other catalyst poisons up to complete loss of sensitivity.	
RECOMMENDED STORAGE CONDITIONS		
Storage temperature range ²	0 °C to +20 °C (32 °F to 68 °F)	
Storage time ³	Ca. 6 months	
Humidity range	0–95 % RH non-condensing	
Pressure range	90–110 kPa	
PHYSICAL		
Housing	Plastic	Stainless steel
Material	Polycarbonate	CrNi steel: 1.4404
Flammability classification	UL 94 V2	-
Housing colour	Similar to RAL 7035 (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 61 mm (1.18 x 2.40 in.)
Weight	Ca. 30 g (0.07 lb)	Ca. 150 g
Protection class	IP65	IP64
Mounting	Screw mounting, external thread M25 x 1.5 mm	Screw mounting, external thread NPT ¾" ANSI/ B1.20.1 / M30 x 1,5 mm
Connection type	3-pin connector	
Cable length	Standard: Ca. 150 mm (5.91 in.) Cable extension (5, 10 or 15 m)	Cable extension (5, 10 or 15 m)
REGULATIONS		
Directives (only in connection with the Boards from MSR)	EMC Directives 2014/30/EU CE Conformity to: EN 50271 EN 50545:2017 EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1	
Warranty	1 year on sensors (not if poisoned or overloaded)	

¹ Expected service life for normal ambient conditions.

² A deviating storage temperature can have a negative effect on sensitivity and service life.

³ 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	Plastic housing		Stainless steel housing		Zero-point variation	Drift in air	Relative gas density ¹	Calibration interval ²
						t ₉₀ time	Reaction time	t ₉₀ time	Reaction time				
	SC2-	% LEL / ppm	± % sig.	% LEL / ppm	< ± % sig.	≤ sec.	≤ sec.	≤ sec.	≤ sec.	± % LEL	< % / month	Air = 1	Months
CH ₄	P3400-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	15	5	30	5	0.5 (CH ₄)	2 (CH ₄)	0.56	12
LPG	P3402-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	n.d.	6
NH ₃	P3408-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	20	5	40	15	0.5 (CH ₄)	2 (CH ₄)	0.60	6
NH ₃	P3408-B	0–20 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	10	5	25	10	0.5 (CH ₄)	2 (CH ₄)	0.60	6
C ₂ H ₄	P3410-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	0.97	6
C ₆ H ₁₂	P3415-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.90	6
C ₂ H ₆	P3420-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	1.05	6
C ₂ H ₅ OH	P3425-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	1.59	6
C ₄ H ₈ O ₂	P3427-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	3.04	6
C ₆ H ₆	P3430-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.70	6
C ₆ H ₁₄	P3435-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	50	10	0.5 (CH ₄)	2 (CH ₄)	2.97	6
H ₂	P3440-A	0–100 % LEL	1 (CH ₄)	0.1	1 (CH ₄)	10	5	10	5	0.5 (CH ₄)	2 (CH ₄)	0.07	12
C ₆ H ₁₂ O ₂	P3448-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	4.01	6
CH ₃ OH	P3450-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	1.10	6
C ₄ H ₈ O	P3458-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.48	6
C ₄ H ₁₀	P3460-A	0–100 % LEL	2 (CH ₄)	0.1	2 (C ₄ H ₁₀)	10	5	30	5	0.5 (C ₃ H ₈)	2 (C ₃ H ₈)	2.08	12
C ₄ H ₁₀ O	P3468-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.55	6
C ₆ H ₁₈	P3470-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	3.94	6
C ₅ H ₁₀	P3472-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.42	6
C ₃ H ₆ O ₂	P3473-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.56	6
C ₅ H ₁₂	P3475-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.49	6
C ₃ H ₈	P3480-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	20	5	40	15	0.5 (CH ₄)	2 (C ₃ H ₈)	1.55	12
C ₃ H ₈	P3480-B	0–30 % LEL	2 (C ₃ H ₈)	0.01	2 (C ₃ H ₈)	15	5	40	10	0.5 (C ₃ H ₈)	2 (C ₃ H ₈)	1.55	12
C ₃ H ₈	P3480-C	0–5000 ppm	2 (C ₃ H ₈)	1 (ppm)	2 (C ₃ H ₈)	15	5	40	10	0.5 (C ₃ H ₈)	2 (C ₃ H ₈)	1.55	12
C ₃ H ₆	P3481-B	0–30 % LEL	2 (C ₃ H ₆)	0.01	5 (C ₃ H ₆)	15	5	30	5	1.0 (C ₃ H ₆)	2 (C ₃ H ₆)	1.48	12
C ₃ H ₈ O	P3482-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	80	10	0.5 (CH ₄)	2 (CH ₄)	2.07	6
C ₃ H ₆ O	P3485-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	2.00	6
C ₇ H ₈	P3490-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	3.18	6
C ₇ H ₁₆	P3491-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	3.46	6
C ₈ H ₁₀	P3493-A	0–100 % UEG	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	3.67	6
C ₄ H ₆	P3494-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	1.92	6
C ₉ H ₂₀	P3495-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	4.43	6
Petrol Vapours	P3496-A	0–100 % LEL	1 (CH ₄)	0.1	2 (CH ₄)	n.d.	5	n.d.	10	0.5 (CH ₄)	2 (CH ₄)	n.d.	6

¹ The recommended mounting height depends on the relative gas density of the type of gas to be monitored. Depending on the relative gas density (d), the following recommendation therefore applies:

- d ≤ 0.85: Mounting 0.3–0.5 m below the ceiling
- 0.85 < d < 1.15: Mounting at 1.2–1.8 m height
- d ≥ 1.15: Mounting 0.3–0.5 m above the floor

² 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.

The T 021 (DGVU-I-213-056) and T 023 (DGVU-I-213-057) as well as T 055 leaflets must be observed.

ORDERING INFORMATION

SC2-	P34XX-X-	X-	XX	
		00	Without cable extension (standard)	
		XX ¹	With cable extension: Cable length: 05, 10, 15 (in m)	Cable length
		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 ₂ H ₄	0–100 % LEL
	P3415-A		Cyclohexane, C ₆ H ₁₂	0–100 % LEL
	P3420-A		Ethane, C ₂ H ₆	0–100 % LEL
	P3425-A		Ethyl alcohol, C ₂ H ₅ OH	0–100 % LEL
	P3427-A		Ethyl acetate, C ₄ H ₈ O ₂	0–100 % LEL
	P3430-A		Benzene, C ₆ H ₆	0–100 % LEL
	P3435-A		n-hexane, C ₆ H ₁₄	0–100 % LEL
	P3440-A		Hydrogen, H ₂	0–100 % LEL
	P3448-A		Butyl acetate, C ₆ H ₁₂ O ₂	0–100 % LEL
	P3450-A		Methanol, CH ₃ OH	0–100 % LEL
	P3458-A		Methyl ethyl ketone, C ₄ H ₈ O	0–100 % LEL
	P3460-A		Iso/n-butane, C ₄ H ₁₀	0–100 % LEL
	P3468-A		Isobutyl alcohol, C ₄ H ₁₀ O	0–100 % LEL
	P3470-A		Octane, C ₈ H ₁₈	0–100 % LEL
	P3472-A		Cyclopentane, C ₅ H ₁₀	0–100 % LEL
	P3473-A		Methyl acetate, C ₃ H ₆ O ₂	0–100 % LEL
	P3475-A		Iso/n-pentane, C ₅ H ₁₂	0–100 % LEL
	P3480-A		Propane, C ₃ H ₈	0–100 % LEL
	P3480-B		Propane, C ₃ H ₈	0–30 % LEL
	P3480-C		Propane, C ₃ H ₈	0–5000 ppm
	P3481-B		Propene, C ₃ H ₆	0–30 % LEL
	P3482-A		Isopropyl alcohol, C ₃ H ₈ O	0–100 % LEL
	P3485-A		Acetone, C ₃ H ₆ O	0–100 % LEL
	P3490-A		Toluene, C ₇ H ₈	0–100 % LEL
	P3491-A		n-heptane, C ₇ H ₁₆	0–100 % LEL
	P3493-A		Xylene, C ₈ H ₁₀	0–100 % LEL
	P3494-A		Butadiene, C ₄ H ₆	0–100 % LEL
	P3495-A		Nonane, C ₉ H ₂₀	0–100 % LEL
	P3496-A		Petrol Vapours	0–100 % LEL
				Gas type/ measuring range

¹ Cable extension only in combination with sensor housing plastic type L or sensor housing stainless steel type S

* Only on request

EXAMPLE

CH₄ sensor, measuring range 0–100 % LEL, sensor in plastic housing type P without cable extension
(order number: SC2-P3400-A-P-00)

ACCESSORY

Sensor protection cap (order number: C2-Z1)

Duct mounting kit (order number: C2-Z2)

Calibration adapter (order number: C2-Z4, C2-Z4-A, C2-Z4-B, C2-Z4-C)

Splash protection SplashGuard (order number: C2-Z5)

Remote-Kit (order number: C2-11-XX)

FURTHER MEASURING PRINCIPLES**Infrared:**

Methane (CH_4), propane (C_3H_8)

→ See data sheet DB_SC2_IR_Premium and data sheet DB_SC2_IR

**MPS™:**

Methane (CH_4), propane (C_3H_8), hydrogen (H_2)

→ See data sheet DB_SC2_MPS

**Semiconductor:**

Ammonia (NH_3), ethylene (C_2H_4)

→ See data sheet DB_SC2_HL

**Electrochemical:**

Ammonia (NH_3), ethylene (C_2H_4), hydrogen (H_2)

→ See data sheet DB_SC2_Tox



Documents



Catalog



YouTube