Gas Detection.

.MSR
ELECTRONIC

Technical Datasheet

PolyGard®2

Sensor SC2
with Infrared Sensor Element
for Methane, Propane or Carbon Dioxide

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All Products
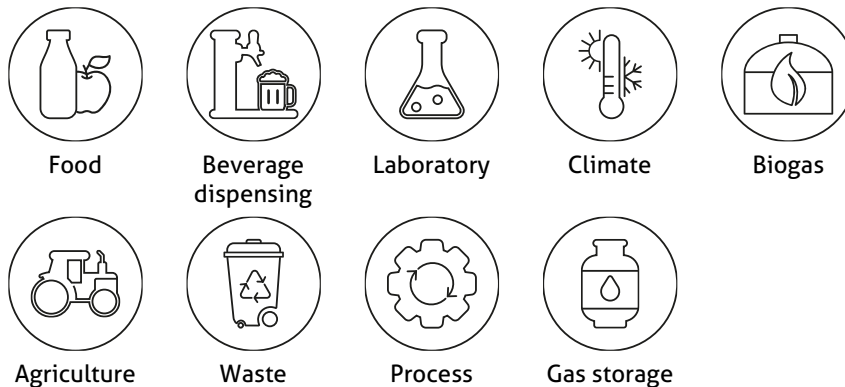Made
in Germany

DESCRIPTION

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

The intelligent SC2 Sensor includes an infrared sensor element and electronics with a measuring amplifier and a µController 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 µProcessor and are transmitted digitally to the Board (SB2, WSB2, MSC2, MSB2) via the MSR local bus. The IR measuring principle with integrated temperature compensation ensures highest accuracy, selectivity and reliability.

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 different, even combustible gases, in the non-explosive areas.

Food	Beverage dispensing	Laboratory	Climate	Biogas

Agriculture	Waste	Process	Gas storage

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, selectivity and reliability
- Low zero-point drift
- Sensor with very 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/MSC2/MSB2), reverse polarity protected
Power consumption	50 mA, max. (0.25 VA)
Serial interface local bus	1-wire / 19200 Baud
SENSOR ELEMENT	
Gas type and measuring range	See ORDERING INFORMATION
Measuring principle	Infrared (NDIR)
Repeatability	< ± 5 % signal
t_{90} time (plastic housing)	≤ 90 s
Drift in air	n.d.
Pressure range	90–110 kPa (influence + 1.6 % on measured value per kPa)
Poisoning	IR sensors can show symptoms of poisoning due to contamination with oils and lubricants.
RECOMMENDED STORAGE CONDITIONS	
Storage temperature range[1]	See following tables
Storage time[2]	Ca. 6 months
Humidity range	See following tables
Pressure range	90–110 kPa
PHYSICAL	
Housing	**Plastic type L**
Material	Polycarbonate
Flammability classification	UL 94 V2
Housing colour	Similar to RAL 7035 (light grey)
Dimensions (Ø x H)	24 x 30 mm (0.94 x 1.18 in.)
Weight	Ca. 30 g (0.07 lb)
Protection class	IP65
Mounting	Screw mounting, external thread M25 x 1.5 mm
Connection type	3-pin connector
Cable length	Standard: Ca. 150 mm (5.91 in.) Cable extension (5, 10 and 15 m)
REGULATIONS	
Directives (only in connection with the Boards from MSR)	EMC Directives 2014/30/EU CE

Compliance with: EN 378-1 EN IEC 62990-1 Type SM EN 50271 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] A deviating storage temperature can have a negative effect on sensitivity and service life.
[2] If stocked for a longer period, we recommend checking the zero point and recalibrating if necessary.

Gas type	Order No.	Measuring range	Display resolution	Accuracy	Reaction time	Zero-point variation	Temperature range	Humidity range non-condensing	Life time[1] in air	Relative Gas density[2]	Calibration interval[3]
	SC2-		%	±% sig.	≤ sec.	± % LEL	°C	% RH	> years	Air = 1	Months
CH_4	S400-A	0–100 % LEL	0.1	4	15	4	-30 / +60	0–95	5	0.56	12
C_3H_8	S480-A	0–100 % LEL	0.1	4	10	4	-30 / +60	0–95	5	1.55	12
CO_2	I-S1164-B	0–5 % vol	0.001	10	5	n.d.	-35 / +50	0–85	15	1.53	60
CO_2	I-S1164-C	0–2 % vol	0.001	10	5	n.d.	-35 / +50	0–85	15	1.53	60
CO_2	I-S1164-D	0–5000 ppm	1	10	5	n.d.	-35 / +50	0–85	15	1.53	60
CO_2	I-S1164-E	0–20,000 ppm	10	10	5	n.d.	-35 / +50	0–85	15	1.53	60
CO_2	I-S1164-F	0–10,000 ppm	10	10	5	n.d.	-35 / +50	0–85	15	1.53	60

[1] Expected service life for normal ambient conditions.
[2] 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

[3] Calibration interval recommended by the manufacturer for normal ambient 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- S4X0-A- L- XX

00 Without cable extension (standard)
XX[1] With cable extension: Cable length: 05, 10, 15 (in m)   **Cable length**

L Sensor housing plastic long with 2nd gas inlet   **Sensor housing**

Gas type	**Measuring range**	
S400-A Methane, CH_4	0–100 % LEL	**Gas type/ Measuring range**
S480-A Propane, C_3H_8	0–100 % LEL	

EXAMPLE

CH_4 sensor, measuring range 0–100 % LEL, sensor in plastic housing type L without cable extension
(order number: SC2-S400-A-L-00)

SC2-	I-S1164-X-	L-	XX		
			00 Without cable extension (standard)		
			XX With cable extension: Cable length: 05, 10, 15 (in m)	**Cable length**	
		L	Sensor housing plastic long with 2nd gas inlet	**Sensor housing**	

	Gas type	**Measuring range**	
I-S1164-B	Carbon dioxide, CO_2	0–5 % vol	
I-S1164-C	Carbon dioxide, CO_2	0–2 % vol	
I-S1164-D	Carbon dioxide CO_2	0–5000 ppm	
I-S1164-E	Carbon dioxide CO_2	0–20,000 ppm	**Gas type/**
I-S1164-F	Carbon dioxide CO_2	0–10,000 ppm	**Measuring range**

EXAMPLE

CO_2 sensor, measuring range 0–5 % vol, sensor in plastic housing type L without cable extension
(order number: SC2-I-S1164-B-L-00)

ACCESSORY

Sensor protection cap (order number: C2-Z1)
Duct mounting kit (order number: C2-Z2)
Calibration adapter (order number: C2-Z6)
Splash protection SplashGuard (order number: C2-Z5)
Remote-Kit (order number:C2-Z11-XX)

FURTHER MEASURING PRINCIPLES

MPS™:
Methane (CH_4), propane (C_3H_8)
➔ See data sheet DB_SC2_MPS

Catalytic:
Methane (CH_4), propane (C_3H_8)
➔ See data sheet DB_SC2_Ex

Infrared Premium:
Methane (CH_4), propane (C_3H_8), carbon dioxide (CO_2)
➔ See data sheet DB_SC2_IR_Premium

Documents

Catalog

YouTube