Gas Detection.

Technical Datasheet

PolyGard®2

Sensor SC2

with Premium Infrared Sensor Element
for Methane, Propane, Carbon Dioxide or R32

DESCRIPTION

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

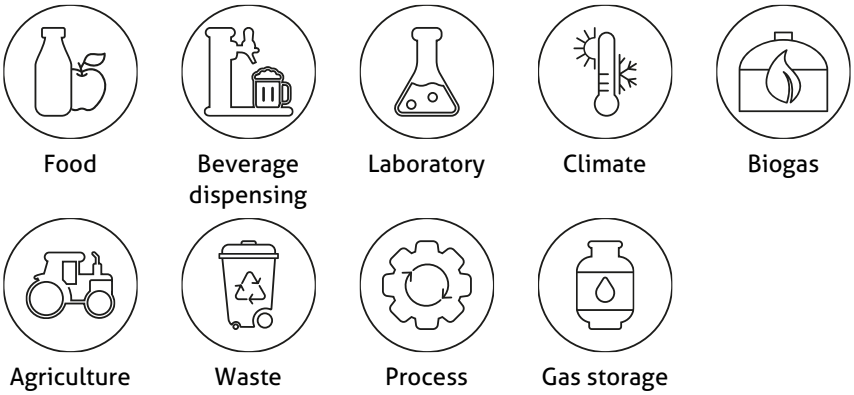
The intelligent SC2 Sensor includes a premium infrared sensor element and electronics with a measuring amplifier and a µController for the digital processing of the measured values. All relevant data and measured values of the sensor are stored fail-safe in the internal memory of the µProcessor and are 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 high-quality sensor element offers the best performance characteristics in terms of drift, stability and repeatability over a wide temperature, humidity and pressure range.

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 Sensor SC2 is used to detect leakage of toxic, asphyxiating and combustible gases in the non-explosive areas.



FEATURES

- Digital measurement value processing
- Internal functional control and fault monitoring with integrated Watchdog
- Easy maintenance and calibration by exchange of the sensor or by comfortable on-site calibration
- Highest accuracy, selectivity and reliability due to 2-channel reference measurement
- Low zero-point drift and high stability of the sensor signal
- Sensor with very long life expectancy (> 10 Jahre)
- Very good poisoning immunity
- Hardware and software according to SIL compliant development process
- Reverse polarity protected, overload and short-circuit proof
- Fast reaction
- IP65 protection (when installed)

SPECIFICATIONS

ELECTRICAL		
Power supply	5 V DC from Board (SB2/WSB2/MSC2/MSB2), reverse polarity protected	
Power consumption	60 mA, max. (0.3 VA)	
Serial interface local bus	1-wire / 19200 Baud	
SENSOR ELEMENT		
Gas type and measuring range	See Ordering Information	
Measuring principle	Infrared	
Accuracy	± 5 %	
Repeatability	< ± 2 % signal	
Reaction time	≤ 5 s (plastic housing) or ≤ 10 s (stainless steel housing)	
Drift in air	< 0.25 % / month	
Temperature range	-40 °C to +70 °C (-40 °F to 158 °F)	
Humidity range	0–95 % RH non-condensing	
Pressure range	70–130 kPa	
Life time[1] in air	> 10 years	
Calibration interval[2]	12 months	
Poisoning	IR sensors can show symptoms of poisoning due to contamination with oils and lubricants.	
RECOMMENDED STORAGE CONDITIONS		
Storage temperature range[3]	-40 °C to +70 °C (-40 °F to 158 °F)	
Storage time[4]	Ca. 6 months	
Humidity range	0–95 % RH non-condensing	
Pressure range	70–130 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	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 and 15 m)	Cable extension (5, 10 and 15 m)
REGULATIONS		
Directives (only in connection with the Boards from MSR)	EMC Directives 2014/30/EU CE Conformity to: 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] Expected service life for normal ambient conditions.
[2] Manufacturer-recommended calibration interval for normal environmental conditions.
[3] A deviating storage temperature can have a negative effect on sensitivity and service life.
[4] If stocked for a longer period, we recommend checking the zero point and recalibrating if necessary.

Gas type	Order No.	Measuring range	Display resolution	t_{90} time (plastic housing)	t_{90} time (stainless steel housing)	Zero-point variation	Relative Gas density[1]
	SC2-		% / ppm	≤ sec.	≤ sec.	± % LEL % vol	Air = 1
R32	I200-A	0-50 % LEL	0.01	80	210	2	1.82
CH_4	I400-A	0–100 % LEL	0.1	55	150	2	0.56
CH_4	I400-B	0–100 % vol	0.1	60	130	2	0.56
CO_2	I464-B	0–5 % vol	0.001	60	150	n.d.	1.53
CO_2	I464-C	0–2 % vol	0.001	60	150	n.d.	1.53
CO_2	I464-D	0–5000 ppm	1	75	150	n.d.	1.53
CO_2	I464-F	0–10 % vol	0.01	60	150	n.d.	1.53
C_3H_8	I480-A	0–100 % LEL	0.1	100	230	2	1.55

[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

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-	**IXXX-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 long (only with cable extension)	
		S	Sensor housing stainless steel (only with cable extension)	**Sensor housing**

	Gas type	Measuring range	
I200-A	R32	0–50 % LEL	
I400-A	Methane, CH_4	0–100 % LEL	
I400-B[2]	Methane, CH_4	0–100 % vol	
I464-B	Carbon dioxide, CO_2	0–5 % vol	
I464-C	Carbon dioxide, CO_2	0–2 % vol	
I464-D	Carbon dioxide, CO_2	0–5000 ppm	
I464-F	Carbon dioxide, CO_2	0–10 % vol	**Gas type/ Measuring range**
I480-A	Propane, C_3H_8	0–100 % LEL	

[1] Cable extension only in conjunction with sensor housing plastic type L or sensor housing stainless steel type S

EXAMPLE

CH_4 sensor, measuring range 0–100 % LEL, sensor in plastic housing type P without cable extension (order number: SC2-I400-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-Z11-XX)

FURTHER MEASURING PRINCIPLES

MPS™:
Methane (CH_4), propane (C_3H_8), R32
➔ See data sheet DB_SC2_MPS

Semiconductor/Freon:
R32
➔ See data sheet DB_SC2_Freon and data sheet DB_SC2_Freon_LFL

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

Documents

Catalog

YouTube