

Fixed SILpoint Gas Alarm Devices of the SP1 series with Ex db protection for Zone 1 and 2. SP2 series with Ex nA protection only for Zone 2. Designed for the continuous monitoring of the ambient air to detect combustible gases and vapours for use in the hazardous areas of zones 1 and/or 2 according to Directive 2014/34/EU.

Microprocessor based gas sensor with 4–20 mA / RS485 Modbus output signal, alarm and fault relays for monitoring the ambient air to detect different gases and vapours within the lower explosive limit (LEL) by means of a high-quality infrared sensor element. The IR measuring 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 calibration of sensors without LCD display is carried out via the calibration device STL06-PGX2 or the PC software PCE06-PGX2. Sensors with LCD display have an integrated calibration routine that is started from the outside by a permanent magnet without opening the housing. In case of an alarm or a fault, the backlight of the sensors with LCD display changes from green to red.

Key Features

- ATEX and IEC Ex certificates
- Metrological test & SIL2 safety functions 4–20 mA, RS485 and relay (only Pellistors)
- **SP1 for zone 1 (and also suitable for zone 2):**
 - Type “Ex db” with flame-proof enclosure
- **SP2 for zone 2:**
 - Type “Ex nA” with flame-proof enclosure
- Enclosure: additional FM and CSA certificates for Class I, Div. 1
- Continuous monitoring
- Microprocessor with 12-bit converter resolution
- Self-monitoring system
- Easy calibration
- Calibration service by exchanging the sensor head
- Proportional 4–20 mA output
- Serial interface to the control center
- Reverse polarity protection
- Overload protection
- LCD display with status LEDs (optional)
- Alarm and fault signal relay (optional)



SENSOR WITH ALARM



SENSOR WITHOUT DISPLAY

Application

The SILpoint IR sensor is used in industrial areas like oil/gas industry, biogas plants, petrochemical industry, power plants etc. in Ex-Zone 1 or 2. The SILpoint sensor is also suitable for commercial areas like gas transfer stations etc. With the 4–20 mA / RS485-ModBus output signal the sensor is suitable for connection to the Combi Series, as well as to any other controllers or automation devices. Optionally, the SILpoint sensor is also available with LCD display and relay output.

GENERAL SPECIFICATIONS

ELECTRICAL	
Power supply	20–28 V DC reverse polarity protected
Power consumption (at 24 V DC)	90 mA, max. 130 mA
Control unit	Microprocessor with 12-bit converter resolution
Digital filter	Averaging in order to increase the EMC immunity
Visual indications	3 LEDs for power, alarm and fault
Analog output signal (active)	Proportional, overload and short-circuit proof, load $\leq 500 \Omega$ 4–20 mA = measuring range 3.0–4 mA = underrange > 20–21,2 mA = overrange 2 mA = fault > 21.8 mA = fault High
Serial output (optional)	Serial data bus
Faulty relay output (optional)	Max. 30 V AC/DC, 1 A
Alarm relay (optional)	Max. 30 V AC/DC, 1 A
LCD (optional)	2 x 16 characters, 3 status LEDs, 4 menu operating elements
SENSOR DATA	
Gas type and measuring range	See Table
Sensor element	Inside gold-plated infrared sensor
Accuracy	$\pm 3 \%$ for < 50 % of range $\pm 5 \%$ for > 50 % of range
Stabilisation time	1 h
Warm-up time	30 s
Pressure range	700–1300 hPa
Storage temperature range	-40 °C to +80 °C (-40 °F to 176 °F)
Storage time	Max. 6 months
SENSOR HEAD HOUSING	
Material	CrNi Stahl: 1.4404
Dimensions (d x H)	30 x 56 mm (1.18 x 2.20 in.)
Protection class	Gas inlet IP64, with option splash proof IP66 SplashGuard (on request)
Thread	External thread NPT $\frac{3}{4}$ " ANSI/ B1.20.1
PHYSICAL CHARACTERISTICS	
Enclosure P1 and P3 / colour	Aluminium pressure die-casting / light grey RAL 7032, epoxy coating
Dimensions (d x H) / weight	95 x 82 mm / ca. 1.3 kg (2.87 lb.)
Protection class	Housing protection IP66 to IP68 (depending on the cable glands used)
Mounting	Wall mounting (sensor head downwards)
Cable entry	1x resp. 3x $\frac{3}{4}$ in. (Ansi B1.20.1)
Wire connection	Spring-type terminal, 0.08 to 2.5 mm ² AWG 28–12
Wire length	Max. load 500 Ω (= wire resistance + controller input resistance)

ENVIRONMENTAL CONDITIONS (OPERATION AND EXPLOSION PROTECTION)

Humidity	20 to 90% RH (not condensing)
Operating temperature	-25 °C to +60 °C (-13 °F to 140 °F), -20 °C to +60 °C (-4 °F to 140 °F) for display version
Storage temperature	-5 °C to +30 °C (23 °F to 86 °F)
Pressure range ¹	800 to 1200 mbar (80 to 120 kPa)
Air velocity	< 6 m/sec.

¹ The explosion protection test only covers the pressure range up to 1100 mbar and the oxygen concentration up to 21 % vol.

ATEX MARKING

	SP1	SP2
ATEX Marking	II2G Ex db IIC T4 Gb, CE 0158,	II3G Ex nA IIC T4 Gc
EC-type examination certificate	BVS 15 ATEX E 129 X	
Protection types	EN 60079-0: 2012 and EN 60079-1: 2014 (Ex-db)	EN 60079-0: 2012 and EN 60079-15: 2011 (Ex-nA)
Certificates	IECEx 16.0038 X (electrical Ex protection) Ex d IEC 60079-0, -1	
Directives	EN 50402	

Certificates only housing

FM Certificate	Class 3600, Class 3615, Class 3810, ANSI/NEMA 250. Explosionproof for Class I, Division 1, Groups A, B, C and D; dust-ignition-proof for Class II, Division 1, Groups E, F and G, Class III, hazardous (classified) locations, in-doors and outdoors (type 4X).
CSA Certificate	2472857 / Class 2258-02 PROCESS CONTROL EQUIPMENT for hazardous locations Class I, Div. 1, Groups A, B, C and D; Class II, Div. 1, Groups E, F and G, Class III, Div. 1; Type 4X

WARRANTY

	1 year on sensor (not if poisoned or overloaded), 2 years on device
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OVERVIEW GAS TYPES

GAS TYPE	ORDERING NO.	MEASURING RANGE	DISPLAY RESOLUTION	REPEATABILITY	T90 TIME	ZERO-POINT VARIATION	TEMPERATURE RANGE	HUMIDITY RANGE (NON-CONDENSING)	LIFE TIME ¹ IN AIR	RELATIVE GAS DENSITY	CALIBRATION INTER-VAL ¹
	PX2-SX1-	% LEL/ %Vol	% / ppm	<± % Sig.	≤ sec.	± % LEL / %Vol	°C	% RH	> years	Air = 1	Months
CH ₄	I400-A	0–100 % LEL	0.1	2	90	4	-30 / +60	0–95	5	0.56	12
CH ₄	I400-B	0–100 % vol	0.1	5	90	4	-30 / +60	0–95	5	0.56	12
C ₃ H ₈	I480-A	0–100 % LEL	0.1	2	90	4	-30 / +60	0–95	5	1.55	12
CO ₂	I464-B	0–5 % vol	0.001	5	90	n.d.	-30 / +60	0–95	5	1.53	12
CO ₂	I464-D	0–5000 ppm	1	5	90	n.d.	-30 / +60	0–95	5	1.53	12
CO ₂	I464-F	0–10 % vol	0.01	5	90	n.d.	-30 / +60	0–95	5	1.53	12

¹ Manufacturer-recommended calibration interval for normal environmental conditions (verification pending).

All specifications were collected under optimal test conditions.

We confirm compliance with the minimum requirements of the applicable standard.

ELECTRICAL CONNECTION

