

**Fixed SILpoint 2 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 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 (all SIL2 certified) for monitoring the ambient air to detect combustible gases and vapours by means of a catalytic sensor element (Pellistor).

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 failure the backlight of sensors with LCD display changes from green to red.

## Key Features

- ATEX and IEC Ex certificates
- **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 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 refrigeration plants 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. As an option, the SILpoint sensor is also available with LCD display and relay output.

## GENERAL SPECIFICATIONS

ELECTRICAL	
Power supply SP1 series	20–28 V DC reverse polarity protected
Power supply SP2 series	20–28 V DC reverse polarity protected or 24 V AC $\pm$ 10 % (21.6–26.4 V AC)
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 Ordering Information
Sensor element	Semiconductor sensor
Measuring range	0–50 % LEL
Repeatability	$\pm$ 20 %
Response time T90	$\leq$ 180 s
Oxygen concentration	21 % (standard) 18 % minimum level
Stabilisation time	168 h
Warm-up time	300 s
Temperature range	30 °C to +60 °C (-22 °F to +140 °F)
Humidity range	15–90 % RH non-condensing
Pressure range	Atmospheric $\pm$ 10 %
Storage time <sup>1</sup>	Max. 12 months
Calibration interval <sup>1</sup>	12 months
Life expectancy	> 5 years/ normal operating environment
Poisoning	The sensitivity of semiconductor sensors can be affected by substances containing silicone and by organic solvents; they may even lead to the complete poisoning.

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

<b>Enclosure P1 and P3 / colour</b>	Aluminium pressure die-casting / light grey RAL 7032, epoxy coating
<b>Dimensions (d x H) / weight</b>	95 x 82 mm / ca. 1.3 kg (2.87 lb.)
<b>Protection class</b>	Housing protection IP66 to IP68 (depending on the cable glands used)
<b>Mounting</b>	Wall mounting (sensor head downwards)
<b>Cable entry</b>	1x resp. 3x ¾ in. (Ansi B1.20.1)
<b>Wire connection</b>	Spring-type terminal, 0.08 to 2.5 mm <sup>2</sup> AWG 28–12
<b>Cable length</b>	Max. load 500 Ω (= wire resistance + controller input resistance)

<sup>1</sup> Manufacturer-recommended calibration intervals for normal environmental conditions.

## ENVIRONMENTAL CONDITIONS (OPERATION AND EXPLOSION PROTECTION)

<b>Humidity</b>	20 to 90% RH (not condensing)
<b>Operating temperature</b>	-25 °C to +60 °C (-13 °F to 140 °F), -20 °C to +60 °C (-4 °F to 140 °F) for display version
<b>Storage temperature</b>	-5 °C to +30 °C (23 °F to 86 °F)
<b>Pressure range<sup>2</sup></b>	800 to 1200 mbar (80 to 120 kPa)
<b>Air velocity</b>	< 6 m/sec.

## ATEX MARKING

	SP1	SP2
<b>ATEX Marking</b>	II2G Ex db IIC T4 Gb, CE 0158	II3G Ex nA IIC T4 Gc
<b>EC-Type Examination Certificate</b>	BVS 15 ATEX E 129 X	
<b>Protection types</b>	EN 60079-0: 2012 and EN 60079-1: 2014 (Ex-db)	EN 60079-0: 2012 and EN 60079-15: 2011 (Ex-nA)
<b>Certificates</b>	IECEx 16.0038 X (electrical Ex protection) Ex d IEC 60079-0, -1	
<b>Directives</b>	Conformity to: EN 378, EN 45544-1	

## Certificates only housing

<b>FM Certificate</b>	<b>Class 3600, Class 3615, Class 3810, ANSI/NEMA 250.</b> 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).
<b>CSA Certificate</b>	<b>2472857 / Class 2258-02</b> 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
--	--

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

All specifications were collected under optimal test conditions.

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

## OVERVIEW FREON TYPES

FREON GROUP	CODE	FREON TYPE	CALIBRATION GAS	GROUP	MEASURING RANGE	RELATIVE GAS DENSITY(AIR =1)
%LEL	2020-01	R32	R32	HFC	0–50 % LEL	1.82
	2020-02	R455a	R455a	CFC/HFO	0–50 % LEL	> 1
	2020-03	R454b	R454b	HFO	0–50 % LEL	> 1
	2020-04	R1234yf	R1234yf	HFO	0–50 % LEL	4

No cross-sensitivity data is available for these sensors. It is well known that all semiconductor sensors are also sensitive to combustible gases, e.g. alcohols, etc.

## ORDER INFORMATION

PX2-SX1-	X-1-	X-	S2020-XX-A-	XX	<b>SENSOR</b>		
			S2020-XX-A		<b>EXCHANGE HEAD<sup>1</sup></b>		
			P1		Aluminum die-cast housing for 1x cable entry incl. cable gland	<b>Sensor housing</b>	
			P3		Aluminum die-cast housing for 3x cable entries incl. 1x gland		
			S2020-01-A	R32	Semiconductor	0–50 % LEL	<b>Gas type/ Measuring range</b>
			S2020-02-A	R455a	Semiconductor	0–50 % LEL	
			S2020-03-A	R454b	Semiconductor	0–50 % LEL	
			S2020-04-A	1234yf	Semiconductor	0–50 % LEL	
		0	Without options			<b>Options</b>	
		1	Relay set (2)				
		2	LC Display				
		3	Relay set (2) and LC Display				
		1	Zone 1 and 2			<b>ATEX Zone</b>	
		2	Zone 2				

<sup>1</sup> The exchangeable sensor head is only to be used in connection with the SILpoint Gas Sensor. Otherwise it loses its ATEX Certification.

## ELECTRICAL CONNECTION

