

PolyXeta®2



Sensor for combustible gases in zone 1, PX2-1

Sensor for combustible gases in zone 2, PX2-2

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 within the lower explosive limit (LEL) 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 a fault, the backlight of the sensors with LCD display changes from green to red.



Sensor, zone 1, without display



Sensor, zone 1, with LCD display

APPLICATION

The PolyXeta®2 sensor is used in industrial areas like oil/gas industry, biogas plants, petrochemical industry, power plants etc. in Ex-Zone 1 or 2. The PolyXeta®2 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 PolyGard®2 gas controller series by MSR-Electronic, as well as to any other controllers or automation devices. Optionally, the PolyXeta®2 sensor is also available with LCD display and relay output.

FEATURES

- ATEX and IEC Ex certificates MSR-Electronic for electrical Ex protection
- Metrological test & SIL2 safety functions 4 – 20 mA, RS485 and relay
- **PX2-1 for zone 1 (and also suitable for zone 2):**
 - Type “Ex d” with flame-proof enclosure
- **PX2-2 for zone 2:**
 - Type “Ex n” with flame-proof enclosure
- Enclosure: additional CSA certificate 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, zone 2, without display



Sensor, zone 2, with LCD display



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Up-to-date data sheets and user manuals can be found in the download area of www.msr-24.com.

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SPECIFICATIONS

ELECTRICAL

Power supply	20 – 28 V DC, verpolungssicher
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	2 LEDs for operation, alarm and communication
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 interface	Serial data bus
Fault relay (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	Combustible gases
Sensor element	Pellistor
Measuring range	See Ordering Information
Response time t_{90}	≤ 20 sec. for CH ₄
Accuracy	± 1 % of measuring range (CH ₄)
Repeatability	± 2 % of measuring range
Stabilization time	300 sec.
Warm-up time	Measuring mode after 120 sec.
Sensor lifetime	> 36 months / normal ambient conditions

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 IP65 (on request)
Thread	External thread NPT ¼" ANSI/ B1.20.1

ENVIRONMENTAL CONDITIONS

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
Storage time ¹	Max. 6 months
Pressure range	800 to 1200 mbar (80 to 120 kPa)
Air velocity	< 6 m/sec.

PHYSICAL CHARACTERISTICS

Enclosure P1 & P3 / colour	Aluminium pressure die-casting / light grey RAL 7032, epoxy coating
Additional CSA approval, only zone 1	Explosion proof Class I, Div 1, Groups A, B, C and D
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	1 x resp. 3 x ¾ 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)

¹ We recommend recalibrating the devices if stocked for a longer period (>8 weeks).



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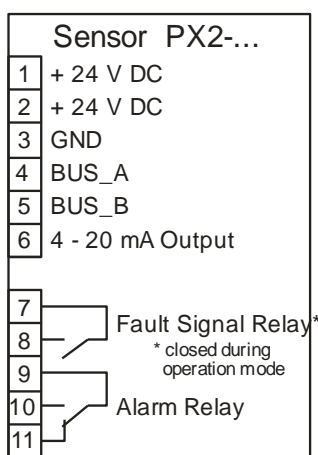
	PX2-1	PX2-2
ATEX MARKING	Ex II2G Ex db IIC T4 Gb, CE 0158,	Ex II3G Ex nA IIC T4 Gc
EC-type examination certificate	BVS 15 ATEX E 129 X (electrical Ex protection) Ex d EN60079-0, -1	Electrical Ex protection: Ex n EN60079-15
CERTIFICATES	IECEx 16.0038 X (electrical Ex protection) Ex d IEC 60079-0, -1	-----
CERTIFICATES	Functional safety (SIL2) EN 50402, EN 61508-1, -2, -3, EN 50271 CSA Certificate Class I, Div. 1 (only enclosure)	
Pending	Metrological approval: (pending) EN 60079-29-1 for Ex gases	
WARRANTY	1 year on sensor (not if poisoned or overloaded), 2 years on device	

All specifications were collected under optimal test conditions.

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

Electrochemical sensors are susceptible to poisoning by organic solvents and silicone vapors.

ELECTRICAL CONNECTION



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ORDERING INFORMATION

Sensor **PX2-X- X -P34XX-X- XX**Exchange head¹ **SX1-1- -P34XX-X****P1** Aluminum die-cast housing for one cable entry**P3** Aluminum die-cast housing for three cable entries

OPTIONS

Without option

Relay set (2)

LCD display

Relay set (2) + LCD display

Zone 1

Zone 2

		GASTYPE		Sensor type	Measuring range
0	P3400-A*	Methane	CH ₄	Pellistor	0-100 % LEL
1	P3402-A**	LPG		Pellistor	0-100 % LEL
2	P3408-A*	Ammonia	NH ₃	Pellistor	0-100 % LEL
3	P3410-A**	Ethylene	C ₂ H ₄	Pellistor	0-100 % LEL
	P3415-A**	Cyclohexane	C ₆ H ₁₂	Pellistor	0-100 % LEL
	P3420-A**	Ethane	C ₂ H ₆	Pellistor	0-100 % LEL
	P3425-A**	Ethyl Alcohol	C ₂ H ₅ OH	Pellistor	0-100 % LEL
	P3427-A**	Ethyl Acetate	C ₄ H ₈ O ₂	Pellistor	0-100 % LEL
	P3430-A**	Benzene	C ₆ H ₆	Pellistor	0-100 % LEL
	P3435-A*	n-Hexane	C ₆ H ₁₄	Pellistor	0-100 % LEL
	P3440-A*	Hydrogen	H ₂	Pellistor	0-100 % LEL
	P3448-A**	Butyl Acetate	C ₆ H ₁₂ O ₂	Pellistor	0-100 % LEL
	P3450-A**	Methanol	CH ₃ OH	Pellistor	0-100 % LEL
	P3458-A**	Methyl Ethyl Ketone	C ₄ H ₈ O	Pellistor	0-100 % LEL
	P3460-A**	Iso/n-Butane	C ₄ H ₁₀	Pellistor	0-100 % LEL
	P3468-A**	Isobutyl Alcohol	C ₄ H ₁₀ O	Pellistor	0-100 % LEL
	P3470-A**	Octane	C ₈ H ₁₈	Pellistor	0-100 % LEL
	P3472-A**	Cyclopentan	C ₅ H ₁₀	Pellistor	0-100 % LEL
	P3473-A**	Methyl Acetate	C ₃ H ₆ O ₂	Pellistor	0-100 % LEL
	P3475-A**	Iso/n-Pentane	C ₅ H ₁₂	Pellistor	0-100 % LEL
	P3480-A*	Propane	C ₃ H ₈	Pellistor	0-100 % LEL
	P3480-B**	Propane	C ₃ H ₈	Pellistor	0-30 % LEL
	P3480-C**	Propane	C ₃ H ₈	Pellistor	0-5000 ppm
	P3482-A*	Isopropyl Alcohol	C ₃ H ₈ O	Pellistor	0-100 % LEL
	P3485-A**	Acetone	C ₃ H ₆ O	Pellistor	0-100 % LEL
	P3490-A**	Toluene	C ₇ H ₈	Pellistor	0-100 % LEL
	P3491-A**	n-Heptane	C ₇ H ₁₆	Pellistor	0-100 % LEL
	P3494-A**	Butadiene	C ₄ H ₆	Pellistor	0-100 % LEL
	P3495-A**	Nonane	C ₉ H ₂₀	Pellistor	0-100 % LEL
	P3496-A**	Petrol Vapours		Pellistor	0-100 % LEL

* Metrological testing according to EN 60079-29-1 by DEKRA Testing and Certification GmbH

** Testing by the manufacturer (manufacturer's declaration of conformity)

¹ The exchangeable sensor head is only to be used in connection with the PolyXeta®2 Gas Sensor. Otherwise it loses its ATEX Certification.

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