

Technical Datasheet



PolyXeta®2

Sensor PX2-1-IR (Zone 1 and 2)
Sensor PX2-2-IR (Zone 2)
with Premium Infrared Sensor Element

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PX2 YouTube Video



Specifications subject to change without notice.
Up-to-date data sheets and user manuals can be found in the download area on www.msr-24.com.
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 All Products
 Made
 in Germany

DESCRIPTION

Fixed PolyXeta®2 Gas Alarm Devices of the

PX2-1 series with Ex db protection for zones 1 and 2

PX2-2 series with Ex nA protection only for zone 2

for continuous monitoring of the ambient air to detect certain gases and vapours for use in the hazardous areas of zones 1 and 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.

APPLICATION

The PolyXeta®2 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 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 IECEx certificates MSR-Electronic for electrical Ex protection
- **PX2-1 for zone 1 (and suitable for zone 2):**
 - Type "Ex db" with flame-proof enclosure
- **PX2-2 for zone 2:**
 - Type "Ex nA" type of protection
- Enclosure: additional FM and 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
- High-quality, gold plated sensor with long life expectancy
- High poisoning immunity, accuracy and stability
- Proportional 4–20 mA output
- Serial interface to the control center
- Reverse polarity protection
- Overload protection
- LC display with status LEDs (optional)
- Alarm and fault signal relay (optional)

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 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	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 IP65 (on request)
Thread	External thread NPT 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 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
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		PX2-1	PX2-2
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	-----
Declaration of Conformity		CE_PX2-1_EX_1911	CE_PX2_2_Zone2_1808
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 pro- tection) 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, indoors 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	

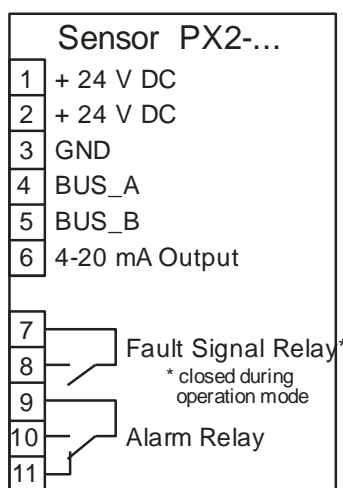
Gas type	Ordering No.	Measuring range	Display resolution	Repeatability	t ₉₀	Zero-point variation	Temperature range	Humidity range (non-condensing)	Life time ¹ in air	Relative Gas density	Calibration interval ¹
	PX2-SX1-		% / ppm	<± % Sig.	≤ sec.	± % LEL / % vol	°C	% RH	> years	Air = 1	Months
CH ₄	I400-A	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



ORDER INFORMATION

PX2-SX1-	X-	X-	XXXX-X-XXXX-X	XX	SENSOR EXCHANGE HEAD ¹			
				P1	Aluminum die-cast housing for 1x cable entry incl. cable gland			
				P3	Aluminum die-cast housing for 3x cable entries incl. 1x gland			
								Sensor housing
					Gas type	Measuring range	Gas density (air = 1)	Mounting height
				I400-A**	Methane, CH ₄	0–100 % LEL	0.55	Ceiling
				I400-B**	Methane, CH ₄	0–100 % vol	0.56	Ceiling
				I480-A**	Propane, C ₃ H ₈	0–100 % LEL	1.55	Floor
				I464-B**	Carbon dioxide, CO ₂	0–5 % vol	1.53	0.6–1.5 m (2–5 ft.)
				I464-D**	Carbon dioxide, CO ₂	0–5000 ppm	1.53	0.6–1.5 m (2–5 ft.)
				I464-F**	Carbon dioxide, CO ₂	0–10 % vol	1.53	0.6–1.5 m (2–5 ft.)
								Gas type/ Measuring range/ Gas density Mounting height
				0	Without options			
				1	Relay set (2)			
				2	LC Display			
				3	Relay set (2) and LC Display			
								Options
				1	Zone 1 and 2			
				2	Zone 2			
								ATEX Zone

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

** Testing by the manufacturer (Declaration of Conformity)

ACCESSORIES

Metal cable gland for zone 1 and 2

Order Number: ZU-PX2-CG-SN

Plastic cable gland for zone 2

Order Number: ZU-PX2-CG-PL