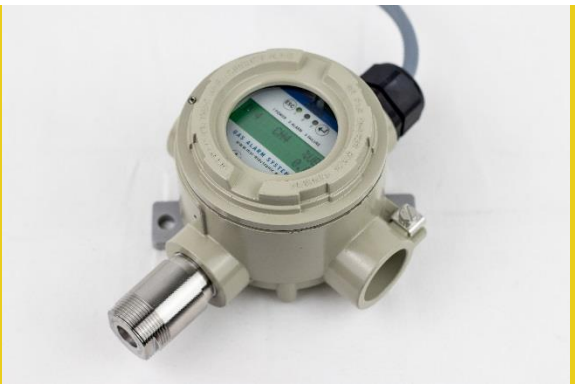
PERFECT SOLUTIONS FOR **GAS ALARM** SYSTEMS

Technical Datasheet



PolyXeta®2

Sensor PX2-1-IR (Zone 1 and 2)
Sensor PX2-2-IR (Zone 2)

with Infrared Sensor Element

YouTube Video

SAFETY FIRST

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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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 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, 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 ≤ 500 Ω 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 Ordering Information
Sensor element	Inside gold-plated infrared sensor
Measuring range	See Ordering Information
Response time	t_{90} ≤ 60 s (R32)
Response time t_{90}	< 90 sec.
Accuracy	+/- 3 % for < 50 % of range +/- 5 % for > 50 % of range
Repeatability	+/- 10 % of signal
Warm-up to operation	< 60 sec.
Warm-up to specification	< 180 sec.
Life expectancy	> 5 years/ normal operating environment
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 ¾" 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
Expected lifetime[1]	Max. 6 months
Pressure range	800 to 1200 mbar (80 to 120 kPa)
Air velocity	< 6 m/sec.
PHYSICAL CHARACTERISTICS	
Enclosure P1 and 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 mm², 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).

ATEX MARKING	PX2-1	PX2-2
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	----------
Declaration of Conformity	----------	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 protection) Ex d IEC 60079-0, -1	----------
Certificates	EN 50402, CSA Certificate Class I, Div. 1 (only enclosure)	
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.

ORDER INFORMATION

PX2- **SX2-**	**X-** **1-**	**X-**	**IXXX-X-** **IXXX-X**	**XX**	**SENSOR** **EXCHANGE HEAD**[1]	
				P1	Aluminum die-cast housing for one cable entry	
				P3	Aluminum die-cast housing for three cable entries	**Sensor housing**
			I400-A**	Methane	CH_4 Infrared 0–100 % LEL	
			I480-A**	Propane	C_3H_8 Infrared 0–100 % LEL	
			I464-B**	Carbon Dioxide	CO_2 Infrared 0–5 Vol %	
			I464-D**	Carbon Dioxide	CO_2 Infrared 0–5000 ppm	**Gas type / range**
		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)

ELEKTRICAL CONNECTION