

## PolyXeta®2



# Sensor with infrared sensor head, zone 1, PX2-1-IR

# Sensor with infrared sensor head, zone 2, PX2-2-IR

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.



Sensor, zone 1, without display



Sensor, zone 1, with LCD display

## 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 IEC Ex certificates MSR-Electronic for electrical Ex protection
- **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
- 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
- LCD display with status LEDs (optional)
- Alarm and fault signal relay (optional)



Sensor, zone 2, without display



Sensor, zone 2, with LCD display



**PolyXeta®2**



# Sensor with infrared sensor head PX2-IR

**SPECIFICATIONS**

<b>ELECTRICAL</b>	
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
<b>SENSOR DATA</b>	
Gas type	See Ordering Information
Sensor element	Inside gold-plated infrared sensor
Measuring range	See Ordering Information
Response time t <sub>90</sub>	< 30 sec.
Accuracy	+/- 3 % for < 50 % of range +/- 5 % for > 50 % of range
Repeatability	0.1 % of range
Warm-up to operation	< 60 sec.
Warm-up to specification	< 180 sec.
<b>SENSOR HEAD HOUSING</b>	
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
<b>ENVIRONMENTAL CONDITIONS</b>	
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	800 to 1200 mbar (80 to 120 kPa)
Air velocity	< 6 m/sec.
<b>PHYSICAL CHARACTERISTICS</b>	
Enclosure P1 & 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	1 x resp. 3 x ¼ in. (Ansi B1.20.1)
Wire connection	Spring-type terminal, 0.08 to 2.5 mm <sup>2</sup> , AWG 28 - 12
Wire length	Max. load 500 Ω, (= wire resistance + controller input resistance)
<b>ATEX MARKING</b>	
EC-type examination certificate	<b>PX2-1</b> <b>PX2-2</b> ⊕II2G Ex db IIC T4 Gb, CE 0158,                      ⊕II3G Ex nA IIC T4 Gc 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	EN 50402, CSA Certificate Class I, Div. 1 (only enclosure)
<b>WARRANTY</b>	1 year on sensor (not if poisoned or overloaded), 2 years on device

All specifications were collected under optimal test conditions.



PolyXeta®2



# Sensor with infrared sensor head PX2-IR

**ORDERING INFORMATION**

Sensor **PX2-X- X -IXXX-X- XX**

Exchange head<sup>1</sup> **SX1-1- -IXXX-X**

- P1** Aluminum die-cast housing for one cable entry
- P3** Aluminum die-cast housing for three cable entries

**OPTIONS**

- Without option **0 I400-A\*\***
- Relay set (2) **1 I480-A\*\***
- LCD display **2 I495-A\*\***
- Relay set (2) + LCD display **3 I464-B\*\***

GASTYPE	Sensor type	Measuring range
Methane CH <sub>4</sub>	Infrared	0-100 % LEL
Propane C <sub>3</sub> H <sub>8</sub>	Infrared	0-100 % LEL
Acetylene C <sub>2</sub> H <sub>2</sub>	Infrared	0-100 % LEL
Carbon Dioxide CO <sub>2</sub>	Infrared	0-5 Vol%

- Zone 1 **1**
- Zone 2 **2**

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

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

**ELECTRICAL CONNECTION**

