

## 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



MSR-Electronic GmbH :: Würdingerstr. 27 + 27A :: 94060 Pocking :: Germany  
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Up-to-date data sheets and user manuals can be found in the download area of [www.msr-24.com](http://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 ≤ 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	Combustible gases
Sensor element	Pellistor
Measuring range	See Ordering Information
Response time t <sub>90</sub>	≤ 20 sec. for CH <sub>4</sub>
Accuracy	± 1 % of measuring range (CH <sub>4</sub> )
Repeatability	± 2 % of measuring range
Stabilization time	300 sec.
Warm-up time	Measuring mode after 120 sec.

### 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
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 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)	

### ATEX MARKING

	PX2-1	PX2-2
EC-type examination certificate	⊕II2G Ex db IIC T4 Gb, CE 0158, BVS 15 ATEX E 129 X (electrical Ex protection) Ex d EN60079-0, -1	⊕II3G Ex nA IIC T4 Gc Electrical Ex protection: Ex n EN60079-15

### CERTIFICATES

	IECEx 16.0038 X (electrical Ex protection) Ex d IEC 60079-0, -1	-----
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### 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
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All specifications were collected under optimal test conditions



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ORDERING INFORMATION

Sensor **PX2-X- X -XXXXX-A- XX**

Exchange head<sup>1</sup> **SX1-1- -XXXXX-A**

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

OPTIONS

Without option **0**  
 Relay set (2) **1**  
 LCD display **2**  
 Relay set (2) + LCD display **3**

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

GASTYPE	Sensor type	Measuring range
<b>P3400-A*</b> Methane CH <sub>4</sub>	Pellistor	0-100 % LEL
<b>P3402-A*</b> LPG	Pellistor	0-100 % LEL
<b>P3408-A**</b> Ammonia NH <sub>3</sub>	Pellistor	0-100 % LEL
<b>P3410-A*</b> Ethylene C <sub>2</sub> H <sub>4</sub>	Pellistor	0-100 % LEL
<b>P3415-A**</b> Cyclohexane C <sub>6</sub> H <sub>12</sub>	Pellistor	0-100 % LEL
<b>P3420-A*</b> Ethane C <sub>2</sub> H <sub>6</sub>	Pellistor	0-100 % LEL
<b>P3425-A**</b> Ethyl Alcohol C <sub>2</sub> H <sub>5</sub> OH	Pellistor	0-100 % LEL
<b>P3427-A*</b> Ethyl Acetate C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	Pellistor	0-100 % LEL
<b>P3430-A**</b> Benzene C <sub>6</sub> H <sub>6</sub>	Pellistor	0-100 % LEL
<b>P3435-A*</b> n-Hexane C <sub>6</sub> H <sub>14</sub>	Pellistor	0-100 % LEL
<b>P3440-A*</b> Hydrogen H <sub>2</sub>	Pellistor	0-100 % LEL
<b>P3448-A**</b> Butyl Acetate C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>	Pellistor	0-100 % LEL
<b>P3450-A**</b> Methanol CH <sub>3</sub> OH	Pellistor	0-100 % LEL
<b>P3458-A**</b> Methyl Ethyl Ketone C <sub>4</sub> H <sub>8</sub> O	Pellistor	0-100 % LEL
<b>P3460-A*</b> Iso/n-Butane C <sub>4</sub> H <sub>10</sub>	Pellistor	0-100 % LEL
<b>P3468-A**</b> Isobutyl Alcohol C <sub>4</sub> H <sub>10</sub> O	Pellistor	0-100 % LEL
<b>P3472-A**</b> Cyclopentan C <sub>5</sub> H <sub>10</sub>	Pellistor	0-100 % LEL
<b>P3473-A**</b> Methyl Acetate C <sub>3</sub> H <sub>6</sub> O <sub>2</sub>	Pellistor	0-100 % LEL
<b>P3475-A*</b> Iso/n-Pentane C <sub>5</sub> H <sub>12</sub>	Pellistor	0-100 % LEL
<b>P3480-A*</b> Propane C <sub>3</sub> H <sub>8</sub>	Pellistor	0-100 % LEL
<b>P3480-B**</b> Propane C <sub>3</sub> H <sub>8</sub>	Pellistor	0-30 % LEL
<b>P3482-A*</b> Isopropyl Alcohol C <sub>3</sub> H <sub>8</sub> O	Pellistor	0-100 % LEL
<b>P3484-A**</b> Propyl Alcohol C <sub>3</sub> H <sub>8</sub> O	Pellistor	0-100 % LEL
<b>P3485-A*</b> Acetone C <sub>3</sub> H <sub>6</sub> O	Pellistor	0-100 % LEL
<b>P3490-A*</b> Toluene C <sub>7</sub> H <sub>8</sub>	Pellistor	0-100 % LEL
<b>P3491-A**</b> n-Heptane C <sub>7</sub> H <sub>16</sub>	Pellistor	0-100 % LEL
<b>P3496-A**</b> Petrol Vapours	Pellistor	0-100 % LEL

\* Metrological testing according to EN 60079-29-1 by DEKRA EXAM  
 \*\* 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.

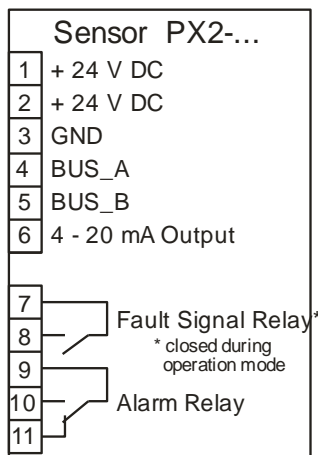


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## ELECTRICAL CONNECTION



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