



PolyXeta®2

Sensor for toxic gases in zone 1

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 oxygen and toxic gases and vapors by means of an electrochemical sensor element (el.ch.) or an infrared sensor element. The calibration of sensors without LCD display is carried out via the calibration device Cal PX or the PC software PC-Soft 80. 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 sensors with LCD display changes from green to red.



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. 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
- ATEX metrical test & SIL2 safety functions 4 – 20 mA, RS485 and relay
- Type “Ex d” with flame-proof enclosure
- 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 with LCD display





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SPECIFICATIONS

ELECTRICAL

Power supply	16 – 28 V DC, 20 – 29 V AC
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	Toxic gases & oxygen	
Sensor element	Electrochemical	Infrared
Measuring range	See Ordering Information	0 – 100 % LEL
Response time	$t_{90} \leq$ depending on gas type	$t_{90} \leq 30$ sec.
Accuracy	Depending on gas type	± 1 % below 25% of measuring range
Repeatability	Depending on gas type	± 2 % of measuring range
Stabilization time	300 sec.	900 sec.
Warm-up time	Measuring mode after 120 sec.	Measuring mode after 60 sec.

ENVIRONMENTAL CONDITIONS

Humidity	20 to 90% RH (not condensing)
Operating temperature	-25 °C to +60 °C
Storage temperature	-5 °C to +30 °C
Pressure range	800 to 1200 mbar (80 to 120 kPa)
Air velocity	< 6 m/sec.

PHYSICAL CHARACTERISTICS

Case / colour	Die-cast aluminium / light grey RAL 7032
Dimensions (d x H)	95 x 82 mm
Weight	Ca. 1.3 kg
Protection class	Housing protection IP66 to IP68 (depending on the cable glands used) Gas inlet IP64, with option splash-proof IP65 (available end of 2016)
Mounting	Wall mounting (sensor head downwards)
Cable entry	1 x 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)

ATEX MARKING

EC-type examination certificate	Ex II2G Ex d IIC T4 Gb, CE 0158
CERTIFICATES	BVS 15 ATEX E 129 X (electrical Ex protection) Ex d EN60079-0, -1 Metrological approval: (pending) EN 50104 für O ₂ Functional safety (SIL2) (pending) EN 50402 EN 61508-1, -2, -3 EN 50271

WARRANTY

1 year on material and workmanship (without the sensor)





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ORDERING INFORMATION

PX2 - 1 - X -XXXXX-X

OPTIONS

Without option

Relay-set (2)

LCD display

Relay set (2) + LCD display

0
1
2
3

E1110-H
E1125-A
E1125-B
E1125-D
C1129-C
E1130-B
E1189-C
C1193-B
C1193-D
E1196-B
E1197-A
E1195-A
E1195-B
I1164-A

GAS TYPE

Carbon monoxide CO
Ammonia NH₃
Ammonia NH₃
Ammonia NH₃
Nitrogen monoxide NO
Nitrogen dioxide NO₂
Ethylene C₂H₄
Chlorine Cl₂
Chlorine Cl₂
Sulphur dioxide SO₂
Hydrogen sulphide H₂S
Oxygen O₂
Oxygen O₂
Carbon dioxide CO₂

Sensor type

El. Chem.
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El. Chem.
El. Chem.
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El. Chem.
El. Chem.
Infrared

Measuring range

0-500 ppm
0-100 ppm
0-200 ppm
0-1000 ppm
0-100 ppm
0-20 ppm
0-200 ppm
0-5 ppm
0-20 ppm
0-20 ppm
0-50 ppm
0-25 vol %
0-21 vol %
0-5 vol %

ELECTRICAL CONNECTION

