PolyXeta®2

Sensor for toxic gases in zone 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 on oxygen and toxic gases and vapors by means of a 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 outside by a permanent magnet without opening the housing. In case of an alarm or fault the backlight of sensors with LCD display switches from green to red.

Sensor without 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 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
- 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)

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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 ≤ 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	Oxygen and toxic gases	
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 / color	Die-cast aluminum / 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 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)	
ATEX MARKING	Ⓔx II2G Ex d IIC T4 Gb, CE 0158	
EC-type examination certificate	BVS 15 ATEX E 129 X (electrical Ex protection)	
CERTIFICATES	Ex d EN60079-0, -1 Metrological approval: (pending) EN 60079-29-1 for Ex gases Functional safety (SIL2) (pending) EN 50402 EN 61508-1, -2, -3 EN 50271	
WARRANTY	1 year on material and processing (without sensor)	

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ORDERING INFORMATION

PX2 - 2 - X -XXXXX-X

OPTIONS		GAS TYPE			Sensor type	Measuring range
Without option	0	E1110-H	Carbon monoxide	CO	El. Chem.	0-500 ppm
Relay set (2)	1	E1125-A	Ammonia	NH_3	El. Chem.	0-100 ppm
LCD display	2	E1125-B	Ammonia	NH_3	El. Chem.	0-200 ppm
Relay set (2) + LCD display	3	E1125-D	Ammonia	NH_3	El. Chem.	0-1000 ppm
		E1129-C	Nitrogen monoxide	NO	El. Chem.	0-100 ppm
		E1130-B	Nitrogen dioxide	NO_2	El. Chem.	0-20 ppm
		E1189-C	Ethylene	C_2H_4	El. Chem.	0-200 ppm
		E1193-B	Chlorine	Cl_2	El. Chem.	0-5 ppm
		E1193-D	Chlorine	Cl_2	El. Chem.	0-20 ppm
		E1196-B	Sulphur dioxide	SO_2	El. Chem.	0-20 ppm
		E1197-A	Hydrogen sulphide	H_2S	El. Chem.	0-50 ppm
		E1195-A	Oxygen	O_2	El. Chem.	0-25 vol%
		E1195-B	Oxygen	O_2	El. Chem.	0-21 vol%
		I1164-A	Carbon dioxide	CO_2	Infrared	0-5 vol%

ELECTRICAL CONNECTION