PolyXeta®2

Sensor for combustible 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 to detect combustible gases and vapors within the lower explosive limit (LEL) by means of a catalytic sensor element (pellistor) 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 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 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 controller 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)

MSR-Electronic GmbH ::: Würdingerstr. 27 + 27A ::: 94060
Pocking ::: Germany
Technical changes and errors reserved

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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 3.2 < 4 mA = underrange > 20 – 21,6 mA = overrange 2.5 mA = service mode 2 mA = fault Low > 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	Infrared
Measuring range	0 – 100 % LEL	0 – 100 % LEL
Response time	t_{90} ≤ 20 sec. for CH_4	t_{90} ≤ 30 sec.
Accuracy	± 1 % of measuring range (CH_4)	± 1 % below 25% of measuring range
Repeatability	± 2 % of measuring range	± 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 55 °C (reduced measuring operation up to +65 °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	IP 54	
Mounting	Wall mounting (sensor head downwards)	
Cable entry	1 x ¾ in., plastic, ATEX certified	
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 / IEC Ex approval	CE 0158, Ⓔx II2G Ex d IIC T4 (pending)	
Certificates	Electrical Ex protection: Ex d EN60079-0, -1 (head, zone 2) Metrological approval: (pending) EN 60079-29-1 for Ex gases Functional safety (SIL2) EN 50402 EN 61508-1, -2, -3 EN 50271	
WARRANTY	1 year on material and processing (without the sensor)	

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ORDERING INFORMATION

PX2 - 2 - X -XXXXX-A

OPTIONS

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

GAS TYPE			Sensor type	Measuring range
P3400-A*	Methane	CH_4	Pellistor	0-100 %LEL
P3402-A*	LPG Liquefied Petroleum Gas		Pellistor	0-100 %LEL
P3405-A*	Acetylene	C_2H_2	Pellistor	0-100 %LEL
P3408-A**	Ammonia	NH_3	Pellistor	0-100 %LEL
P3410-A*	Ethylene	C_2H_4	Pellistor	0-100 %LEL
P3425-A*	Ethyl Alcohol	C_2H_5OH	Pellistor	0-100 %LEL
P3427-A*	Ethyl Acetate	$C_4H_8O_2$	Pellistor	0-100 %LEL
P3435-A*	Hexane	C_6H_{14}	Pellistor	0-100 %LEL
P3440-A*	Hydrogen	H_2	Pellistor	0-100 %LEL
P3450-A*	Methanol	CH_3OH	Pellistor	0-100 %LEL
P3458-A*	Methyl Ethyl Ketone	C_4H_8O	Pellistor	0-100 %LEL
P3460-A*	Butane	C_4H_{10}	Pellistor	0-100 %LEL
P3472-A*	Cyclopentane	C_5H_{10}	Pellistor	0-100 %LEL
P3475-A*	Pentane	C_5H_{12}	Pellistor	0-100 %LEL
P3476-A*	Isopentane	C_5H_{12}	Pellistor	0-100 %LEL
P3480-A*	Propane	C_3H_8	Pellistor	0-100 %LEL
P3482-A*	Isopropyl Alcohol	C_3H_8O	Pellistor	0-100 %LEL
P3484-A*	Propyl Alcohol	C_3H_8O	Pellistor	0-100 %LEL
P3485-A*	Acetone	C_3H_6O	Pellistor	0-100 %LEL
P3490-A*	Toluene	C_7H_8	Pellistor	0-100 %LEL
P3491-A**	n-Heptane	C_7H_{16}	Pellistor	0-100 %LEL
P3496-A**	Petrol Vapors		Pellistor	0-100 %LEL
P3498-A**	JP8		Pellistor	0-100 %LEL
I3400-A*	Methane	CH_4	Infrared	0-100 %LEL
I3480-A*	Propane	C_3H_8	Infrared	0-100 %LEL

* approval according to EN 60079-29-1
** Without inspection and approval according to EN 60079-29-1

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ELECTRICAL CONNECTION