



## PolyXeta®2

# Sensor for combustible gases in zone 1, sealed

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 the outside by a permanent magnet without opening the housing. In case of an alarm or failure the backlight of sensors with LCD display changes from green to red. The gas sensor is sealed and thus the housing in zone 1 can be opened during operation at any time (Ex demb[ib]).



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 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 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 demb [ib]" for opening in Zone 1 without switching-off, pressure-resistant enclosure
- Continuous monitoring
- Microprocessor with 12 bit converter resolution
- Self-monitoring system
- Easy calibration, opening of the enclosure during operation possible (demb [ib])
- 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 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	Combustible gases	
Sensor element	Pellistor	Infrared
Measuring range	0 – 100 % LEL	0 – 100 % LEL
Response time	$t_{90} \leq 20$ sec. for CH <sub>4</sub>	$t_{90} \leq 30$ sec.
Accuracy	$\pm 1$ % of measuring range (CH <sub>4</sub> )	$\pm 1$ % below 25% of measuring range
Repeatability	$\pm 2$ % of measuring range	$\pm 2$ % 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 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 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 $\Omega$ (= wire resistance + controller input resistance)
ATEX / IEC Ex approval	CE 0158, Ex II2G Ex demb [ib] IIC T4 (pending)
CERTIFICATES	Electrical Ex protection: Ex demb[ib] EN60079-0, -1, -11, -18 (zone 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 workmanship (without the sensor)





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## ORDERING INFORMATION

PX2 - 5 - X -XXXXX-A

### OPTIONS

Without option

Relay-set (2)

LCD display

Relay set (2) + LCD display

		GAS TYPE		Sensor type	Measuring range
0	P3400-A*	Methane	CH <sub>4</sub>	Pellistor	0-100 % LEL
1	P3402-A*	LPG Liquefied Petroleum Gas		Pellistor	0-100 % LEL
2	P3405-A*	Acetylene	C <sub>2</sub> H <sub>2</sub>	Pellistor	0-100 % LEL
3	P3408-A**	Ammonia	NH <sub>3</sub>	Pellistor	0-100 % LEL
	P3410-A*	Ethylene	C <sub>2</sub> H <sub>4</sub>	Pellistor	0-100 % LEL
	P3425-A**	Ethyl Alcohol	C <sub>2</sub> H <sub>5</sub> OH	Pellistor	0-100 % LEL
	P3427-A*	Ethyl Acetate	C <sub>4</sub> H <sub>8</sub> O <sub>2</sub>	Pellistor	0-100 % LEL
	P3435-A*	Hexane	C <sub>6</sub> H <sub>14</sub>	Pellistor	0-100 % LEL
	P3440-A*	Hydrogen	H <sub>2</sub>	Pellistor	0-100 % LEL
	P3450-A**	Methanol	CH <sub>3</sub> OH	Pellistor	0-100 % LEL
	P3458-A**	Methyl Ethyl Ketone	C <sub>4</sub> H <sub>8</sub> O	Pellistor	0-100 % LEL
	P3460-A*	Butane	C <sub>4</sub> H <sub>10</sub>	Pellistor	0-100 % LEL
	P3472-A*	Cyclopentane	C <sub>5</sub> H <sub>10</sub>	Pellistor	0-100 % LEL
	P3475-A*	Pentane	C <sub>5</sub> H <sub>12</sub>	Pellistor	0-100 % LEL
	P3476-A**	Isopentane	C <sub>5</sub> H <sub>12</sub>	Pellistor	0-100 % LEL
	P3480-A*	Propane	C <sub>3</sub> H <sub>8</sub>	Pellistor	0-100 % LEL
	P3482-A*	Isopropyl Alcohol	C <sub>3</sub> H <sub>8</sub> O	Pellistor	0-100 % LEL
	P3484-A**	Propyl Alcohol	C <sub>3</sub> H <sub>8</sub> O	Pellistor	0-100 % LEL
	P3485-A*	Acetone	C <sub>3</sub> H <sub>6</sub> O	Pellistor	0-100 % LEL
	P3490-A*	Toluene	C <sub>7</sub> H <sub>8</sub>	Pellistor	0-100 % LEL
	P3491-A**	n-Heptane	C <sub>7</sub> H <sub>16</sub>	Pellistor	0-100 % LEL
	P3496-A**	Petrol Vapours		Pellistor	0-100 % LEL
	P3498-A**	JP8		Pellistor	0-100 % LEL
	I3400-A*	Methane	CH <sub>4</sub>	Infrared	0-100 % LEL
	I3480-A*	Propane	C <sub>3</sub> H <sub>8</sub>	Infrared	0-100 % LEL

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

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





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## ELECTRICAL CONNECTION

