



## PolyXeta®2

# Sensor Series PX-2 for combustible gases

## in ATEX Zone 1, Zone 2 and commercial applications

Microprocessor based gas sensor with 4 – 20 mA / RS485-Modbus output signal, alarm and fault relays (all certified SIL2) for monitoring the ambient air and detecting combustible gases and vapours within the lower explosion limit (LEL) by means of a catalytic sensor element (pellistor). The calibration for sensor types without LC display is possible via the handheld calibration keypad XT-2. The models with LC display have got an integrated calibration routine that can be started by a permanent magnet without opening the instrument. The gas sensor is available as „Ex demb[ib]“ type (even in Ex zone 1, you can open the housing during operation) and as „Ex d“ type.

### APPLICATION

The PolyXeta®2 sensor is used in industrial ranges like oil/gas and petrochemical industry, power plants etc. in Ex Zone 1 and 2. The PolyXeta®2 sensor is also suitable for commercial ranges like gas transfer stations etc. Due to the 4 to 20 mA / RS 485-Modbus output signal, the sensor is compatible to the PolyGard® gas controller series by MSR-Electronic as well as to any other controller or automation system. As an option, the PolyXeta®2 sensor is available with LCD display and relay output.

### FEATURES

- ATEX and IEC Ex certifications MSR-Electronic for electrical Ex protection
- Type “Ex demb[ib]“ for opening the housing in Zone 1 without switching off the device
- Type „Ex d“ with flame-proof enclosure
- ATEX Metrical test & SIL2 for safety functions 4 - 20 mA / RS485 / relay
- Continuous monitoring
- Microprocessor with 12 bit converter resolution
- Self-diagnostic procedure
- Easy calibration, opening of the housing is possible during operation (demb[ib])
- Calibration service by exchange of the sensor head
- 4 – 20 mA proportional output
- Serial interface to central control
- Reverse polarity protected
- Overload-proof
- LC display with status LEDs (optional)
- Alarm and fault message relay (optional)





## SPECIFICATIONS - SENSOR BOARD (SB)

### 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 operational state, alarm and communication
Analog output signal (active)	Proportional, overload and short-circuit proof, load $\leq 500 \Omega$ 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 relays (optional)	Max. 30 V AC/DC, 1 A
LCD (optional)	2 x 16 characters, 3 Status LEDs, 4 menu operating elements

### SENSOR PERFORMANCE

Gas type	Combustible gases
Sensor element	Pellistor
Measuring range	0 - 100 % LEL
Response time	$t_{90} \leq 20$ sec. for CH <sub>4</sub>
Accuracy	$\pm 1$ % of measuring range (CH <sub>4</sub> )
Repeatability	$\pm 2$ % of measuring range
Stabilisation time	300 sec.
Warm-up time	Measuring operation after 120 sec.

### OPERATING ENVIRONMENT

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

Enclosure material / colour	Die-cast aluminium / light grey RAL 7032
Dimensions (d x H)	95 x 82 mm
Weight	Ca. 1.3 kg
Protection class	IP54
Mounting	Wall mounting (sensor head downwards)
Cable entry	1 x $\frac{3}{4}$ in.
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 II 2G Ex demb[ib] IIC T4 (pending)
------------------------	--

### CERTIFICATES (pending)

	Electrical Ex protection Ex demb[ib] EN 60079-0, -1, -11, -18 (Zone 1) Ex d EN 60079-0, -1 (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 workmanship (except for sensor element)
--	--





## ORDER INFORMATION

PX2 – X – X – XXXXX-A

## EX ZONE

- 1 Zone 1
- 2 Zone 2

## OPTIONS

- 1 Relay set
- 2 LCD
- 3 Relay set & LCD

	GAS TYPE	SENSOR ELEMENT	MEASURING RANGE
P3400-A*	Methane, CH <sub>4</sub>	Pellistor	0 - 100 % LEL
P3402-A*	LPG Liquefied Petroleum Gas	Pellistor	0 - 100 % LEL
P3405-A*	Acetylene, C <sub>2</sub> H <sub>2</sub>	Pellistor	0 - 100 % LEL
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*	Iso Pentane, 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*	Iso Propyl 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**	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

\* Test according to EN 60079-29-1

\*\* Without testing according to EN 60079-29-1





**CONNECTION DIAGRAM**

