



PolyGard®2

## Sensor Board MSB2

**Sensor board with RS 485 interface, 4 – 20 mA output and further options for integration of the Sensor Cartridge SC2 and/or for connection of analog sensors**

Sensor Board for the connection of max. three sensors in total, two of them may be Sensor Cartridges of the SC2 series via local bus and/or up to three of them analog sensors with 4 to 20 mA signal. The MSB2 provides the power supply of the SC2(s) and makes the measured data available for digital communication and for the 4 to 20 mA output. Communication with the DGC06 controller takes place via the RS 485 field bus interface with DGC06 protocol. The optional alarm relays can be controlled both via the DGC 06 controller and locally via the measurement signals. The digital input for acknowledgment or test function and other options such as display or various communication protocols for direct connection to superordinate BMS ensure the adaptation to the wide range of applications in gas detection technology.

The SC is connected to the local bus via a plug connection enabling simple SC exchange instead of an on-site calibration. The internal X-Change routine recognizes the exchanged SC after the exchanging process and starts the measurement mode automatically. An LED indicates the correct procedure of the exchange operation. As an alternative, the on-site calibration via the DGC06 Service Tool can be used with the integrated, comfortable calibration routine.



Sensor board with 1x SC in housing A

### APPLICATION

The PolyGard®2 Sensor Board MSB2 is used for integration of the SC2 Sensor Cartridges and for transmission or local processing of the measured values.

### FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal functional control with integrated Hardware Watchdog
- Data / measured values in  $\mu$ C Sensor Cartridge, therefore simple exchange of SC uncalibrated  $\leftrightarrow$  calibrated
- Local bus connection for up to two different Sensor Cartridges SC2 and/or up to three analog inputs 4-20 mA, e.g. MC2 series (max. 3 sensors in total)
- Software according to SIL2 compliant development process
- Modular technology (pluggable and exchangeable)
- Easy maintenance and calibration by exchange of the sensor cartridge or by comfortable on-site calibration
- Serial RS 485 interface with protocol for DGC06. Modbus as option.
- Analog input 4 – 20 mA analog for external sensors
- 4 – 20 mA analog output with selectable signal output for special mode, fault etc.
- Digital inputs
- LCD display (option)
- Three relays with change-over contact, potential-free, max. 250 V AC, 5 A, (option), local control or via DGC06
- Reverse polarity protected, overload and short-circuit proof
- IP 65 version
- Conformity to
  - EN 50271,
  - EN 61010-1;
  - ANSI/UL 61010 1;
  - CAN/CSA-C22.2 No. 61010-1





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## SPECIFICATIONS

### Electrical

Power supply 16 – 29 V DC, reverse-polarity protected

Power consumption (24 V DC) only MSB2 board 100 mA (2.4 VA)

### Analog input

Input signal 4 - 20 mA, overload and short-circuit proof, input resistance 200 Ω

Tension for external analog sensors 24 V DC, max. 100 mA

### Digital input

Signal input Potential-free contact

Function Acknowledge or test function

### Analog output signal

Proportional, overload and short-circuit proof, load ≤ 500 Ohm

4 - 20 mA = measuring range

3.0 < 4 mA = underrange

> 20 - 21.2 mA = overrange

2.0 mA = fault

Output for local bus

5 V DC, 250 mA max.

Overload, short-circuit and reverse-polarity protected

### General

Temperature range -35 °C to +50 °C (-31 °F to +122 °F)

Humidity range 15 - 95 % RH not-condensing

Storage temperature +5 °C to +30 °C (+41 °F to +86 °F)

Storage time 6 months

### Serial interface

Local bus 1-wire / 19200 Baud

Field bus RS 485 / 19200 Baud

Tool bus 2-wire / 19200 Baud

### Physical

Protection class IP 65

Wire connection: Field bus Screw-type terminal min. 0.25 mm<sup>2</sup>, max. 2.5 mm<sup>2</sup>

Local bus 3-pin connector

Digital input, analog output Screw-type terminal min. 0.25 mm<sup>2</sup>, max. 1.3 mm<sup>2</sup>

Power supply, relays Screw-type terminal min. 0.25 mm<sup>2</sup>, max. 2.5 mm<sup>2</sup>

### Directives

EMC directives 2014/30/EU

Low voltage directive 2014/35/EU

CE

Conformity to:

EN 50271

EN 61010-1:2010

ANSI/UL 61010-1

CAN/CSA-C22.2 No. 61010-1

### Warranty

1 year on material (without sensor element)

### Options

### LCD display

LCD Two lines, 16 characters each, background highlighted in two colours

Operation Menu driven via six push-buttons

Power consumption 5 V, 60 mA, 0.3 VA

### Power relays (3)

250 V AC, 5 A, potential-free, change-over contact (SPDT)

### Modbus protocol RTU RS-485

Transmission of current measured values & alarm stages





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## ORDER INFORMATION

MSB2-	X	X	X	X	X	2	3	X	0
									<b>WARNING DEVICES</b>
									0 Without built-on warning device
									<b>DISPLAY</b>
									0 Without Display
									2 With display/keypad
									<b>ANALOG INPUT</b>
									3 3 x Analog input
									<b>DIGITAL INPUT</b>
									2 2 x Digital input
									<b>OUTPUT SIGNAL – ANALOG / BUS</b>
									2 RS 485 with DGC 06 protocol
									3 Analog output & RS 485 with DGC 06 protocol
									5 Analog output & RS 485 with Modbus protocol
									<b>VISUAL/ AUDIBLE WARNING DEVICES</b>
									0 Without visual / acoustic indicator
									1* Buzzer
									2* Status-LED red
									3* Buzzer & status-LED red
									4* Buzzer & status-LED (red, yellow, green)
									5* Status LED (red, yellow, green)
									<b>ALARM RELAYS</b>
									0 No alarm relays
									3 3 x alarm relays
									<b>POWER SUPPLY</b>
									1* 12 V DC
									2 24 V AC/DC
									5* 90 – 240 V AC / 24 V DC, 5 VA
									7* 90 – 240 V AC / 24 V DC, 15 VA
									8* USV 90 – 240 V AC /12 V DC, 15 VA, 0.8 Ah
									9* USV 90 – 240 V AC /24 V DC, 15 VA, 0.8 Ah
									<b>HOUSING</b>
									0* Without housing
									A Housing type A 90 x 130 x 57 <sup>1</sup>
									C Housing type C 130 x 130 x 75 <sup>1</sup>
									E Housing type E 130 x 130 x 99

\* only on request

<sup>1</sup> Version with display and voltage supply 15 VA only with housing type E

Standard version: MSB2-A-2-0-0-3-2-3-0-0

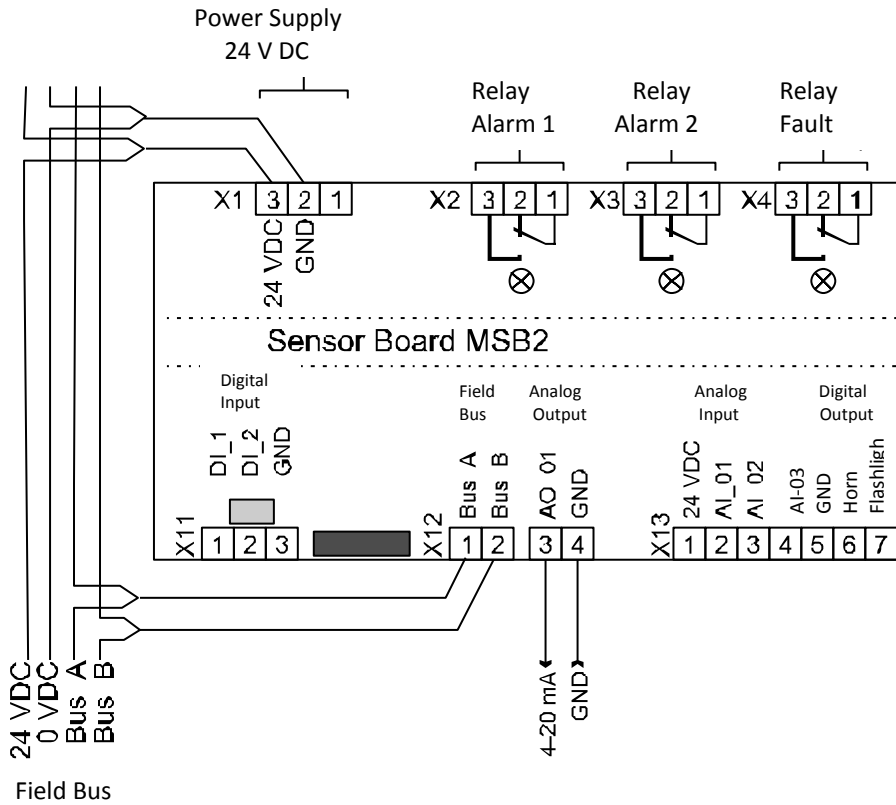




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## ELECTRICAL CONNECTION



Connection to MSB2	SC2 sensors via local bus	Analog sensors with 4-20 mA signal
Number	0	1 - 3
Number	1	0 - 2
Number	2	0 - 1

Table connection options for sensors

