



PolyGard®2

Sensor Board MSB2

Sensor board with RS 485 interface, 4 – 20 mA output, relays 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 different 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 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 μ C Sensor Cartridge, therefore simple exchange of SC uncalibrated <> 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
- Three relays with change-over contact, potential-free, max. 240 V AC, 5 A, local control or via DGC06
- LCD display (option)
- Reverse polarity protected, overload and short-circuit proof
- IP 65 version
- Conformity to
 - EN 50271,
- ANSI/UL 61010 1 & CAN/CSA-C22.2 No. 61010-1 (optional)
- Duct mounting kit (accessory): See datasheet SC2 / MC2





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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

Power relays (3)

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

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 +40 °C (+41 °F to +104 °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 (delivery status*)	IP 65
Wire connection: Field bus	Screw-type terminal min. 0.25 mm ² , max. 2.5 mm ² (24 to 10 AWG)
Local bus	3-pin connector
Digital input, analog output	Screw-type terminal min. 0.25 mm ² , max. 1.3 mm ² (24 to 16 AWG)
Power supply, relays	Screw-type terminal min. 0.25 mm ² , max. 2.5 mm ² (24 to 10 AWG)

Directives

EMC directives 2014/30/EU
 Low voltage directive 2014/35/EU
 CE
 EN 61010-1:2010
 Conformity to:
 EN 50271
 Option:
 ANSI/UL 61010-1
 CAN/CSA-C22.2 No. 61010-1

Warranty

1 year on sensor (not if poisoned or overloaded)
 2 years on device

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

Modbus protocol RTU RS-485

Transmission of current measured values & alarm stages

*If there are changes to the housing, it has to be re-evaluated.





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ORDER INFORMATION

MSB2- **X X 3 X X 2 3 X 0 X**

FURTHER OPTIONS

- 0** No further options
- A** Version UL/CSA 61010-1

WARNING DEVICES

- 0** Without built-on warning device

DISPLAY

- 0** Without Display
- 2** With display/keypad (not in housing type A)

ANALOG INPUT

- 3** 3 x Analog input

DIGITAL INPUT

- 2** 2 x Digital input

OUTPUT SIGNAL – ANALOG / BUS

- 2** RS 485 with DGC 06 protocol
- 3** Analog output & RS 485 with DGC 06 protocol
- 5** Analog output & RS 485 with Modbus protocol

VISUAL/ AUDIBLE WARNING DEVICES

- 0** Without visual / acoustic indicator
- 4** Buzzer & status-LED (red, yellow, green)

ALARM RELAYS

- 3** 3 x alarm relays

POWER SUPPLY

- 1*** 12 V DC
- 2** 24 V AC/DC
- 5*** 100 – 240 V AC / 24 V DC, 5 VA
- 7*** 100 – 240 V AC / 24 V DC, 15 VA
- 8*** USV 100 – 240 V AC / 12 V DC, 15 VA, 0.8 Ah
- 9*** USV 100 – 240 V AC / 24 V DC, 15 VA, 0.8 Ah

HOUSING

- 0** Without housing
- A** Housing type A 90 x 130 x 57¹
- C** Housing type C 130 x 130 x 75¹
- E** Housing type E 130 x 130 x 99

* only on request

¹ Version with display and voltage supply 15 VA only with housing type E

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

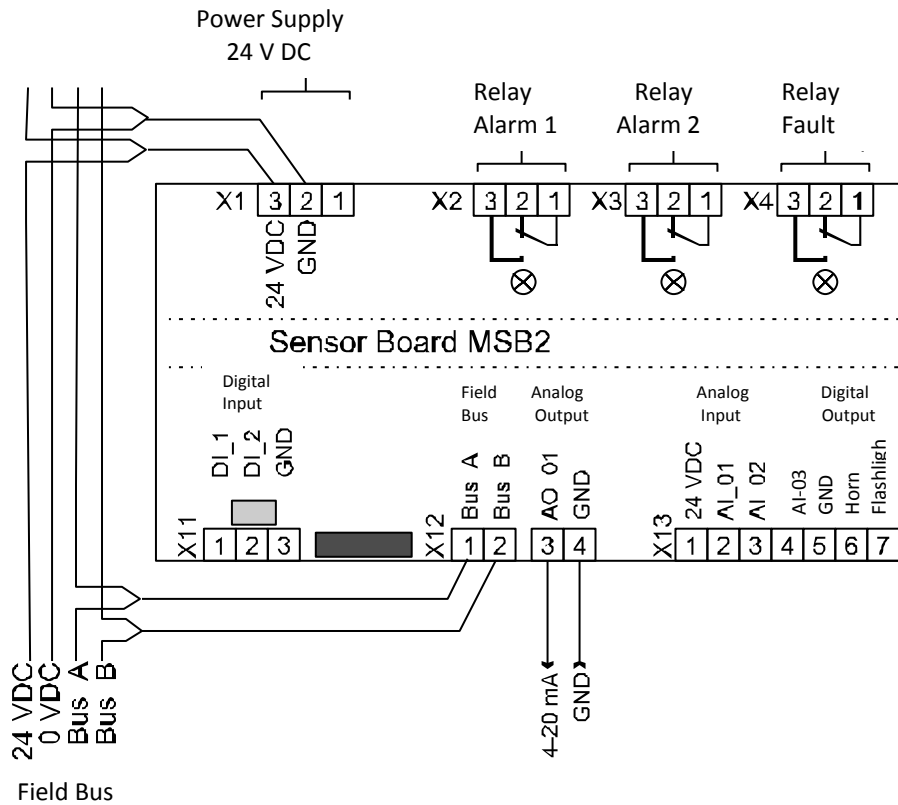




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ELECTRICAL CONNECTION



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

