PERFECT SOLUTIONS FOR **GAS ALARM** SYSTEMS

Technical Datasheet

PolyGard®2

Warning & Sensor Board WSB2

WSB2 YouTube Video

MSR-Electronic GmbH | Buergermeister-Schoenbauer-Str. 13 | D-94060 Pocking

DESCRIPTION

Warning & sensor board with RS 485 interface, 4 to 20 mA output and alarm relay, for integration of the sensor cartridges series SC2 or MC2 for connection to the DGC06 system or in stand-alone operation.

In the standard version, up to three different Sensor Cartridges of the SC2 series can be connected to the WSB Sensor Board via local bus. One analog sensor of the MC2 series can be mounted instead of one SC2. In an optional version, it is possible to connect two SC2 of the same gas type. The WSB2 provides the power supply of the SC2(s) and prepares the measured data for digital communication. Communication with the DGC06 controller takes place via the RS 485 fieldbus interface with DGC06 protocol. The optional alarm relays can be controlled both by the DGC06 controller and locally via the measured values. The digital input for acknowledgment function and further options such as display or various communication protocols for the direct connection to the superior BMS ensure adaptation to the various applications in gas detection technology.

The SC2 is connected to the local bus via a plug connection enabling simple SC2 exchange instead of an on-site calibration. The internal X-Change routine recognizes and the exchanged SC2 during 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 performed with the integrated, comfortable calibration routine.

APPLICATION

The PolyGard®2 WSB2 is used for measuring, monitoring and warning of hazardous gas concentrations in stand-alone operation or in conjunction with the DGC06 system.

FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal functional control with integrated Hardware Watchdog
- Data / measured values stored in µC Sensor Cartridge, therefore simple exchange of SC2 uncalibrated <> calibrated
- Up to three different Sensor Cartridges
- Analog input, 4–20 mA for one analog sensor (then only 2 x SC2 connectable)
- Software & hardware according to SIL2 compliant development process
- Modular technology (plug-in and replaceable)
- IP65 version
- Easy maintenance and calibration by exchange of the sensor cartridge or by comfortable on-site calibration
- Serial RS485 interface with protocol for DGC06. Modbus as option.
- One sensor cartridge can be placed via Remote Board (RB2) at 5 m for adaptation to required mounting height (option)
- 4–20 mA analog output
- One alarm relay with change-over contact, potential-free max. 40 V AC/DC, 0.5 A (option)
- One fault relay, configurable as an alarm relay in addition, change-over contact, potential-free max. 40 V AC/DC, 0,5 A (option)
- Display (option)
- Conformity to:
    - EN 50271
- ANSI/UL 61010 1 & CAN/CSA-C22.2 No. 61010-1 (optional)

SPECIFICATIONS

ELECTRICAL		
Power supply	24 V DC ± 20 % ; reverse polarity protected 24 V AC - 10 % / + 15 %	
Power consumption (24 V DC)	Max. 250 mA (5 VA)	
Overvoltage category	I	
Analog input		
Input signal	4–20 mA, overload and short-circuit proof, input resistance 200 Ω	
Power supply for MC2 analog sensor	24 V DC, max. 100 mA	
Digital input		
Signal input	Potential-free contact	
Function	Acknowledgment function for horn or latching mode of main alarm	
Analog output signal**	Proportional, overload and short-circuit proof, load ≤ 500 Ohm 4–20 mA = measuring range 2.4–4 mA = underrange > 20–21.2 mA = overrange 2.0 mA = fault	
Outgoing line local bus		
Power supply	5 V DC, 250 mA max., overload, short-circuit and reverse-polarity prot.	
SERIAL INTERFACE		
Local bus	1-wire / 19200 Baud	
Field bus	RS 485 / 19200 Baud	
Tool bus	2-wire / 19200 Baud	
AMBIENT CONDITIONS		
Temperature range	-30 °C to +60 °C (-22 °F to 140 °F)	
Humidity range	15–90 % RH not-condensing	
Pollution degree	2 (installation only indoors), not suitable for wet environment	
Permissible height above sea level	1500 m (env. 5000 ft.)	
Storage temperature	+5 °C to +40 °C (41 °F to 104 °F)	
Storage time	6 months	
PHYSICAL		
Housing	**Type A / C / E**	**Type N**
Material	Polycarbonate	ABS
Burning behaviour	UL 94 V2	----
Housing colour	RAL 7032 (light grey)	
Dimensions B x H x T (mm)	94 x 130 x 57 / 130 x 130 x 75 / 130 x 130 x 99	80 x 82 x 56
Weight (kg)		
Protection class (delivery status)*	NEMA 4X (IP65)	IP 65
Installation	Wall mounting	
Knockouts for cable entry	Type A: 2x M12/ 3x M20 / Type C/E: 6x M20/25	1 x M20
Knockouts for installation of SC2/MC2/WAO	Type A: 2 x / Type C & E: 3 x	1 x SC2, Option 1 x WAO
Wire connection:		
Power supply, field bus	Screw-type terminals 0.25 to 2.5 mm²	
Analog in/output; digital input	Screw-type terminals 0.25 to 1.3 mm²	
Relays	Screw-type terminals 0.25 to 1.3 mm²	
Local bus for SC2	3-pin plug connector	
Cable lengths local bus Remote Board	Max. 5 m (16.4 ft.)	
REGULATIONS		
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 und CAN/CSA-C22.2 No. 61010-1	
Warranty	2 years on device 1 year on sensor (not if poisoned or overloaded)	

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

** For dynamic input impedances of the receiver, a coupling resistance of 560 Ω must be inserted in series.

OPTIONS	
ALARM RELAY / FAULT RELAY	
	30 V AC/DC, 0.5 A, potential-free, change-over contact (SPDT)
DISPLAY	
LCD	Two lines, 16 characters each, background highlighted in two colours
Operation	Menu driven via six pushbuttons
Power consumption	5 V, 60 mA, 0.3 VA
STATUS-LED/BUZZER	
Colour / mode	Red / yellow / green (alarm – fault – operation - service)
Acoustic pressure	> 85 dB (A) (0.1 m distance)
Frequency	2300 Hz
Protection class	IP 65
POWER SUPPLY 110 / 230 V AC	
Wide range input	100-240 V AC - 50/60 Hz
Consumption	Max. 25 VA
Overvoltage category	II

All specifications were collected under optimal test conditions.
We confirm compliance with the minimum requirements of the applicable standard.

Note:

The connection of three SC2/MC2 sensor heads with IR sensor is not permitted.

ORDERING INFORMATION

WSB2 - X - X X X X X 1 X X X

0	**No further options**	
A	Version UL/CSA 61010-1 (only hous. type A, C & E)	**Further options**
0	**2 x SC2 mounting slot (different gas types!)**	
1[3]	3 x SC2 mounting slot	
2[3]	2 x SC2 mounting slot & input for remote inst.	
3[3]	2 x SC2 mounting slot for same gas type & input for remote installation	
4[3]	2 x SC2 mounting slot for same gas type	
5[3]*	1 x SSAX1 mounting slot (ATEX conformity)	**Version**
0	**Without display**	
2	With display / keypad	**Display**
1	**Analog input 4-20 mA**	**Analog input**
1	**Digital input**	
2[3]	Digital input with acknowledgement button at the housing	**Digital input**
3	**Analog output & RS 485 with DGC 06& Modbus protocol**	
4	Only RS 485 with DGC-06 & Modbus protocol	
5	Analog output & RS 485 with Modbus protocol (Baud rate select.)	**Output signal (Analog/Bus)**
8	MSR_D_Bus	
0	**Without visual / audible indicator**	**Visual/audible warning devices**
3	Buzzer & status LED (WAO)	
0	**Without alarm relay / fault relay**	
2	With one alarm relay and one fault relay (configurable as alarm relay in addition)	**Alarm relay**
1*	12 V DC	
2[4]	**24 V DC / AC**	
7	100–240 V AC / 24 V DC, 15 VA (not in housing type N or A)	**Power supply**
0	No housing	
A	**Housing type A 94 x 130 x 57**	
C[2]	Housing type C 130 x 130 x 75	
E	Housing type E 130 x 130 x 99	
N[1]	Housing type N 80 x 82 x 56 (only installation of 1 x SC2)	**Housing**

* On request
[1] Not compliant to ANSI/UL 61010-1 and CAN/CSA-C22.2 No. 61010-1
[2] Version with display and voltage supply 15 VA only with housing type E
[3] Not with housing type N
[4] In AC mode, only one **SC2-/MC2** Sensor Cartridge with Pellistor, semiconductor or IR sensor connectable

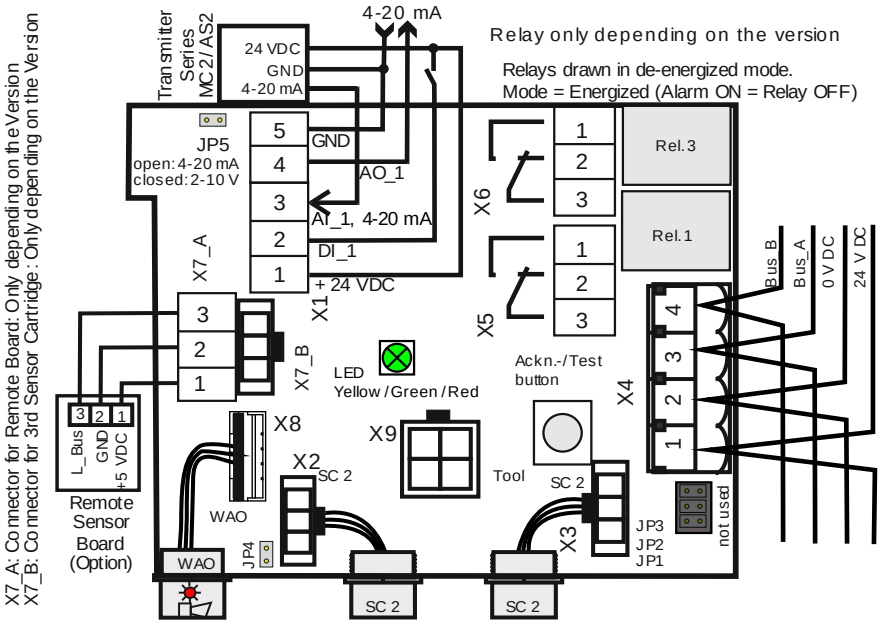
STANDARD VERSION
Order number: WSB2-A-200311000

ORDERING INFORMATION

RB-	**X-**	**1XXXXXXX-**	**XX**	
			0 **No further options** A Version UL/CSA 61010-1	**Options**
		1XXXXXXX	**Remote Board for one SC2 for remote connection at the WSB2**	**Version**
	0 No housing **A** **Housing type A 90 x 130 x 57**			**Housing**

ELECTRICAL CONNECTION

Version 24 V DC



Version 100-230 V AC