

Gas Detection.



Technical Datasheet



PolyGard®2

Warning- and Sensor-Board WSB2

DESCRIPTION

APPLICATION

FEATURES

SPECIFICATIONS

ORDERING INFORMATION

ELECTRICAL CONNECTION



YouTube Video

Specifications subject to change without notice.

PolyGard® is a registered trademark of MSR-Electronic GmbH.
www.msr-electronic.de

■ All Products
■ Made
■ in Germany

DESCRIPTION

Warning and sensor board with RS-485 interface, 4–20 mA output and alarm relay, for integration of the sensor series SC2, MC2 or SSAX1-1 for connection to the DGC-06 system or in stand-alone operation.

In the standard version, up to 3 different sensors of the SC2 series can be connected to the WSB2 sensor board via local bus. 1x analog sensor of the MC2 series can be mounted instead of 1x SC2. In an optional version, it is possible to connect 2x SC2 of the same gas type. Alternatively, 1x ATEX-compliant SSAX1-1 (zone 1) sensor can be connected to one of the SC2 slots. The WSB2 provides the power supply of the SC2/SSAX1-1 and prepares the sensor measured data for digital communication. Communication with the DGC-06 controller takes place via the RS-485 fieldbus interface with DGC-06 protocol. The optional alarm relays can be controlled by the DGC-06 controller or 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 sensor SC2/SSAX1-1 is connected to the local bus via a plug connection enabling simple sensor exchange instead of an on-site calibration. The internal X-Change routine recognizes and the exchanged sensor 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 DGC-06 Service-Tool STL06 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 DGC-06 system.

FEATURES

- Digital measurement value processing incl. temperature compensation
- Internal functional control with integrated Hardware Watchdog
- Data / measured values stored in μC of sensor, therefore simple exchange of SC2 uncalibrated <> calibrated
- Up to 3 different sensors
- Analog input, 4–20 mA for 1x analog sensor (then only 2x SC2 connectable)
- Connection of 1x ATEX-compliant SSAX1-1 sensor (no further sensors connectable)
- Software & hardware according to SIL compliant development process
- Modular technology (plug-in and replaceable)
- IP65 version
- Easy maintenance and calibration by exchange of the sensor or by comfortable on-site calibration
- Serial RS-485 interface with protocol for DGC-06 or Modbus
- 4–20 mA analog output
- 1x alarm relay with change-over contact, potential-free max. 30 V AC/DC, 0.5 A
- 1x fault relay, configurable as an alarm relay in addition, change-over contact, potential-free max. 30 V AC/DC, 0,5 A
- 1x sensor can be placed via Remote Board (RB2) at 5 m for adaptation to required mounting height (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 \pm 20 %; reverse polarity protected 24 V AC - 10 % / + 15 %
Power consumption (24 V DC)	Max. 250 mA (6 VA)
Overvoltage category	I
Alarm relay / fault relay (2)	30 V AC/DC, 0.5 A, potential-free, change-over contact (SPDT)
Analog input (1)	4–20 mA, overload and short-circuit proof, input resistance 130 Ω
Power supply for MC2 analog sensor	24 V DC, max. 100 mA
Digital input (1)	Potential-free contact for acknowledgment function (horn or latching mode of main alarm)
Analog output signal ¹ (1)	Proportional, overload and short-circuit proof, load \leq 500 Ω 4–20 mA = measuring range 2.4–4 mA = tolerable underrange > 20–21.2 mA = tolerable overrange \geq 21,2 mA = error overrange \leq 2.0 mA = fault
Output for local bus	5 V DC, 250 mA max., overload, short-circuit & reverse-polarity protection
SERIAL INTERFACE	
Local bus	1-wire / 19200 Baud
Field bus	RS-485 / 19200 Baud
Tool bus	2-wire / 19200 Baud
MODBUS PROTOKOLL RTU RS-485	
Function	Transmission of measured values & alarm stages (see GA_SB2_MSC2_PX2_Modbus_supplement_E)
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	-20 °C to +65 °C (-4 °F to 149 °F)
Storage time	Ca. 6 months
PHYSICAL	
Housing type A/C/E	Polycarbonate
Burning behaviour	UL 94 V2
Housing colour	RAL 7032 (light grey)
Dimensions (W x H x D)	
• Housing type A	94 x 130 x 57 mm (3.70 x 5.12 x 2.24 in.)
• Housing type C	130 x 130 x 75 mm (5.12 x 5.12 x 2.95 in.)
• Housing type E	130 x 130 x 99 mm (5.12 x 5.12 x 3.90 in.)
Weight	Ca. 0.3 kg (0.7 lb)
Protection class (delivery status) ²	NEMA 4X (IP65)
Installation	Wall mounting
Knockouts for cable entry	Type A: 2x M12/ 3x M20 Type C/E: 6x M20/25
Knockouts for installing SC2/MC2/WAO	Type A: 2x Type C/E: 3x
Wire connection:	
• Local bus for SC2/SSAX1-1	3-pin plug connector
• Power supply, field bus	Screw-type terminals 0.25–2.5 mm ²
• Analog in/output; digital input	Screw-type terminals 0.25–1.3 mm ²
• Relays	Screw-type terminals 0.25–1.3 mm ²
Cable lengths local bus Remote Board	Max. 5 m (16.4 ft.)

¹ For dynamic input impedances of the receiver, a coupling resistance of 470 Ω must be inserted in series.

² If there are changes to the housing it has to be re-evaluated.

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)
OPTIONS	
DISPLAY	
LCD	2 lines, 16 characters each, background highlighted in 2 colours
Operation	Menu driven via 6 pushbuttons
Power consumption	5 V, 60 mA, 0.3 VA
WAO STATUS-LED/BUZZER	
Colour (mode)	Red/yellow/green (alarm–fault–operation–service)
Acoustic pressure	> 85 dB (A) (0.1 m distance)
Frequency	2300 Hz ± 300 Hz
Protection class	IP65
POWER SUPPLY 110 / 230 V AC	
Wide range input	100–240 V AC - 50/60 Hz
Consumption	Max. 15 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 3x SC2/MC2 sensors with IR sensor is not permitted.

ORDERING INFORMATION

WSB2-	X-	X	2	X	X	X	1	X	X	X	
										0	No further options
										A	Version UL/CSA 61010-1 Further options
										0	2x SC2 mounting slot (different gas types!)
										1	3x SC2 mounting slot
										2	2x SC2 mounting slot & terminal f. remote installation
										3	2x SC2 mounting slot for same gas type & terminal for remote installation
										4	2x SC2 mounting slot for same gas type
										5¹	1x SSAX1-1 mounting slot (ATEX compliant sensor) Version
										0	Without display
										2	With display / keypad Display
										1	1x analog input 4–20 mA Analog input
										1	1x digital input
										2	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 Output signal (analog/bus)
										5	Analog output & RS-485 with Modbus protoc. (Baud rate selectable)
										0	Without visual/audible indicator Visual/audible indicator (WAO)
										3	Buzzer & status LED (WAO)
										2	With 1x alarm relay and 1x fault relay (configurable as alarm relay in add.) Alarm relay
										1*	12 V DC
										2²	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
										C³	Housing type C 130 x 130 x 75
										E	Housing type E 130 x 130 x 99 Housing

* On request

¹ SSAX1-1 version not with infrared sensor S400 and S480

² In AC mode, only 1x **SC2/MC2** Sensor from the series P34XX, SXXX, I-S11XX or I4XX connectable

³ Version with display and voltage supply 15 VA together, only in housing type E

Standard version

Order number: WSB2-A-220311000

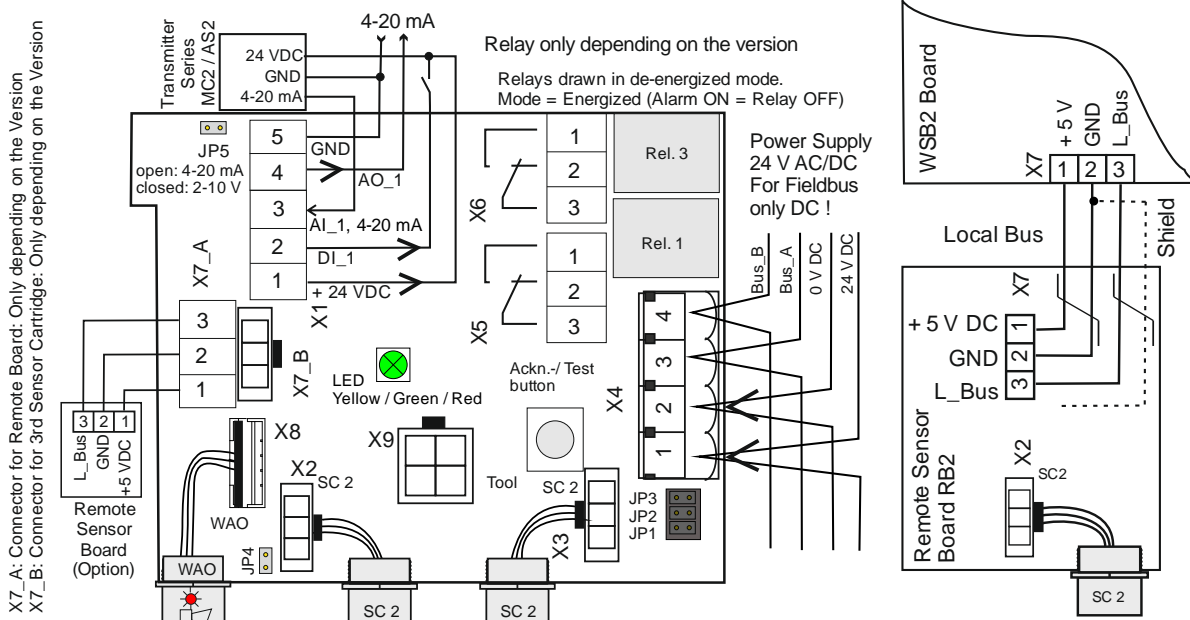
ORDERING INFORMATION

RB2-	X-	1XXXXXXXX-	XX	
			0	No further options
			A	Version UL/CSA 61010-1
		1XXXXXXXX		Remote-Board for 1x SC2 for remote connection at the WSB2
			0	No housing
			A	Housing type A 90 x 130 x 57
				Options
				Version
				Housing

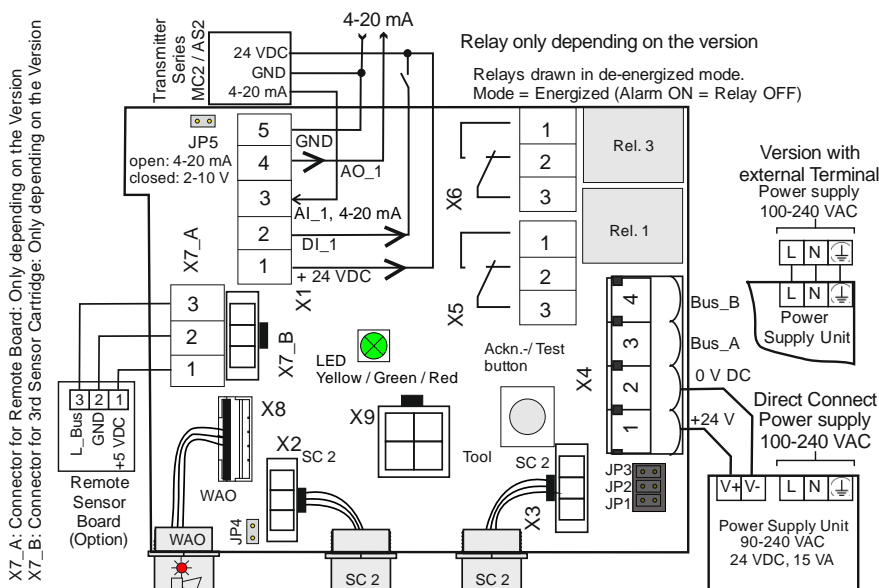
Option remote board RB2 with IR sensor is not permitted.

ELECTRICAL CONNECTION

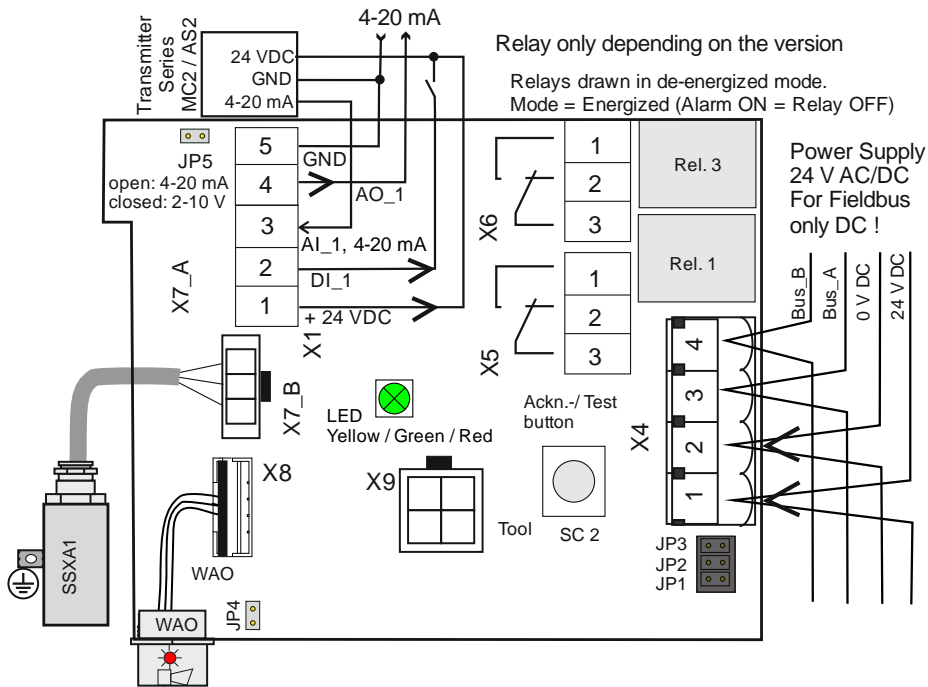
Version 24 V DC



Version 100-240 V AC



Version 24 V DC with SSAX1



Version 100-240 V AC with SSAX1

