PolyGard®2

Warning & Sensor Board WSB2

MSR ELECTRONIC

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.

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. 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.

Warning sensor board with 1x SC2 in housing A

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 according to SIL2 compliant development process
- Modular technology (plug-in and replaceable)
- IP 65 version
- 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.
- 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 (option)
- 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,
  - EN 61010-1;
  - ANSI/UL 61010 1;
  - CAN/CSA-C22.2 No. 61010-1

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SPECIFICATIONS

Electrical

Power supply	19 – 29 V AC/DC, DC reverse-polarity protected
Power consumption (24 V DC)	Max. 250 mA (5 VA)
Overvoltage category	L

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

Outgoing line local bus

Power supply	5 V DC, 250 mA max., overload, short-circuit and reverse-polarity protected

Serial interface

Local bus	1-wire / 19200 Baud
Field bus	RS 485 / 19200 Baud
Tool bus	2-wire / 19200 Baud

General

Temperature range	-30 °C to +50 °C (-22 °F to 122 °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 +30 °C (41 °F to 86 °F)
Storage time	6 months

Physical

	Type A / C / E	Type N
Housing		
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)*	IP 65	IP 65
Installation	Wall mounting	
Knockouts for cable entry	Type A: 2 x M12/ 3 x M20 / Type C & E: 6 x 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 mm^2	
Analog in/output; digital input	Screw-type terminals 0.25 to 1.3 mm^2	
Relays	Screw-type terminals 0.25 to 1.3 mm^2	
Local bus for SC2	3-pin plug connector	
Cable lengths local bus for Remote Sensor Board	Max. 5 m (16.4 ft.)	

Directives

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

Warranty

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

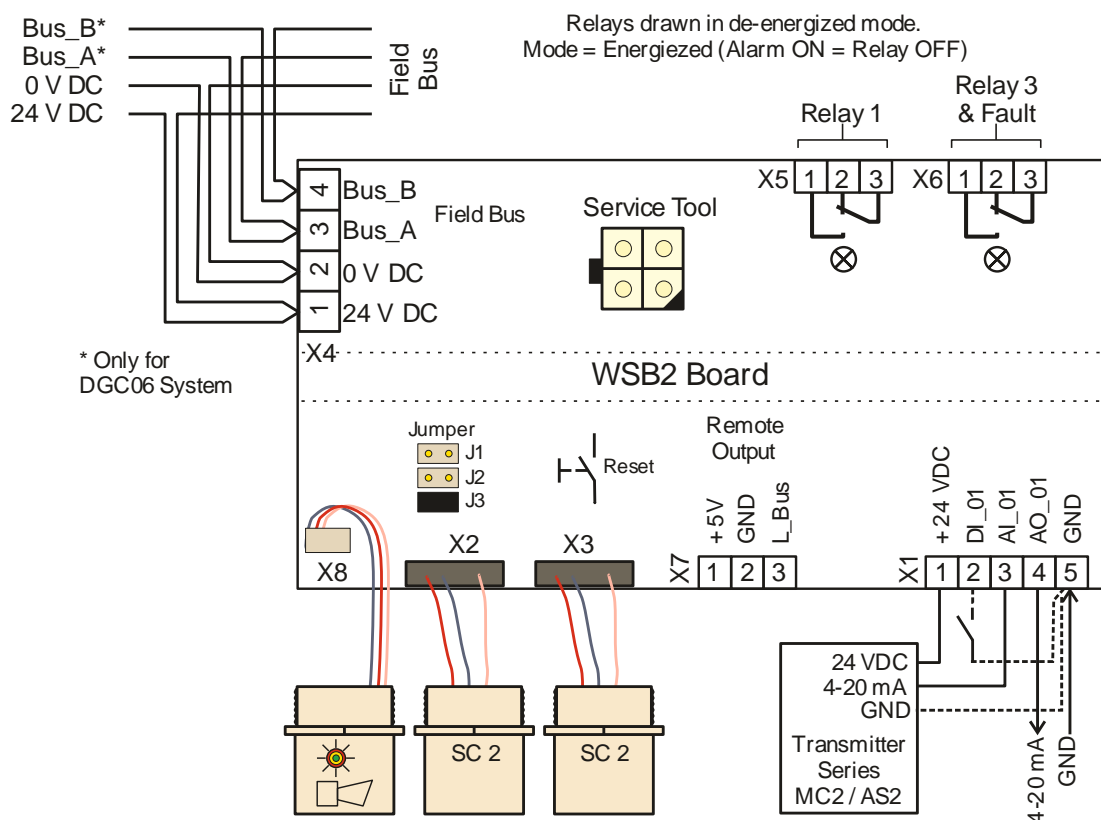*If there are changes on the housing it has to be re-evaluated.

SAFETY FIRST

ISO**9001** CERTIFIED TÜV SÜD PC

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Options	
Alarm relay / fault relay	
	40 V AC/DC, 0.5 A, potential-free, change-over contact (SPDT)
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
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
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 230 V	
Wide range input	90 -240 V AC - 50/60 Hz
Consumption	Max. 25 VA
Overvoltage category	II

ELECTRICAL CONNECTION

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ORDERING INFORMATION

SENSOR BOARD WSB2

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

VERSION
0 **2 x SC2 mounting slot**
1 3 x SC2 mounting slot (not in housing type N)
2 2 x SC2 mounting slot & outgoing line for remote installation (not in housing type N)

DISPLAY
0 **Without display**
2 With display / keypad

ANALOG INPUT
1 **Analog input 4-20 mA**

DIGITAL INPUT
1 **Digital input**
2 Digital input with acknowledgement button at the housing

OUTPUT SIGNAL – ANALOG / BUS
2 **RS 485 with DGC 06 protocol**
3 Analog output & RS 485 with DGC 06 protocol
4 RS 485 with Modbus protocol
5 Analog output & RS 485 with Modbus protocol
8 MSR_D_Bus

VISUAL/ AUDIBLE WARNING DEVICES
0 **Without visual / audible indicator**
3 Buzzer & status LED (WAO)

ALARM RELAY
0 **Without alarm relay / fault relay**
2 With one alarm relay and one fault relay (configurable as alarm relay in addition)

POWER SUPPLY
1***** 12 V DC
2 **24 V DC /AC**
7 90 – 240 V AC / 24 V DC, 15 VA (not in housing type N or A)

HOUSING
A **Housing type A 90 x 130 x 57**
C 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 (mounting of 1 x SC2/MC2)

* On request
[1] Not compliant to ANSI/UL 61010-1 and CAN/CSA-C22.2 No. 61010-1
Standard version: WSB2-A-20021100

REMOTE BOARD RB2

RB2- **X 1XXXXXXX**

VERSION REMOTE BOARD
1XXXXXXX Remote Board for one SC2 for remote connection at the WSB2

HOUSING
0 No housing
A **Housing type A 90 x 130 x 57**