

Solenoid / alarm driver

9203B

- Universal Ex driver for solenoids, acoustic alarms and LEDs
- Extended self-diagnostics
- 1 or 2 channels
- Can be supplied separately or installed on power rail, PR 9400
- SIL 2-certified via Full Assessment



Advanced features

- Universal I.S. driver for the control of solenoids etc. with various I.S. data by way of three built-in I.S. barriers.
- Two hardware versions make it possible to choose either Low (35 mA) or High (60 mA) current output.
- Configuration and monitoring by way of detachable display front (PR 45xx).
- Selection of direct or inverted function for each channel via PR 45xx and the possibility of reducing the output current to the hazardous area to suit the application.
- Optional monitoring of the output current to the hazardous area by way of PR 45xx.
- Optional redundant supply via power rail and/or separate supply.

Application

- 9203B can be mounted in the safe area or in zone 2 / Class 1, Division 2 and transmit signals to zone 0, 1, 2 and zone 20, 21, 22 including M1 mining / Class I/II/III, Div. 1, Gr. A-G.
- Driver for the control of ON / OFF solenoids, acoustic alarms and LEDs mounted in safe or hazardous area.
- The 9203B is controlled by an NPN/PNP signal or a switch signal.
- Monitoring of internal error events via the individual status relay and/or a collective electronic signal via the power rail.
- The 9203B has been designed, developed and certified for use in SIL 2 applications according to the requirements of IEC 61508.
- Suitable for the use in systems up to Performance Level "d" according to ISO-13849.

Technical characteristics

- 1 green and 2 yellow/red front LEDs indicate operation status and malfunction.
- 2.6 kVAC galvanic isolation between input, output and supply.

Mounting

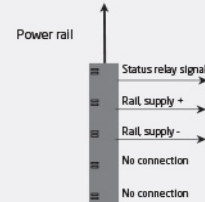
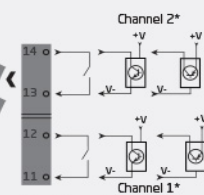
- The devices can be mounted vertically or horizontally without distance between neighbouring units.

Applications

Output signals:



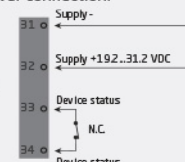
Input signals:



* For full overview of input connections, refer to page 16.



Power connection:



Zone 0, 1, 2,
20, 21, 22, M1 &
Cl. I/II/III, Div. 1
gr. A-G

Supply via power rail
Zone 2 & Cl. 1, Div. 2, gr. A-D
or Safe Area

Order:

Type	Associated apparatus	Output	Channels	Input	I.S. / Ex approvals	
9203	Yes	: B Low current	: 1	Single : A	Opto / switch :-	ATEX, IECEX, FM, INMETRO, EAC-Ex
			: 2	Double : B	PNP : 1	
		High current	: 2	Single : A	NPN : 2	cULus, ATEX, IECEX, FM, INMETRO, EAC-Ex

Output loads:

Terminal	9203B1Axx (1 channel) / 9203B1Bxx (2 channels)		
	41-42 / 51-52	41-43 / 51-53	41-44 / 51-54
Vout. no load	Min. 24 V	Min. 24 V	Min. 24 V
Vout. with load	Min. 12.5 V	Min. 13.5 V	Min. 14.5 V
Iout. max	35 mA	35 mA	35 mA

Terminal	9203B2Axx (1 channel)					
	41-42		41-43		41-44	
Vout. no load	Min. 24 V		Min. 24 V		Min. 24 V	
Vout. with load	Min. 11.5 V	Min. 9 V	Min. 12.5 V	Min. 10 V	Min. 13.5 V	Min. 11 V
Iout. max	50 mA	60 mA	50 mA	60 mA	50 mA	60 mA

Environmental Conditions

Operating temperature.....	-20°C to +60°C
Storage temperature.....	-20°C to +85°C
Calibration temperature.....	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree.....	IP20
Installation in.....	Pollution degree 2 & meas. / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD).....	109 x 23.5 x 104 mm
Dimensions (HxWxD) w/ 4501/451x.....	109 x 23.5 x 116 / 131 mm
Weight approx.....	170 g
Weight incl. 4501 / 451x (approx.).....	185 g / 200 g
DIN rail type.....	DIN EN 60715/35 mm
Wire size.....	0.13...2.08 mm ² AWG 26...14 stranded wire
Screw terminal torque.....	0.5 Nm
Vibration.....	IEC 60068-2-6
2...13.2 Hz.....	±1 mm
13.2...100 Hz.....	±0.7 g

Common specifications

Supply

Supply voltage.....	19.2...31.2 VDC
Fuse.....	1.25 A SB / 250 VAC
Max. required power.....	≤ 1.9 W / ≤ 3.1 W (1 / 2 ch.) - low current
Max. required power.....	≤ 2.5 W (1 ch.) - high current
Max. power dissipation, 1 / 2 ch.....	≤ 1.1 W / ≤ 1.7 W - low current
Max. power dissipation.....	≤ 1.7 W (1 ch.) - high current

Isolation voltage

Test /working: Input to any.....	2.6 kVAC / 300 VAC reinforced isolation
Output 1 to output 2.....	1.5 kVAC / 150 VAC reinforced isolation
Status relay to supply.....	1.5 kVAC / 150 VAC reinforced isolation

Programming.....	PR 45xx
EMC immunity influence.....	< ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst.....	< ±1% of span

Input specifications

NPN and mechanical switch

Trig level LOW.....	≤ 2.0 VDC
Trig level HIGH.....	≥ 4.0 VDC
Max. external voltage.....	28 VDC
Input impedance.....	3.5 kΩ

PNP

Trig level LOW.....	≤ 8.0 VDC
Trig level HIGH.....	≥ 10.0 VDC
Max. external voltage.....	28 VDC
Input impedance.....	3.5 kΩ

Output specifications

Status relay

Max. voltage.....	125 VAC / 110 VDC
Max. current.....	0.5 AAC / 0.3 ADC
Max. AC power.....	62.5 VA / 32 W
Output ripple.....	< 40 mVRMS

Observed authority requirements

EMC.....	2014/30/EU
LVD.....	2014/35/EU
ATEX.....	2014/34/EU
RoHS.....	2011/65/EU
EAC.....	TR-CU 020/2011
EAC Ex.....	TR-CU 012/2011

Approvals

ATEX.....	KEMA 07ATEX0147 X
IECEX.....	KEM 09.0001X
c FM us.....	FM19US0057X / FM19CA0030X
INMETRO.....	DEKRA 16.0006 X
c UL us, UL 61010-1.....	E314307
c UL us, UL 913.....	E233311 (only 9203xxxx-U9)
EAC Ex.....	RU C-DK.HA65.B.00355/19
DNV-GL Marine.....	TAA00000JD
ClassNK.....	TA18527M
SIL.....	SIL 2 certified & fully assessed acc. to IEC 61508