PERFORMANCE MADE SMARTER

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

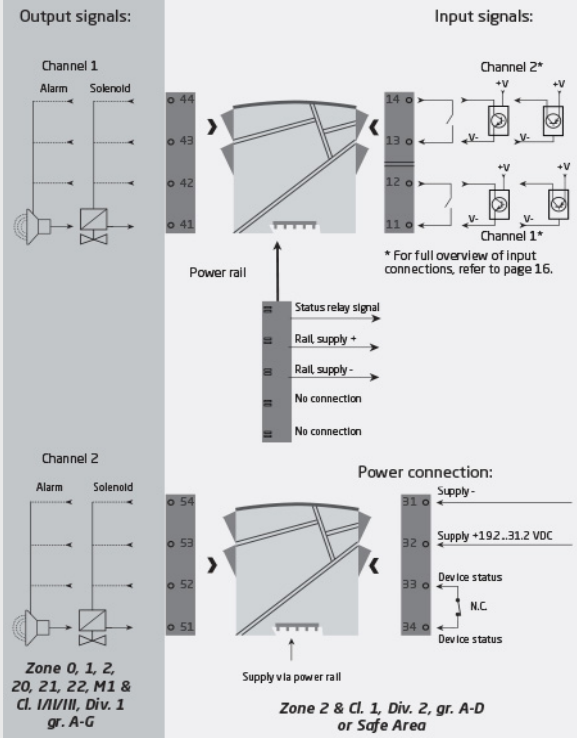
Advanced features
- Universal I.S. driver for the control of solenoids etc. with various I.S. data by way of three built-in I.S. barriers.
- Two hardware versions make it possible to choose either Low (35 mA) or High (60 mA) current output.
- Configuration and monitoring by way of detachable display front (PR 4500).
- Selection of direct or inverted function for each channel via PR 4500 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 4500.
- 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



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Order:

Type	Output	Channels	Input	I.S. / Ex approvals
9203B	Low current : 1	Single : A Double : B	Opto / switch : - PNP : 1 NPN : 2	ATEX, IECEx, FM, INMETRO, CCC, EAC-Ex, UKEX : - UL 913, ATEX, IECEx, FM, INMETRO, CCC, EAC-Ex, UKEX : -U9 KCs, ATEX, IECEx, FM, INMETRO, CCC, EAC-Ex, UKEX : -KCs
	High current : 2	Single : A		

Output loads:

	9203B1Axx (1 channel) / 9203B1Bxx (2 channels)		
Terminal	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

	9203B2Axx (1 channel)					
Terminal	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/ PR 4500..... 109 x 23.5 x 131 mm
Weight approx..... 170 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 / ≤ 2.0 W (1 / 2 ch.) - 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 4500 communication interfaces
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 & UK SI 2016/1091
LVD..... 2014/35/EU & UK SI 2016/1101
ATEX..... 2014/34/EU & UK SI 2016/1107
RoHS..... 2011/65/EU & UK SI 2012/3032
EAC..... TR-CU 020/2011
EAC Ex..... TR-CU 012/2011

Approvals

ATEX..... KEMA 07ATEX0147 X
IECEx..... KEM 09.0001X
UKEX..... DEKRA 21UKEX0181X
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)
CCC..... 2020322304003423
KCs..... 21_AV4BO_0182X / 21_AV4BO_0183X (only 9203Bxxx-KCs)
EAC Ex..... RU C-DK.HA65.B.00355/19
DNV Marine..... TAA00000JD
ClassNK..... TA18527M
SIL..... SIL 2 certified & fully assessed acc. to IEC 61508