

Преобразователи 9202А, 9203А

Технические характеристики

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Россия +7(495)268-04-70

Казахстан +7(727)345-47-04

Беларусь +375-257-127-884

Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: pcn@nt-rt.ru || сайт: <https://prelectronics.nt-rt.ru/>



Pulse isolator

9202A

- Interface for NAMUR sensors and switches
- Extended self-diagnostics and detection of cable fault
- 1 or 2 channels
- Can be supplied separately or installed on power rail, PR type 9400
- SIL 2-certified via Full Assessment



Advanced features

- Configuration and monitoring by way of detachable display front (PR 4500).
- Selection of direct or inverted function for each channel via PR 4500.
- Advanced monitoring of internal communication and stored data.
- Optional redundant supply via power rail and/ or separate supply.
- SIL 2 functionality is optional and must be activated in a menu point.

Application

- 9202A can be mounted in the safe area and in zone 2 / Class 1, Division 2, Group A, B, C, D.
- Pulse isolator for transmission of signals from NAMUR sensors and mechanical switches.
- Monitoring of error events and cable breakage via the individual status relay and/or a collective electronic signal via the power rail.
- The 9202A 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.

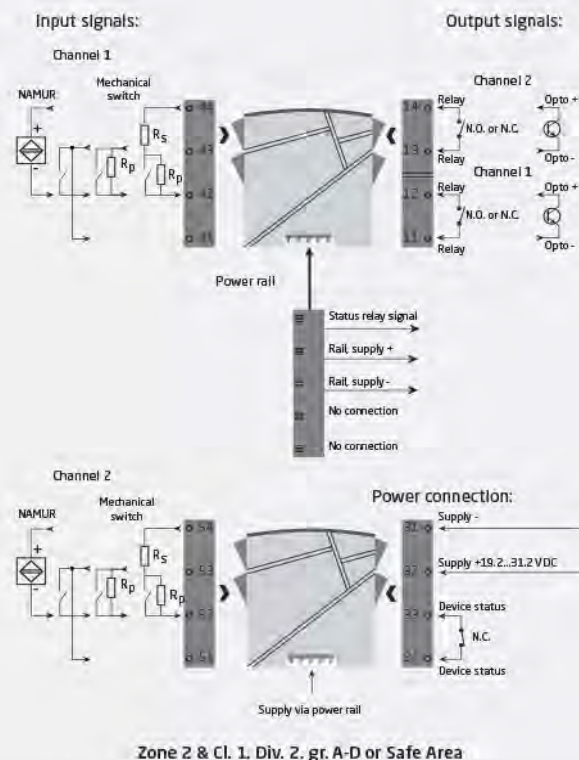
Technical characteristics

- 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



Order

Type	Version	Unit channels	I.S. / Ex approvals
9202A	Opto : 1	Single : A	ATEX, IECEx, FM, : -
	Relay N.O. : 2	Double : B	INMETRO, CCC, EAC-Ex, UKEX
	Relay N.C. : 3		UL 913, ATEX, IECEx, FM, : -U9 INMETRO, CCC, EAC-Ex, UKEX KCs, ATEX, IECEx, FM, : -KCs INMETRO, CCC, EAC-Ex, UKEX

Example: 9202A2B

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.....	400 mA SB / 250 VAC
Max. required power.....	≤ 1.1 W...≤ 1.3 W / ≤ 1.5 W...≤ 1.9 W (1 / 2 ch.)
Max. power dissipation, 1 / 2 ch.....	≤ 1.2 W / ≤ 1.6...1.8 W

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

Auxiliary supplies

NAMUR supply.....	8 VDC / 8 mA
Programming.....	PR 4500 communication interfaces
Response time for cable fault.....	< 200 ms

Input specifications

Sensor types.....	NAMUR according to EN 60947-5-6 / mechanical contact
Frequency range.....	0...5 kHz
Min. pulse length.....	> 0.1 ms
Input resistance.....	Nom. 1 kΩ
Trig level, signal.....	< 1.2 mA, > 2.1 mA
Trig level, cable fault.....	< 0.1 mA, > 6.5 mA

Output specifications

Relay output

Max. switching frequency.....	20 Hz
Max. voltage.....	250 VAC / 30 VDC
Max. current.....	2 AAC / 2 ADC
Max. AC power.....	500 VA / 60 W

Status relay

Max. voltage.....	125 VAC / 110 VDC
Max. current.....	0.5 AAC / 0.3 ADC
Max. AC power.....	62.5 VA / 32 W

NPN output

Max. switching frequency.....	5 kHz
Min. pulse length.....	> 0.1 ms
Max. load, current / voltage.....	80 mA / 30 VDC
Max. voltage drop at 80 mA.....	2.5 VDC

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
EAC LVD.....	TR-CU 004/2011

Approvals

ATEX.....	KEMA 07ATEX0146 X
IECEx.....	KEM 06.0039X
UKEX.....	DEKRA 21UKEX0179X
c FM us.....	FM19US0055X / FM19CA0028X
INMETRO.....	DEKRA 23.0007X
c UL us, UL 61010-1.....	E314307
c UL us, UL 913.....	E233311 (only 9202xxx-U9)
CCC.....	2020322309003424
KCs.....	21_AV4BO_0181X (only 9202Axx-KCs)
EAC Ex.....	EAEU KZ 7500361.01.01.08756
DNV Marine.....	TAA00000JD
ClassNK.....	TA24034M
SIL.....	SIL 2 certified & fully assessed acc. to IEC 61508



Solenoid / alarm driver

9203A

- Universal 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 driver for the control of solenoids etc.
- 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 45xx and the possibility of reducing the output current to suit the application.
- Optional monitoring of the output current by way of PR 4500.
- Optional redundant supply via power rail and/or separate supply.

Application

- The 9203A can be mounted in the safe area and in zone 2 / Class 1, Division 2, Group A, B, C, D.
- Control of ON / OFF solenoids, acoustic alarms and LEDs.
- The 9203A 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 9203A 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.

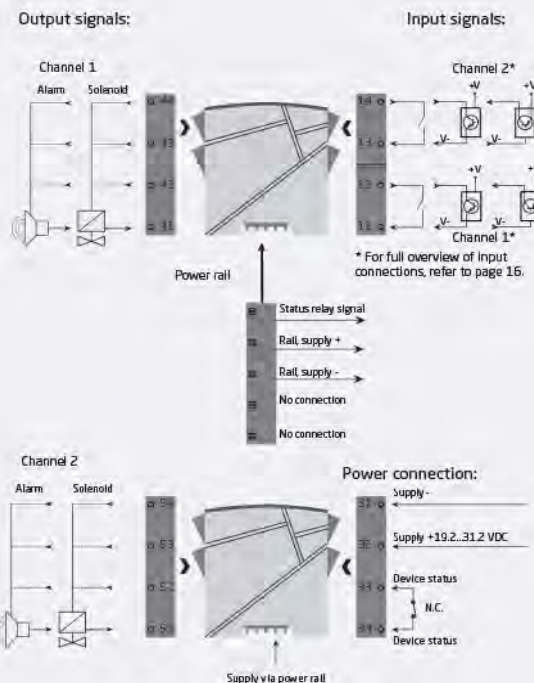
Technical characteristics

- 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



Zone 2 & Cl. 1, Div. 2, gr. A-D or Safe Area

Order:

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

Output loads:

Terminal	9203A1Axx (1 channel) / 9203A1Bxx (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	9203A2Axx (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/ PR 4500.....	109 x 23.5 x 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 / ≤ 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
EAC LVD.....	TR-CU 004/2011

Approvals

ATEX.....	KEMA 07ATEX0147 X
IECEx.....	KEM 09.0001X
UKEX.....	DEKRA 21UKEX0181X
c FM us.....	FM19US0057X / FM19CA0030X
INMETRO.....	DEKRA 23.0008X
c UL us, UL 61010-1.....	E314307
CCC.....	2020322304003423
KCs.....	21_AV4BO_0184X (only 9203Axxx-KCs)
c UL us, UL 913.....	E233311 (only 9203xxxx-U9)
DNV Marine.....	TAA00000JD
ClassNK.....	TA24034M
EAC Ex.....	EAEU KZ 7500361.01.01.08756
SIL.....	SIL 2 certified & fully assessed acc. to IEC 61508

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