Pulse isolator

9202B

- 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 45xx).
- Selection of direct or inverted function for each channel via PR 45xx.
- 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

- 9202B can be mounted in the safe area or in zone 2 / Cl. 1 div. 2 and receive signals from zone 0, 1, 2 and zone 20, 21, 22 including mining / Class I/II/III, Div. 1, Gr. A-G.
- Pulse isolator for transmission of signals to the safe area from NAMUR sensors and mechanical switches installed in the hazardous area.
- Monitoring of error events and cable breakage via the individual status relay and/or a collective electronic signal via the power rail.
- The 9202B 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.
<table>
<thead>
<tr>
<th>Type</th>
<th>Associated apparatus</th>
<th>Version</th>
<th>Unit channels</th>
<th>I.S. / Ex approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>9202</td>
<td>Yes : B</td>
<td>Opto : 1</td>
<td>Single : A</td>
<td>ATEX, IECEx, FM,</td>
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<tr>
<td></td>
<td></td>
<td>Relay N.O. : 2</td>
<td></td>
<td>INMETRO, EAC-Ex</td>
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<td>Relay N.C. : 3</td>
<td></td>
<td>cULus, ATEX, IECEx, FM,</td>
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<td></td>
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<td></td>
<td>Double : B</td>
<td>: -U9</td>
</tr>
</tbody>
</table>

**Environmental Conditions**

Operating temperature: -20°C to +60°C
Storage temperature: -20°C to +85°C
Calibration temperature: 20°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 - 2.06 mm² AWG 26...14 stranded wire
Screw terminal torque: 0.5 Nm
Vibration: ±0.7 g

**Common specifications**

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...
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
Analog output to supply: 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 45xx
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
| 0.5 AAC / 0.3 ADC
| 62.5 VA / 32 W

**NPN outputs**

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

**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 07ATEX0146 X
IECEx: KEM 06.0039X
c FM us: FM19US0055X / FM19CA0028X
INMETRO: DEKRA 16.0005 X
c UL us, UL 61010-1: ES14307
c UL us, UL 913: E233311 (only 9202xxx-U9)
EAC Ex: RU C-DK.GB08.V.00410
DNV-GL Marine: TAAn0000JD
SIL: TA18527M

**SIL**

ClassNK: SIL 2 certified & fully assessed acc. to IEC 61508
DNV-GL Marine: SIL 2 certified & fully assessed acc. to IEC 61508

**Voltage drop at 80 mA**

< 2.5 VDC

**Max. load, current / voltage**

| 80 mA / 30 VDC
| 80 mA / 30 VDC
| 80 mA / 30 VDC

**Min. pulse length**

> 0.1 ms

**Max. switching frequency**

5 kHz

Max. current: 0.5 AAC / 0.3 ADC
Max. AC power: 62.5 VA / 32 W

Example: 9202BZB