

Zener Barriers

Two-channel safety barrier



9002/00-260-138-001 Art. No. 158867



- For the intrinsically safe operation of a wide range of devices, such as HART transmitters, solenoid valves, sensors, zero-potential contacts and many more
- Compact, space-saving devices that are easy to install on a DIN rail
- Quick and efficient installation as barriers can be simultaneously snapped onto DIN rail and connected to ground (ISA - RPI12.06)

MY R. STAHL 9002A



The 9002 series INTRINSPAK two-channel zener barriers enable the intrinsically safe operation of virtually all field devices. The comprehensive portfolio and the combination of zener barriers cover a wide variety of signals. The devices are incredibly robust and require very little space. The back-up fuse is a convenient feature as it is standardized for all variants.

Technical Data

| Explosion Protection | |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application range (zones) | 2 |
| Ex interface zone | 0, 1, 2, 20, 21, 22 |
| IECEX gas certificate | IECEX PTB 08.0057X |
| IECEX gas explosion protection | Ex ec [ia Ga] IIC T4 Gc |
| IECEX dust certificate | IECEX PTB 08.0057X |
| IECEX dust explosion protection | [Ex ia Da] IIIC |
| ATEX gas certificate | PTB 01 ATEX 2053 X |
| ATEX gas explosion protection | ⊕ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc |
| ATEX dust certificate | PTB 01 ATEX 2053 X |
| ATEX dust explosion protection | ⊕ II (1) D [Ex ia Da] IIIC |
| FMus certificate | 3010778 |
| Marking FMus | NONINCENDIVE FOR, Class I, Div. 2, Groups A,B,C,D; T4; Class I, Zone 2, Group IIC T4 IS connections for Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, Groups IIC/IIB Hazardous location when inst. per doc. 90 026 11 31 1 |
| Certificate ULus | E81680V1S3 |
| Marking ULus | For use in Hazardous location, Class I, Div. 2, Groups A,B,C,D; T4 Providing IS circuits for Class I,II,III, GROUPS A,B,C,D,E,F,G; per doc. 90 026 11 31 3 |
| Inmetro gas certificate | UL-BR 12.0354 |
| Inmetro dust certificate | UL-BR 12.0354 |
| Certificates | ATEX (PTB), Brazil (ULB), Canada (FM), IECEX (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL) |
| Declaration of conformity | ATEX (EUK), China (CCC) |
| Installation | in Zone 2, Division 2 and in safe area |
| Further information | see respective certificate and operating instructions |

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Safety Data

| | | | | | |
|------------------------------------------------------------------------|-----|------------------|---------------------------------------------------------|----------------|----------------|
| Max. voltage U_o/V_{oc} | | | 26 V | | |
| Max. current I_o/I_{sc} | | | 87 mA | | |
| Max. power P_o | | | 540 mW | | |
| Max. permissible external capacitance C_o/C_a for IIC | | | 0.099 μ F | | |
| Max. permissible external inductance L_o/L_a for IIC | | | 2.7 mH | | |
| Max. permissible external capacitance C_o/C_a for IIB | | | 0.77 μ F | | |
| Max. permissible external inductance L_o/L_a for IIB | | | 15.4 mH | | |
| Intrinsically safe limiting values Inductance L_o /capacitance C_o | | | Jointly connectable inductance L_o /capacitance C_o | | |
| Channel 1 | IIC | L_o [mH] | 2 mH | 1 mH | 0.100 mH |
| | | C_o [μ F] | 0.047 μ F | 0.0610 μ F | 0.0990 μ F |
| | IIB | L_o [mH] | 10 mH | 1 mH | 0.1 mH |
| | | C_o [μ F] | 0.34 μ F | 0.41 μ F | 0.77 μ F |
| Channel 2 | IIC | L_o [mH] | 10 mH | 1 mH | 0.1 mH |
| | | C_o [μ F] | 0.110 μ F | 0.150 μ F | 0.188 μ F |
| | IIB | L_o [mH] | 10 mH | 1 mH | 0.1 mH |
| | | C_o [μ F] | 0.72 μ F | 0.93 μ F | 1.20 μ F |
| Channels 1 + 2 | IIC | L_o [mH] | | | |
| | | C_o [μ F] | | | |
| | IIB | L_o [mH] | 5 mH | 1 mH | 0.1 mH |
| | | C_o [μ F] | 0.320 μ F | 0.37 μ F | 0.770 μ F |

Electrical Data

| | | | | | | | |
|--------------------------------------|------------------|--|--|--|--|--|--|
| Number of channels | 2 | | | | | | |
| Type of voltage | DC | | | | | | |
| Maximum resistance R_{max} | 359 Ω | | | | | | |
| Min. resistance R_{min} | 321 Ω | | | | | | |
| Maximum output current I_{max} | 62 mA | | | | | | |
| Potential channel 1 | Negative | | | | | | |
| Potential channel 2 | Negative | | | | | | |
| Transmission frequency channel 1 | ≤ 100 kHz | | | | | | |
| I_{leak} leakage current for U_n | ≤ 2 μ A | | | | | | |

| Channel | V_{nom} | I_{max} | R_{min} | R_{max} | U_o/V_{oc} | I_o/I_{sc} | P_o |
|---------|-----------|-----------|--------------|--------------|--------------|--------------|--------|
| 1 | -22.50 V | 62 mA | 321 Ω | 359 Ω | 26 V | 87 mA | 540 mW |
| 2 | -17.50 V | 37 mA | 417 Ω | 464 Ω | 20 V | 51 mA | 245 mW |
| 1 + 2 | | | | | 26 V | 138 mA | 785 mW |

Auxiliary Power

| | |
|--------------|------------|
| Power supply | Controlled |
|--------------|------------|

Output

| | |
|-----------------------|-------------------|
| Temperature influence | $\leq 0,25$ %/10K |
|-----------------------|-------------------|

Ambient Conditions

| | |
|----------------------------------|--------------------------------------|
| Ambient temperature $^{\circ}$ C | -20 $^{\circ}$ C ... 60 $^{\circ}$ C |
|----------------------------------|--------------------------------------|

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Ambient Conditions

| | |
|------------------------|------------------------------|
| Ambient temperature °F | -4°F ... +140°F |
| Storage temperature °C | -20 °C ... 75 °C |
| Storage temperature °F | -4°F ... +167°F |
| Max. relative humidity | 95% average, no condensation |

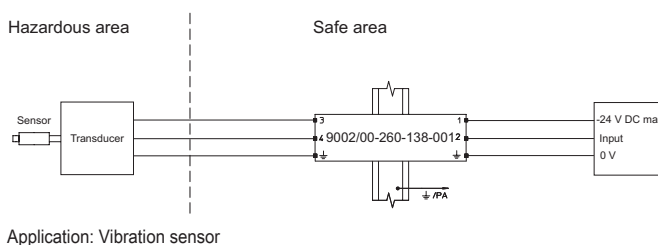
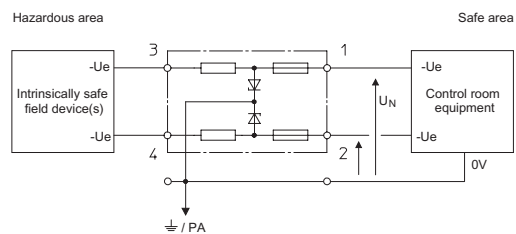
Mechanical Data

| | |
|-------------------------------------|--------------------------|
| Degree of protection (IP) | IP40 |
| Degree of protection (IP) terminals | IP20 |
| Enclosure material | Polyamide 6GF |
| Number of connection terminals | 4 |
| Connection cross-section max. | 1.5 mm ² |
| Connection cross-section AWG | 16 AWG |
| Type of connection cable | Solid Finely stranded |
| Width | 103 mm |
| Width, inches | 4.09 in |
| Length | 12 mm |
| Length in inches | 0.48 in |
| Mounting depth | 72 mm |
| Mounting depth in inches | 2.76 in |
| Weight | 110 g |
| Weight | 0.24 lb |

Mounting / Installation

| | |
|--------------------------------------|-------------------|
| Earthing connection cross-section | 4 mm ² |
| Earthing conductor cross-section AWG | 12 AWG |
| Connection type | 2 PA |
| Min. torque, Nm | 0.5 N · m |
| Min. torque, lb/in | 4.43 lb/in |
| Max. torque, Nm | 0.6 N · m |
| Max. torque, lb/in | 5.31 lb/in |

Technical Drawings – Subject to Alterations



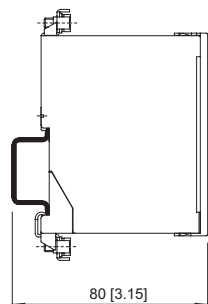
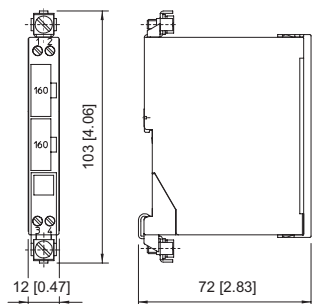
Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations

Zener Barriers

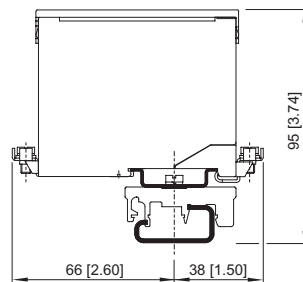
Two-channel safety barrier



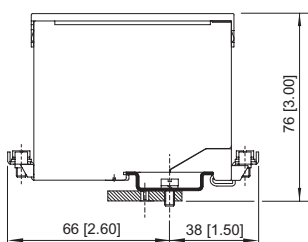
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Mounting on DIN rail NS 35/15


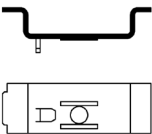
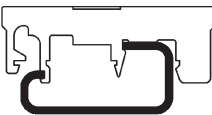
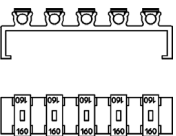



Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic



Mounting on mounting plate by means of adaptor

Accessories

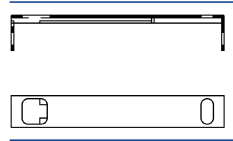
| Terminal block | | Art. No. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------|
|  | Phoenix Contact terminal block UT 4-PE | 113057 |
| | Phoenix Contact terminal block UT 6-PE | 113058 |
| Adaptor | | Art. No. |
|  | The adaptor enables a zener barrier to be installed on a clamping base (Art. No. 165283) or mounting plate from a previous series. | 158826 |
| Clamping base, moulded material | | Art. No. |
|  | Enables mounting of zener barrier on a G-rail. The safety barrier is mounted using the adaptor (Art. No. 158826). | 165283 |
| Fuse holder | | Art. No. |
|  | Fuse holder is snapped onto the side of the zener barrier and can be equipped with up to 5 back-up fuses (replacement). | 158834 |
| Spare Parts | | Art. No. |
| Back-up fuse | | Art. No. |
|  | For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs. | 158964 |

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| Label carrier | | Art. No. |
|----------------------------------------------------------------------------------|---------------------------------|----------|
|  | Transparent cover for the label | 158977 |

We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.