

Zener Barriers

Single-channel safety barriers



9001/01-158-150-101 Art. No. 158535



- 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 - RP112.06)
- Convenient maintenance and repair through back-up fuse feature

MY R. STAHL 9001A



The 9001 series INTRINSPAK single-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 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 09.0001X |
| IECEX gas explosion protection | Ex ec [ia Ga] IIC T4 Gc |
| IECEX dust certificate | IECEX PTB 09.0001X |
| IECEX dust explosion protection | [Ex ia Da] IIIC |
| ATEX gas certificate | PTB 01 ATEX 2088 X |
| ATEX gas explosion protection | ⊕ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc |
| ATEX dust certificate | PTB 01 ATEX 2088 X |
| ATEX dust explosion protection | ⊕ II (1) D [Ex ia Da] IIIC |
| FMus certificate | 3011002 |
| 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. 90 016 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. 90 016 11 31 3 |
| cCSA certificate | 1284547 |

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Explosion Protection

| | |
|---------------------------|--|
| Marking cCSA | Associated equipment [Ex ia], Class I, Div. 2, Groups A,B,C,D; Provides IS circuits for Class I,II,III, Class I, Zone 0, Groups IIC/IIB For applicable grps per inst. doc. 90 016 11 31 2 |
| Inmetro gas certificate | UL-BR 12.0353 |
| Inmetro dust certificate | UL-BR 12.0353 |
| Certificates | ATEX (PTB), Brazil (ULB), Canada (CSA), China (NEPSI), IECEx (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL) |
| Declaration of Conformity | ATEX (EUK), China (CCC) |
| Installation | in Zone 2, Class I, Div. 2, and Class I, Zone 2 and in safe area |
| Further information | see respective certificate and operating instructions |

Safety Data

| | | | | | | | | | |
|---|---|---------------|--------------|----------|------------------|------------------|---------------|--------------|--------------|
| Max. voltage U_o/V_{oc} | 15.8 V | | | | | | | | |
| Max. current I_o/I_{sc} | 150 mA | | | | | | | | |
| Max. power P_o | 593 mW | | | | | | | | |
| Max. permissible external capacitance C_o/C_a for IIC | 0.478 μ F | | | | | | | | |
| Max. permissible external capacitance C_o/C_a for IIB | 2.88 μ F | | | | | | | | |
| Max. permissible external inductance L_o/L_a for IIC | 1.3 mH | | | | | | | | |
| Max. permissible external inductance L_o/L_a for IIB | 7 mH | | | | | | | | |
| Intrinsically safe limiting values Inductance L_o /capacitance C_o | Jointly connectable inductance L_o /capacitance C_o | | | | | | | | |
| IIC | <table border="0"> <tr> <td>L_o [mH]</td> <td>1 mH</td> <td>0.100 mH</td> </tr> <tr> <td>C_o [μF]</td> <td>0.350 μF</td> <td>0.390 μF</td> </tr> </table> | L_o [mH] | 1 mH | 0.100 mH | C_o [μ F] | 0.350 μ F | 0.390 μ F | | |
| L_o [mH] | 1 mH | 0.100 mH | | | | | | | |
| C_o [μ F] | 0.350 μ F | 0.390 μ F | | | | | | | |
| IIB | <table border="0"> <tr> <td>L_o [mH]</td> <td>5 mH</td> <td>1 mH</td> <td>0.100 mH</td> </tr> <tr> <td>C_o [μF]</td> <td>1.200 μF</td> <td>2.40 μF</td> <td>2.60 μF</td> </tr> </table> | L_o [mH] | 5 mH | 1 mH | 0.100 mH | C_o [μ F] | 1.200 μ F | 2.40 μ F | 2.60 μ F |
| L_o [mH] | 5 mH | 1 mH | 0.100 mH | | | | | | |
| C_o [μ F] | 1.200 μ F | 2.40 μ F | 2.60 μ F | | | | | | |

Electrical Data

| | |
|--------------------------------------|------------------|
| Number of channels | 1 |
| Maximum resistance R_{max} | 135 Ω |
| Min. resistance R_{min} | 120 Ω |
| Maximum output current I_{max} | 88 mA |
| Potential | Positive |
| Transmission frequency channel 1 | \leq 100 kHz |
| I_{leak} leakage current for U_n | \leq 2 μ A |

Auxiliary Power

| | |
|---------------------------|------------|
| Nominal voltage V_{nom} | 12 V DC |
| Power supply | Controlled |

Ambient Conditions

| | |
|----------------------------------|---------------------------------------|
| Ambient temperature $^{\circ}$ C | -20 $^{\circ}$ C ... 60 $^{\circ}$ C |
| Ambient temperature $^{\circ}$ F | -4 $^{\circ}$ F ... +140 $^{\circ}$ F |
| Storage temperature $^{\circ}$ C | -20 $^{\circ}$ C ... 75 $^{\circ}$ C |
| Storage temperature $^{\circ}$ F | -4 $^{\circ}$ F ... +167 $^{\circ}$ F |
| Max. relative humidity | 95% average, no condensation |

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Ambient Conditions

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

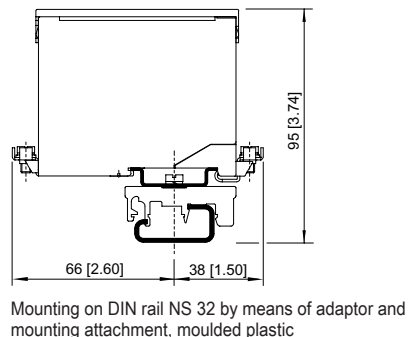
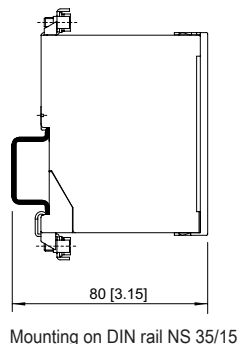
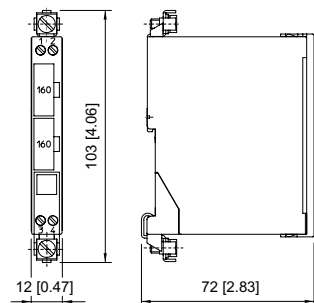
Mechanical Data

| | |
|-------------------------------------|--------------------------|
| Degree of protection (IP) | IP40 |
| Degree of protection note | according to IEC 60529 |
| Degree of protection (IP) terminals | IP20 |
| Enclosure material | Polyamide 6GF |
| Number of connection terminals | 4 |
| Connection cross section min. | 1.5 mm ² |
| Connection cross-section max. | 1.5 mm ² |
| Connection cross-section AWG | 16 AWG |
| Type of connection cable | Finely stranded Solid |
| Width | 103 mm |
| Width, inches | 4.09 in |
| Length | 12 mm |
| Length, inches | 0.48 in |
| Depth of cut-out | 72 mm |
| Mounting depth, 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 Nm |
| Min. torque, lb/in | 4.43 lb/in |
| Max. torque, Nm | 0.6 Nm |
| Max. torque, lb/in | 5.31 lb/in |

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

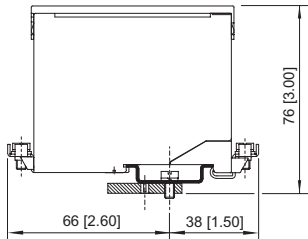


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Mounting on mounting plate by means of adaptor

Accessories

| Adaptor | | Art. No. |
|-----------------------------------|---|----------|
| | Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series. | 158826 |
| Clamping base, moulded material | | Art. No. |
| | Enables mounting of zener barrier on a G-rail. | 165283 |
| Protective conductor terminal | | Art. No. |
| | USLKG 5 (wire range AWG 12 / 4 mm ²) Terminal enables connection of protective conductors to DIN rail. Color green-yellow. | 112760 |
| Ground terminal | | Art. No. |
| | USLKG 6 N (wire range AWG 10 / 6 mm ²) Terminal enables connection of protective /Ground conductors to DIN rail. Color green-yellow. | 112599 |
| 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 |
| Insulation and fastening material | | Art. No. |
| | Suitable for the NS 35/15 DIN rail, makes it possible to install the DIN rail such that it is electrically insulated from the mounting plate. | 158828 |

Spare Parts

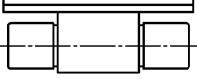
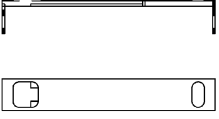
| Back-up fuse | Art. No. |
|--------------|----------|
| | |

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| | | |
|--|---|-----------------|
|  | For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs. | 158964 |
| 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.