# Zener Barriers
Single-channel safety barriers

## 9001/00-280-050-101 Art. No. 158660



- 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)
- 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 | ExNBSPec [ia Ga]NBSPIICNBSPT4N |
| IECEx dust certificate | IECEx PTB 09.0001X |
| IECEx dust explosion protection | [Ex ia Da]NBSPIIIC |
| ATEX gas certificate | PTB 01 ATEX 2088 X |
| ATEX gas explosion protection | IINBSP3 (1) GNBSPExNBSPec [ia IICNBSPT4NBSPGc |
| ATEX dust certificate | PTB 01 ATEX 2088 X |
| ATEX dust explosion protection | IINBSP(1) DNBSP[Ex ia Da]NBSPI |
| FMus certificate | 3011002 |
| Marking FMus | NONINCENDIVE FOR, Class I, Div. 2, Groups A,B,C,D; T4;<br>Class I, Zone 2, Group IIC T4<br>IS connections for Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G;<br>Class I, Zone 0, Groups IIC/IIB<br>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<br>Providing IS circuits for<br>Class I,II,III, GROUPS A,B,C,D,E,F,G;<br>per doc. 90 016 11 31 3 |
| Inmetro gas certificate | UL-BR 12.0353 |
| Inmetro dust certificate | UL-BR 12.0353 |
| Certificates | ATEX (PTB), Brazil (ULB), Canada (FM), China (NEPSI), IECEx (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL) |
| Declaration of conformity | ATEX (EUK) |
| 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 |

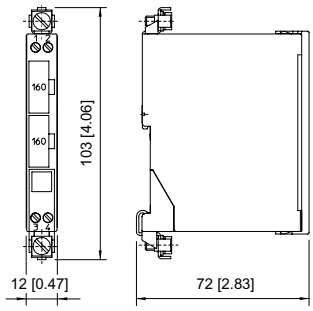
## 9001/00-280-050-101 Art. No. 158660

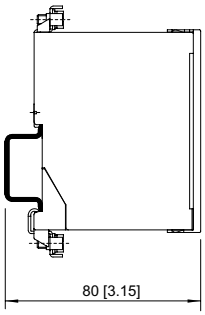
| | | | | |
|---|---|---|---|---|
| **Safety Data** | | | | |
| Max. voltage $U_o/V_{oc}$ | | 28 V | | |
| Max. current $I_o/I_{sc}$ | | 50 mA | | |
| Max. power $P_o$ | | 350 mW | | |
| Max. permissible external capacitance $C_o/C_a$ for IIC | | 0.083 µF | | |
| Max. permissible external inductance $L_o/La$ for IIC | | 8.5 mH | | |
| Max. permissible external capacitance $C_o/C_a$ for IIB | | 0.65 µF | | |
| Max. permissible external inductance $L_o/La$ for IIB | | 25 mH | | |
| Intrinsically safe limiting values Inductance $L_o$/capacitance $C_o$ | | Jointly connectable inductance $L_o$/capacitance $C_o$ | | |
| IIC | $L_o$ [mH] | 10 mH | 1 mH | 0.200 mH |
| | $C_o$ [µF] | 0.041 µF | 0.062 µF | 0.083 µF |
| IIB | $L_o$ [mH] | 50 mH | 1 mH | 0.100 mH |
| | $C_o$ [µF] | 0.280 µF | 0.38 µF | 0.65 µF |
| **Electrical Data** | | | | |
| Number of channels | | 1 | | |
| Type of voltage | | DC | | |
| Maximum resistance $R_{max}$ | | 666 Ω | | |
| Min. resistance $R_{min}$ | | 599 Ω | | |
| Maximum output current $I_{max}$ | | 36 mA | | |
| Potential | | Negative | | |
| Transmission frequency channel 1 | | ≤ 50 kHz | | |
| Transmission frequency channel 2 | | ≤ 50 kHz | | |
| $I_{leak}$ leakage current for $U_n$ | | ≤ 2 µA | | |
| **Auxiliary Power** | | | | |
| Nominal voltage $V_{nom}$ | | 24 V | | |
| Power supply | | Controlled | | |
| **Output** | | | | |
| Temperature influence | | ≤ 0,25 %/10K | | |
| **Ambient Conditions** | | | | |
| Ambient temperature °C | | -20 °C ... +60 °C | | |
| 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 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 mm² | | |

## 9001/00-280-050-101 Art. No. 158660

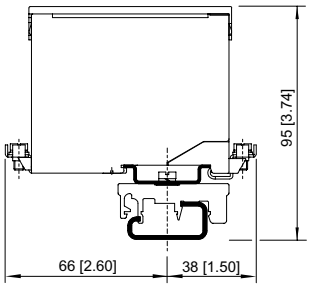
| **Mechanical Data** | |
|---|---|
| Connection cross-section max. | 1.5 mm² |
| Connection cross-section AWG | 16 AWG |
| Type of connection cable | Finely stranded<br>Solid |
| Width | 103 mm |
| Width, inches | 4.09 in |
| Length | 12 mm |
| Length in inches | 0.48 in |
| Mounting depth | 72 mm |
| Mounting depth in inches | 2.76 in |
| Weight | 110 g |
| Weight | 0.24 lb |
| **Mounting / Installation** | |
| Earthing connection cross-section | 4 mm² |
| 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 |

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

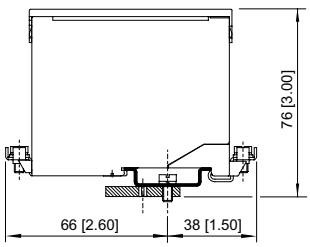



Mounting on DIN rail NS 35/15




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

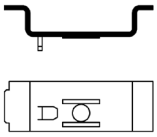


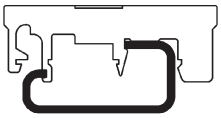

Mounting on mounting plate by means of adaptor

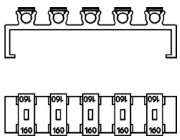
# 9001/00-280-050-101 Art. No. 158660

## Accessories

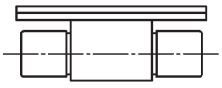
| Terminal block | | Art. No. |
|---|---|---|
|  | Phoenix Contact terminal block UT 4-PE | 113057 |
| | Phoenix Contact terminal block UT 6-PE | 113058 |

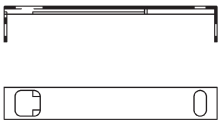
| Adaptor | | Art. No. |
|---|---|---|
|  | The adaptor enables a zener barrier to be installed on a clamping base (Art. No. 165283) or mounting plate from a previous series. | 158826 |

| Clamping base, moulded material | | Art. No. |
|---|---|---|
|  | Enables mounting of zener barrier on a G-rail. The safety barrier is mounted using the adapter (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

| Back-up fuse | | Art. No. |
|---|---|---|
|  | For all zener barriers Series 9001, 9002 and 9004<br>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.