

Zener Barriers

Dual-channel safety barrier



9002/77-093-300-001 Art. No. 158897



- 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 - RP12.06)

WebCode **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 nA [ia Ga] IIC/IIB 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 nA [ia Ga] IIC/IIB 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 |
| ULus certificate | 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 |
| cCSA certificate | 1284580 |

9002/77-093-300-001 Art. No. 158897

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 |
| EAC certificate | TS RU C-DE.ГБ04.B.00651 |
| EAC gas explosion protection | Ex 2 Ex nA [ia Ga] IIC T4 Gc X |
| EAC dust explosion protection | Ex [Ex ia Da] IIC |
| Inmetro gas certificate | UL-BR 12.0354 |
| Inmetro dust certificate | UL-BR 12.0354 |
| Certificates | ATEX (PTB), Brazil (ULB), Canada (CSA), China (CQST), EAC (STV), IECEx (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL) |
| Notes | CCC and UKCA certificate available from 2022 onward |
| Installation | in Zone 2, Division 2 and in safe area |
| Further information | see respective certificate and operating instructions |

Safety Data

| | |
|---|-------------|
| Max. voltage U_o/V_{oc} | 9.3 V |
| Max. current I_o/I_{sc} | 150 mA |
| Max. power P_o | 350 mW |
| Max. permissible external capacitance C_o/C_a for IIC | 4.1 μ F |
| Max. permissible external capacitance C_o/C_a for IIB | 31 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 |

Electrical Data

| | |
|---|------------------------------|
| Number of channels | 2 |
| Maximum resistance R_{max} | 81.5 Ω |
| Min. resistance R_{min} | 71.7 Ω |
| Potential | star barrier |
| Potential Ch 1 | star barrier |
| Potential Ch 2 | star barrier |
| Resistive current limitation using frequency ≥ 50 mA | ≤ 100 kHz |
| Resistive current limitation using frequency ≤ 50 mA | ≤ 50 kHz |
| Ileak leakage current for Un | ≤ 2 μ A |
| Ileak leakage current for Un 2 | (Unless specified otherwise) |

| Channel | V_{nom} | R_{min} | R_{max} | U_o/V_{oc} | I_o/I_{sc} | P_o |
|---------|-----------|----------------|----------------|--------------|--------------|------------|
| 1 | 6.00 V | 71.70 Ω | 81.50 Ω | 9.30 V | 150.0 mA | 350.000 mW |
| 2 | | 71.70 Ω | 81.50 Ω | 9.30 V | 150.0 mA | 350.000 mW |
| 1 + 2 | | | | 9.30 V | 300.0 mA | 700.000 mW |

Auxiliary Power

| | |
|--------------|-----------------------------|
| Power supply | Controlled, nominal voltage |
|--------------|-----------------------------|

Ambient Conditions

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

9002/77-093-300-001 Art. No. 158897

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 |
| Temperature influence | ≤ 0,25 %/10K |

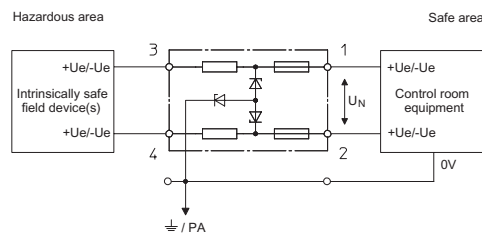
Mechanical Data

| | |
|-------------------------------------|--------------------------|
| Degree of protection (IP) | IP40 |
| Degree of protection (IP) terminals | IP20 |
| Enclosure material | Polyamide 6GF |
| Number of connection terminals | 4 |
| Max. connection cross-section | 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 | 0.11 kg |
| Weight | 0.24 lb |

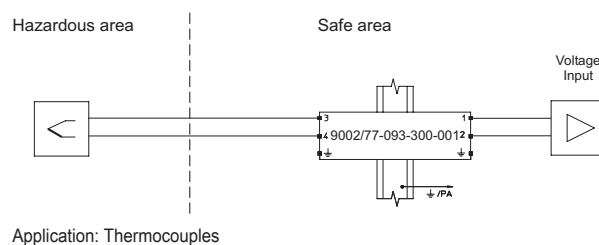
Mounting / Installation

| | |
|--------------------------------------|-------------------|
| 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 |

Technical Drawings – Subject to Alterations



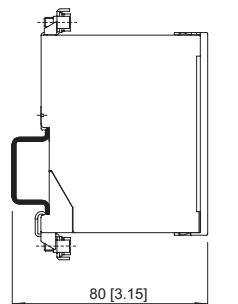
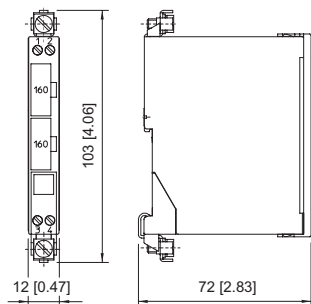
Two-channel safety barriers, star barrier / star barrier



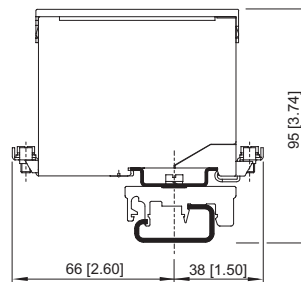
Application: Thermocouples

9002/77-093-300-001 Art. No. 158897

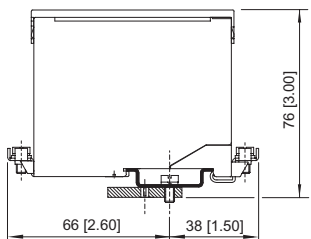
Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Mounting on DIN rail NS 35/15



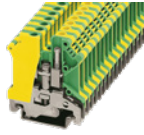
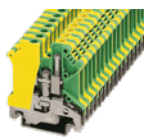

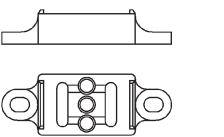


Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic



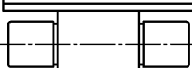
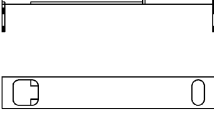
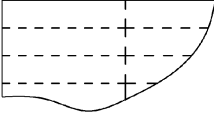
Mounting on mounting plate by means of adaptor

Accessories

| Adaptor | | Art. No. |
|---|---|----------|
|  | Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series. | 158826 |
| Mounting attachment moulded plastic | | 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 |
| Insulating stand off | | Art. No. |
|  | Suitable for DIN rail NS35/15, allows electrically insulated mounting of DIN rail from mounting plate. | 158828 |

9002/77-093-300-001 Art. No. 158897

Spare Parts

| | | Art. No. |
|--|---|----------|
|  | For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs. | 158964 |
|  | Transparent cover for labelling | 158977 |
|  | Perforated, for typing Format: DIN A4 Packaging unit: 80 pieces | 158973 |

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.