

# 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 - RP12.06)
- Convenient maintenance and repair through back-up fuse feature

WebCode **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 certificate Gas	IECEX PTB 09.0001X
IECEX gas explosion protection	Ex nA [ia Ga] IIC/IIB 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 nA [ia Ga] IIC/IIB T4 Gc
ATEX dust certificate	PTB 01 ATEX 2088 X
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
Certificate FMus	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
Certificate cCSA	1284547

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

### 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.00652
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 12.0353
Inmetro dust certificate	UL-BR 12.0353
Certificates	ATEX (PTB), Brazil (ULB), Canada (CSA), EAC (STV), IECEx (PTB), Japan (CML), Korea (KGS), USA (FM), USA (UL)
Notes	CCC certificate available from 2021 onward
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 $\mu$ F
Max. permissible external capacitance $C_o/C_a$ for IIB	2.88 $\mu$ F
Max. permissible external inductance $L_o/L_a$ for IIC	1 mH
Max. permissible external inductance $L_o/L_a$ for IIB	7 mH

### Electrical Data

Number of channels	1
Rated operational voltage DC	12 V
Maximum resistance $R_{max}$	135 $\Omega$
Min. resistance $R_{min}$	120 $\Omega$
Maximum output current $I_{max}$	88 mA
Potential	Positive potential
Resistive current limitation using frequency $\geq 50$ mA	$\leq 100$ kHz
Resistive current limitation using frequency $\leq 50$ mA	$\leq 50$ kHz
Leakage current $I_{leck}$ for $U_N$	$\leq 2$ $\mu$ A
Leakage current $I_{leck}$ for $U_N 2$	(Unless specified otherwise)

### Auxiliary Power

Nominal voltage $V_{nom}$	12 V
Power supply	Controlled, nominal voltage

### 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

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

### Ambient Conditions

Storage temperature °F	-4°F ... +167°F
Max. relative humidity	95% on average, no condensation
Temperature influence	≤ 0,25 %/10K

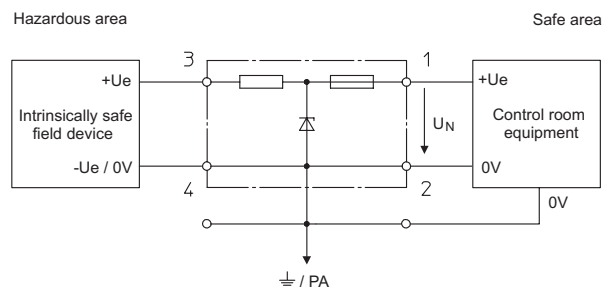
### Mechanical Data

Degree of protection (IP)	IP40
Degree of protection note	according to IEC 60529
Terminal degree of protection (IP)	IP20
Enclosure material	Polyamide 6GF
Number of connection terminals	4
Connection cross section max.	1.5 mm <sup>2</sup>
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
Mounting depth	72 mm
Mounting depth inches	2.76 in
Weight	0.11 kg
Weight	0.24 lb

### Mounting / Installation

Connection cross-section ground	4 mm <sup>2</sup>
Cross-section ground 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

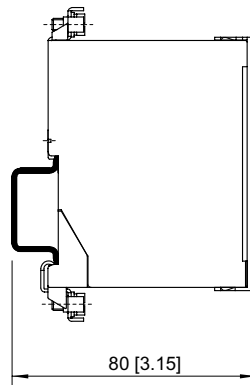
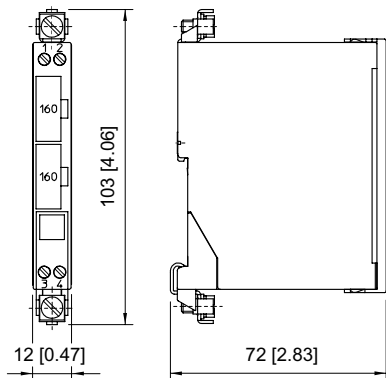
### Technical Drawings – Subject to Alterations



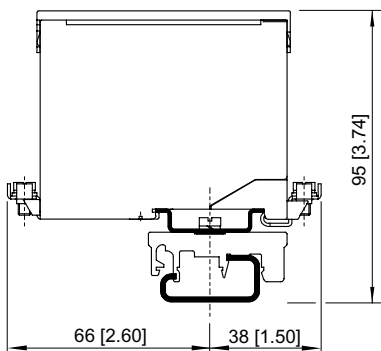
Single-Channel Safety Barriers for Positive Polarity

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

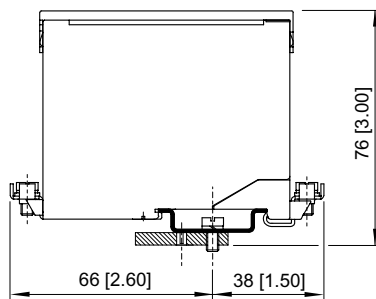
**Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations**



Mounting on DIN rail NS 35/15



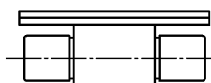
Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic



Mounting on mounting plate by means of adaptor

## Accessories and Spare Parts

### Back-up fuse

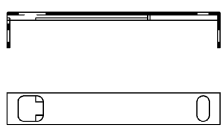


For all zener barriers Series 9001, 9002 and 9004  
unit: 5 pcs.

**Art. No.**

158964

### Holder for label

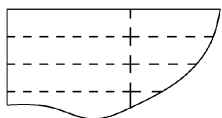


Transparent cover for labelling

**Art. No.**

158977

### Labelling paper

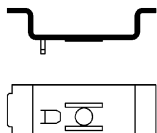


Perforated, for typing  
Format: DIN A4  
Packaging unit: 80 pieces

**Art. No.**

158973

### Adaptor



Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series.

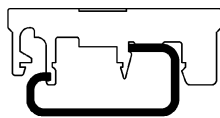
**Art. No.**

158826

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

**Mounting attachment moulded plastic**

**Art. No.**

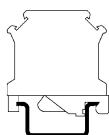


Enables mounting of zener barrier on a G-rail.

165283

**Protective conductor terminal**

**Art. No.**



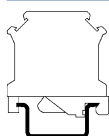
USLKG 5 (wire range AWG 12 / 4 mm<sup>2</sup>)

Terminal enables connection of protective conductors to DIN rail. Color green-yellow.

112760

**Ground terminal**

**Art. No.**



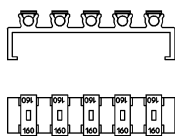
USLKG 6 N (wire range AWG 10 / 6 mm<sup>2</sup>)

Terminal enables connection of protective /Ground conductors to DIN rail. Color green-yellow.

112599

**Fuse holder**

**Art. No.**

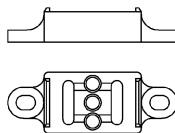


Fuse holder is snapped onto the side of the zener barrier and can be equipped with up to 5 back-up fuses (replacement).

158834

**Insulating stand off**

**Art. No.**



Suitable for DIN rail NS35/15, allows electrically insulated mounting of DIN rail from mounting plate.

158828

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.