

Zener Barriers

Single-channel safety barriers



9001/01-280-085-101 Art. No. 158351



- 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
IECEEx certificate Gas	IECEEx PTB 09.0001X
IECEEx gas explosion protection	Ex nA [ia Ga] IIC/IIB T4 Gc
IECEEx dust certificate	IECEEx PTB 09.0001X
IECEEx 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

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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
EAC certificate	TS RU C-DE.ГБ04.B.00652
EAC gas explosion protection	 2 Ex nA [ia Ga] IIC T4 Gc X
EAC dust explosion protection	 [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}	28 V
Max. current I_o/I_{sc}	85 mA
Max. power P_o	595 mW
Max. permissible external capacitance C_o/C_a for IIC	0.083 μ F
Max. permissible external capacitance C_o/C_a for IIB	0.65 μ F
Max. permissible external inductance L_o/L_a for IIC	2.4 mH
Max. permissible external inductance L_o/L_a for IIB	16 mH

Electrical Data

Number of channels	1
Rated operational voltage DC	24 V
Maximum resistance R_{max}	375 Ω
Min. resistance R_{min}	340 Ω
Maximum output current I_{max}	64 mA
Potential	Positive potential
Resistive current limitation using frequency ≥ 50 mA	≤ 100 kHz
Resistive current limitation using frequency ≤ 50 mA	≤ 50 kHz
Leakage current I_{leak} for U_N	≤ 2 μ A
Leakage current I_{leak} for $U_N 2$	(Unless specified otherwise)

Auxiliary Power

Nominal voltage V_{nom}	24 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

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Ambient Conditions

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

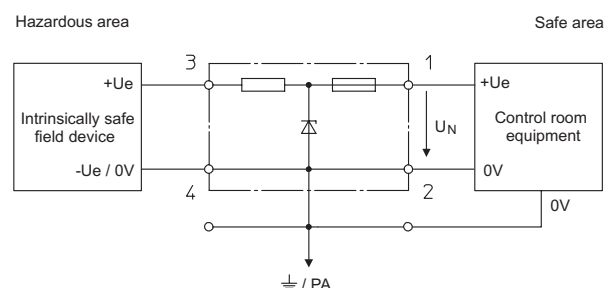
Mechanical Data

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 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
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 ²
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

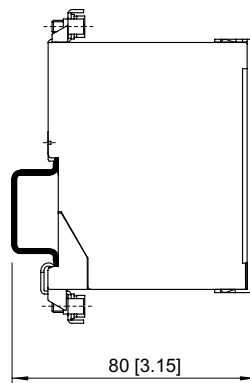
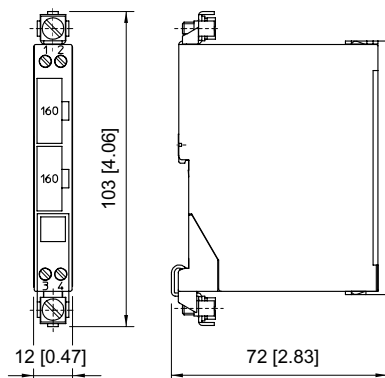
Technical Drawings – Subject to Alterations



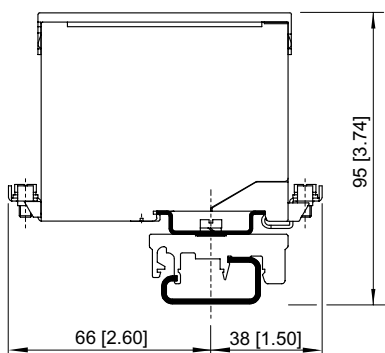
Single-Channel Safety Barriers for Positive Polarity

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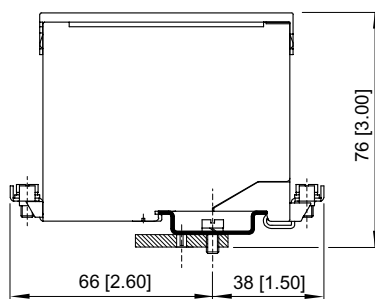
Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Mounting on DIN rail NS 35/15

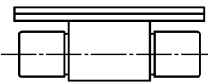
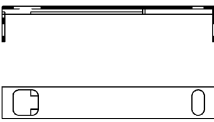
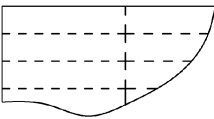
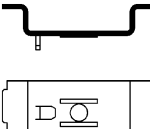


Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic



Mounting on mounting plate by means of adaptor

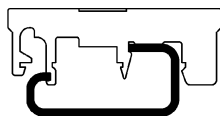
Accessories and Spare Parts

Back-up fuse		Art. No.
	For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs.	158964
Holder for label		Art. No.
	Transparent cover for labelling	158977
Labelling paper		Art. No.
	Perforated, for typing Format: DIN A4 Packaging unit: 80 pieces	158973
Adaptor		Art. No.
	Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series.	158826

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Mounting attachment moulded plastic

Art. No.

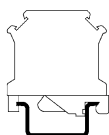


Enables mounting of zener barrier on a G-rail.

165283

Protective conductor terminal

Art. No.



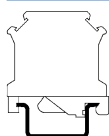
USLKG 5 (wire range AWG 12 / 4 mm²)

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

112760

Ground terminal

Art. No.



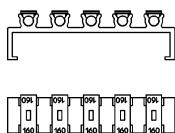
USLKG 6 N (wire range AWG 10 / 6 mm²)

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

112599

Fuse holder

Art. No.

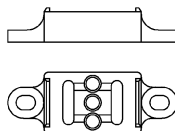


Fuse holder is snapped onto the side of the zener barrier and can be equipped with up to 5 back-up fuses (replacement).

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.