

# Zener Barriers

## Single-channel safety barriers



9001/02-280-090-101 Art. No. 158317



- 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	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 $U_o/V_{oc}$	28 V								
Max. current $I_o/I_{sc}$	90 mA								
Max. power $P_o$	630 mW								
Max. permissible external capacitance $C_o/C_a$ for IIC	0.083 $\mu$ F								
Max. permissible external capacitance $C_o/C_a$ for IIB	0.65 $\mu$ F								
Max. permissible external inductance $L_o/L_a$ for IIC	2.2 mH								
Max. permissible external inductance $L_o/L_a$ for IIB	14 mH								
Intrinsically safe limiting values Inductance $L_o$ /capacitance $C_o$	Jointly connectable inductance $L_o$ /capacitance $C_o$								
IIC	<table border="1"> <tr> <td><math>L_o</math> [mH]</td> <td>1 mH</td> <td>0.200 mH</td> </tr> <tr> <td><math>C_o</math> [<math>\mu</math>F]</td> <td>0.052 <math>\mu</math>F</td> <td>0.083 <math>\mu</math>F</td> </tr> </table>	$L_o$ [mH]	1 mH	0.200 mH	$C_o$ [ $\mu$ F]	0.052 $\mu$ F	0.083 $\mu$ F		
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$C_o$ [ $\mu$ F]	0.052 $\mu$ F	0.083 $\mu$ F							
IIB	<table border="1"> <tr> <td><math>L_o</math> [mH]</td> <td>10 mH</td> <td>1 mH</td> <td>0.100 mH</td> </tr> <tr> <td><math>C_o</math> [<math>\mu</math>F]</td> <td>0.250 <math>\mu</math>F</td> <td>0.35 <math>\mu</math>F</td> <td>0.65 <math>\mu</math>F</td> </tr> </table>	$L_o$ [mH]	10 mH	1 mH	0.100 mH	$C_o$ [ $\mu$ F]	0.250 $\mu$ F	0.35 $\mu$ F	0.65 $\mu$ F
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$C_o$ [ $\mu$ F]	0.250 $\mu$ F	0.35 $\mu$ F	0.65 $\mu$ F						

### Electrical Data

Number of channels	1
Maximum resistance $R_{max}$	357 $\Omega$
Min. resistance $R_{min}$	320 $\Omega$
Maximum output current $I_{max}$	67 mA
Potential	alternating
Transmission frequency channel 1	$\leq$ 100 kHz
$I_{leak}$ leakage current for $U_n$	$\leq$ 2 $\mu$ A

### Auxiliary Power

Nominal voltage $V_{nom}$	$\pm$ 24 V AC+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  $\leq 0,25 \%/10K$

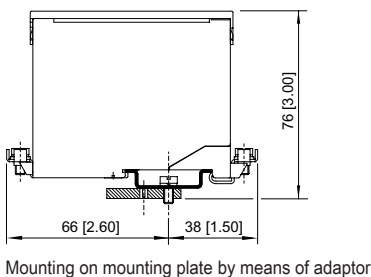
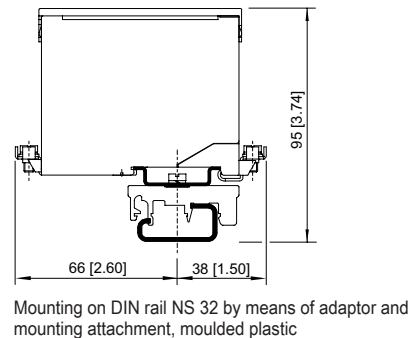
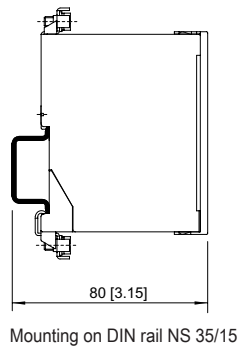
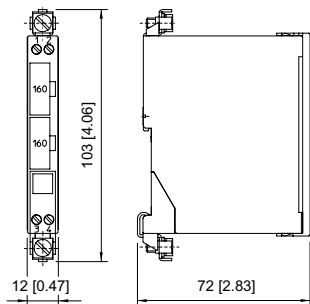
### Mechanical Data

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 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
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 <sup>2</sup>
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



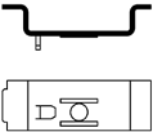
# Zener Barriers

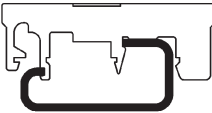
## Single-channel safety barriers

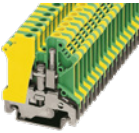


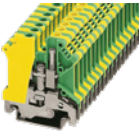
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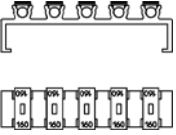
### Accessories

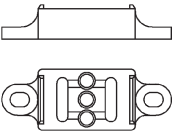
Adaptor		Art. No.
	Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series.	158826

Clamping base, moulded material		Art. No.
	Enables mounting of zener barrier on a G-rail.	165283

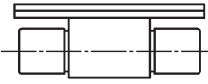
Protective conductor terminal		Art. No.
	USLKG 5 (wire range AWG 12 / 4 mm <sup>2</sup> ) Terminal enables connection of protective conductors to DIN rail. Color green-yellow.	112760

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

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.
	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.