Zener Barriers
Dual-channel safety barrier

9002/11-137-029-001 Art. No. 158940

- 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)

MY R. STAHL **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 ec [ia Ga] IIC 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	Ⓔx II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
ATEX dust certificate	PTB 01 ATEX 2053 X
ATEX dust explosion protection	Ⓔx 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
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. 90 026 11 31 3
cCSA certificate	1284580

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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 12.0354		
Inmetro dust certificate			UL-BR 12.0354		
Certificates			ATEX (PTB), Brazil (ULB), Canada (CSA), China (CQST), IECEx (PTB), Japan (CML), Korea (KGS), USA (FM), USA (UL)		
Declaration of Conformity			ATEX (EUK), China (CCC)		
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}			13.7 V		
Max. current I_o/I_{sc}			14.5 mA		
Max. power P_o			50 mW		
Max. permissible external capacitance C_o/C_a for IIC			0.79 µF		
Max. permissible external capacitance C_o/C_a for IIB			5 µF		
Max. permissible external inductance L_o/La for IIC			160 mH		
Max. permissible external inductance L_o/La for IIB			560 mH		
Intrinsically safe limiting values Inductance L_o/capacitance C_o			Jointly connectable inductance L_o/capacitance C_o		
Channel 1	IIC	L_o [mH]	50 mH	1 mH	0.100 mH
		C_o [µF]	0.250 µF	0.4800 µF	0.7900 µF
	IIB	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	1.30 µF	2.60 µF	5 µF
Channel 2	IIC	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	0.250 µF	0.480 µF	0.790 µF
	IIB	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	1.30 µF	2.60 µF	5 µF
Channels 1 + 2	IIC	L_o [mH]	50 mH	1 mH	0.10 mH
		C_o [µF]	0.170 µF	0.470 µF	0.790 µF
	IIB	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	1.200 µF	2.60 µF	5 µF
Electrical Data					
Number of channels			2		
Maximum resistance R_{max}			978 Ω		
Min. resistance R_{min}			953 Ω		
Maximum output current I_{max}			10 mA		
Potential channel 1			Positive		
Potential channel 2			Positive		
Transmission frequency channel 1			≤ 50 kHz		
Type of voltage			DC		

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Electrical Data

I_{leak} leakage current for U_n	≤ 2 µA

Channel	V_{nom}	I_{max}	R_{min}	R_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o
1	10.00 V DC	10 mA	953 Ω	978 Ω	13.70 V	14.5 mA	50 mW
2	10 V	10 mA	953 Ω	978 Ω	13.70 V	14.5 mA	50 mW
1 + 2					13.70 V	29 mA	100 mW

Auxiliary Power

Power supply	Controlled

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
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
Connection cross-section max.	1.5 mm²
Connection cross-section AWG	16 AWG
Type of connection cable	Solid Finely stranded
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 mm²
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

Zener Barriers
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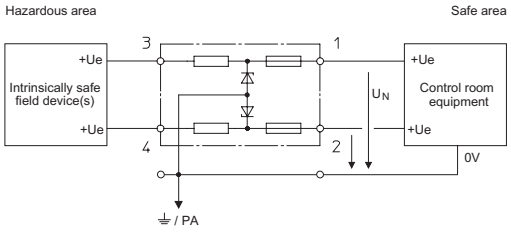
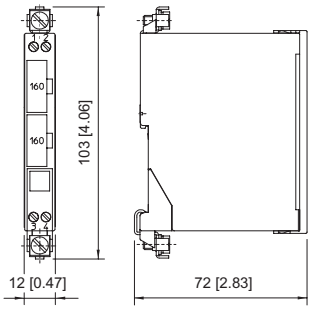
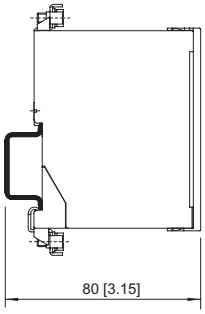
Technical Drawings – Subject to Alterations



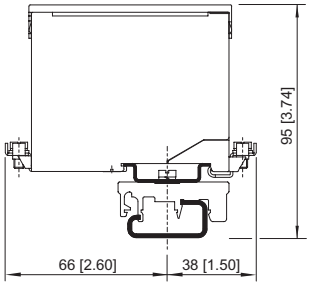
Dual-channel safety barriers, potential: + / +

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

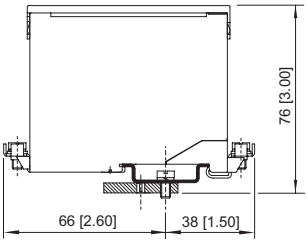




Mounting on DIN rail NS 35/15

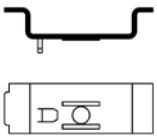


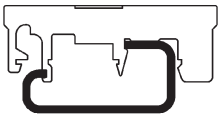
Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic

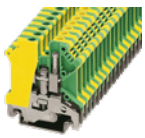


Mounting on mounting plate by means of adaptor

Accessories

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

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 mm²) Terminal enables connection of protective conductors to DIN rail. Color green-yellow.	112760

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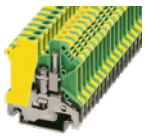
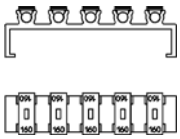
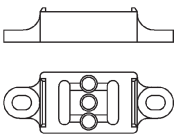
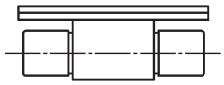
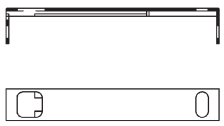
Ground terminal		Art. No.
	USLKG 6 N (wire range AWG 10 / 6 mm²) Terminal enables connection of protective /Ground conductors to DIN rail. Color green-yellow.	112599

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

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

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