Zener Barriers

Two-channel safety barrier

9002/10-187-020-001 Art. No. 158937

- 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	Ex II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
ATEX dust certificate	PTB 01 ATEX 2053 X
ATEX dust explosion protection	Ex 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
Inmetro gas certificate	UL-BR 12.0354
Inmetro dust certificate	UL-BR 12.0354
Certificates	ATEX (PTB), Brazil (ULB), Canada (FM), IECEx (PTB), India (PESO), 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

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Safety Data

Max. voltage U_o/V_{oc}	9.3 V
Max. current I_o/I_{sc}	20 mA
Max. power P_o	50 mW
Max. permissible external capacitance C_o/C_a for IIC	3.9 µF
Max. permissible external inductance L_o/La for IIC	90 mH
Max. permissible external capacitance C_o/C_a for IIB	29 µF
Max. permissible external inductance L_o/La for IIB	330 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]	0.480 µF	1 µF	1.8000 µF
	IIB	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	2.80 µF	5.70 µF	11 µF
Channel 2	IIC	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	0.480 µF	1 µF	1.800 µF
	IIB	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	2.80 µF	5.70 µF	11 µF
Channels 1 + 2	IIC	L_o [mH]	50 mH	1 mH	0.10 mH
		C_o [µF]	0.480 µF	0.210 µF	0.250 µF
	IIB	L_o [mH]	50 mH	1 mH	0.1 mH
		C_o [µF]	0.690 µF	1.30 µF	1.500 µF

Electrical Data

Number of channels	2
Type of voltage	DC
Maximum resistance R_{max}	543 Ω
Min. resistance R_{min}	490 Ω
Maximum output current I_{max}	11 mA
Potential channel 1	Positive
Potential channel 2	Negative
Transmission frequency channel 1	≤ 50 kHz
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	6.00 V	11 mA	490 Ω	543 Ω	9.30 V	20 mA	50 mW
2	-6 V	11 mA	490 Ω	543 Ω	9.30 V	20 mA	50 mW
1 + 2					18.70 V	20 mA	90 mW

Auxiliary Power

Power supply	Controlled

Output

Temperature influence	≤ 0,25 %/10K

Ambient Conditions

Ambient temperature °C	-20 °C ... 60 °C

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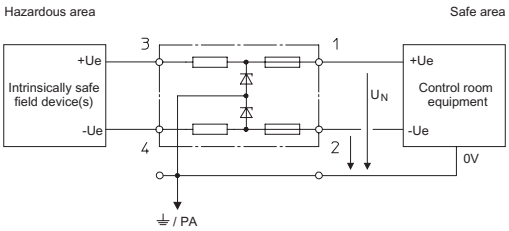
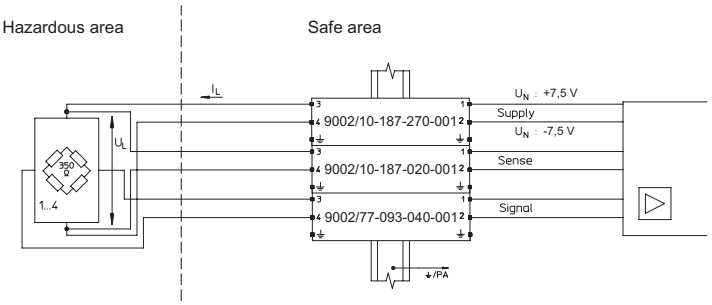
Ambient Conditions	
Ambient temperature °F	-4°F ... +140°F
Storage temperature °C	-20 °C ... 75 °C
Storage temperature °F	-4°F ... +167°F
Max. relative humidity	95% average, no condensation
Mechanical Data	
Degree of protection (IP)	IP40
Degree of protection (IP) terminals	IP20
Enclosure material	Polyamide 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 in inches	0.48 in
Mounting depth	72 mm
Mounting depth in 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 N · m
Min. torque, lb/in	4.43 lb/in
Max. torque, Nm	0.6 N · m
Max. torque, lb/in	5.31 lb/in

Technical Drawings – Subject to Alterations



Dual-channel safety barriers, potential: + / -



Application: Load cell (DMS) 350 Ω or 700 Ω
6-wire ± 7.5 V (15 V) field circuit unearthed

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

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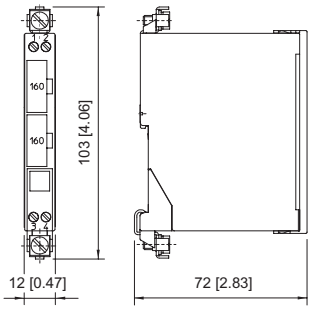
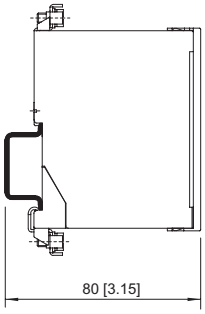
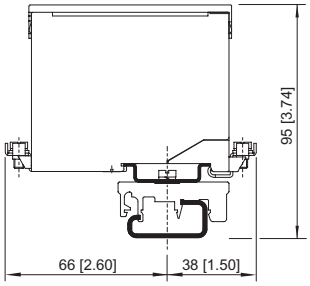
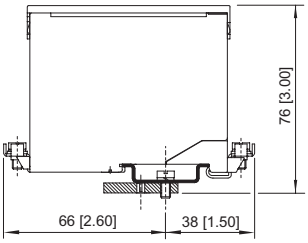




Mounting on DIN rail NS 35/15



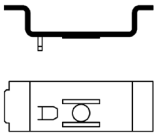
Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic

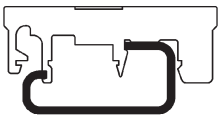


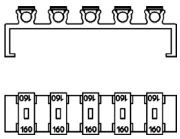
Mounting on mounting plate by means of adaptor

Accessories

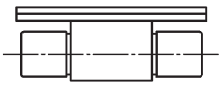
Terminal block		Art. No.
	Phoenix Contact terminal block UT 4-PE	113057
	Phoenix Contact terminal block UT 6-PE	113058

Adaptor		Art. No.
	The adaptor enables a zener barrier to be installed on a clamping base (Art. No. 165283) or mounting plate from a previous series.	158826

Clamping base, moulded material		Art. No.
	Enables mounting of zener barrier on a G-rail. The safety barrier is mounted using the adapter (Art. No. 158826).	165283

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

Spare Parts

Back-up fuse		Art. No.
	For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs.	158964

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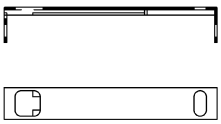
Label carrier		Art. No.
	Transparent cover for the label	158977

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.