

Zener Barriers

Two-channel safety barrier



9002/11-280-186-001 Art. No. 158848



- 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] IIB 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	⊕ II 3 (1) G Ex ec [ia Ga] IIB T4 Gc
ATEX dust certificate	PTB 01 ATEX 2053 X
ATEX dust explosion protection	⊕ 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 C,D,F,G; Class I, Zone 0, Group 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 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}			28 V		
Max. current I_o/I_{sc}			93 mA		
Max. power P_o			650 mW		
Max. permissible external capacitance C_o/C_a for IIC			0.083 μ F		
Max. permissible external inductance L_o/L_a for IIC			2 mH		
Max. permissible external capacitance C_o/C_a for IIB			0.65 μ F		
Max. permissible external inductance L_o/L_a for IIB			13 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]	1 mH		0.100 mH
		C_o [μ F]	0.0520 μ F		0.0830 μ F
	IIB	L_o [mH]	10 mH	1 mH	0.1 mH
		C_o [μ F]	0.25 μ F	0.35 μ F	0.65 μ F
Channel 2	IIC	L_o [mH]	1 mH		0.1 mH
		C_o [μ F]	0.052 μ F		0.083 μ F
	IIB	L_o [mH]	10 mH	1 mH	0.1 mH
		C_o [μ F]	0.25 μ F	0.35 μ F	0.65 μ F
Channels 1 + 2	IIC	L_o [mH]	1 mH		0.1 mH
		C_o [μ F]	0.34 μ F		0.551 μ F
	IIB	L_o [mH]	1 mH		0.1 mH
		C_o [μ F]	0.34 μ F		0.551 μ F

Electrical Data

Number of channels	2
Type of voltage	DC
Maximum resistance R_{max}	359 Ω
Min. resistance R_{min}	322 Ω
Maximum output current I_{max}	69 mA
Potential channel 1	Positive
Potential channel 2	Positive
Transmission frequency channel 1	\leq 100 kHz
I_{leak} leakage current for U_n	\leq 2 μ A

Chan-nel	V_{nom}	I_{max}	R_{min}	R_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o
1	25.00 V	69 mA	322 Ω	359 Ω	28 V	93 mA	650 mW
2	25 V	69 mA	322 Ω	359 Ω	28 V	93 mA	650 mW
1 + 2					28 V	186 mA	1300 mW

Auxiliary Power

Power supply	Controlled
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Output

Temperature influence	\leq 0,25 %/10K
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Ambient Conditions

Ambient temperature $^{\circ}$ C	-20 $^{\circ}$ C ... 60 $^{\circ}$ 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

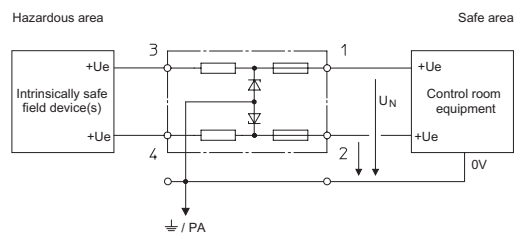
Mechanical Data

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 mm ²
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

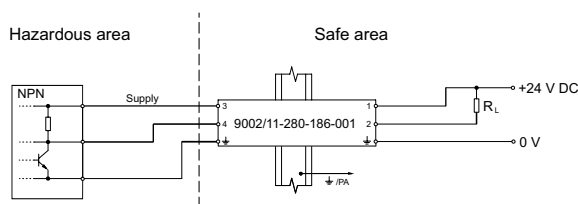
Mounting / Installation

Earthing connection cross-section	4 mm ²
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: + / +



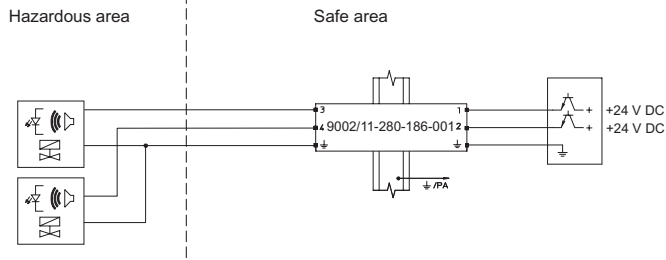
Application: 3-wire NPN inputs (negative switching) of proximity switches, photocells and encoders

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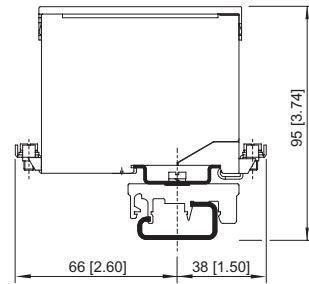
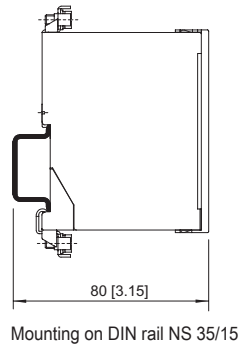
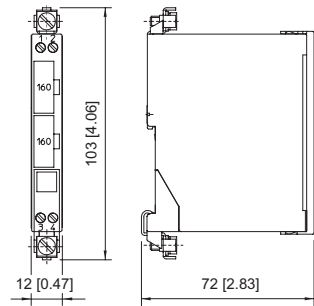


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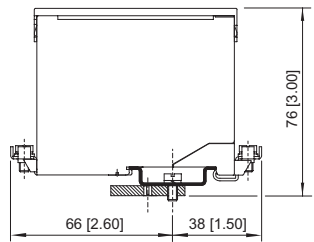


Application: Discrete 2-wire output for solenoid valves, LEDs and signalling devices

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



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 adaptor (Art. No. 158826).	165283

Zener Barriers

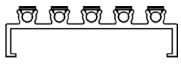
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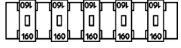
Fuse holder

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).

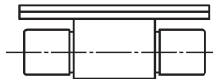
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Spare Parts

Back-up fuse

Art. No.



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

158964

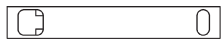
Label carrier

Art. No.



Transparent cover for the label

158977



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