Zener Barriers
Dual-channel safety barrier

9002/22-240-160-001 Art. No. 158948

- 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)

WebCode **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 certificate Gas	IECEx PTB 08.0057X
IECEx gas explosion protection	Ex nA [ia Ga] IIC/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	Ⓔx II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc
ATEX dust certificate	PTB 01 ATEX 2053 X
ATEX dust explosion protection	Ⓔx II (1) D [Ex ia Da] IIIC
Certificate FMus	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
Certificate cCSA	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
EAC certificate	TS RU C-DE.ГБ04.B.00651
EAC gas explosion protection	Ex 2 Ex nA [ia Ga] IIC T4 Gc X
EAC dust explosion protection	Ex [Ex ia Da] IIIC
Inmetro gas certificate	UL-BR 12.0354
Inmetro dust certificate	UL-BR 12.0354
Certificates	ATEX (PTB), Brazil (ULB), Canada (CSA), China (CQST), EAC (STV), IECEx (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL)
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}	12 V
Max. current I_o/I_{sc}	80 mA
Max. power P_o	240 mW
Max. permissible external capacitance C_o/C_a for IIC	1.41 µF
Max. permissible external capacitance C_o/C_a for IIB	9 µF
Max. permissible external inductance L_o/L_a for IIC	6 mH
Max. permissible external inductance L_o/L_a for IIB	22 mH
Electrical Data	
Number of channels	2
Rated operational voltage DC	9 V
Maximum resistance R_{max}	177 Ω
Min. resistance R_{min}	158 Ω
Maximum output current I_{max}	50 mA
Potential	Alternative potential
Potential Ch 1	Alternative potential
Potential Ch 2	Alternative potential
Resistive current limitation using frequency ≥ 50 mA	≤ 100 kHz
Resistive current limitation using frequency ≤ 50 mA	≤ 50 kHz
Leakage current I_{leck} for U_N	≤ 2 µA
Leakage current I_{leck} for U_N 2	(Unless specified otherwise)

Channel	V_{nom}	R_{min}	R_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o
1	9.00 V	158.00 Ω	177.00 Ω	12.00 V	80.0 mA	240.000 mW
2	9.00 V	158.00 Ω	177.00 Ω	12.00 V	80.0 mA	240.000 mW
1 + 2	18.00 V			24.00 V	160.0 mA	480.000 mW

Auxiliary Power	
Nominal voltage V_{nom}	9 V

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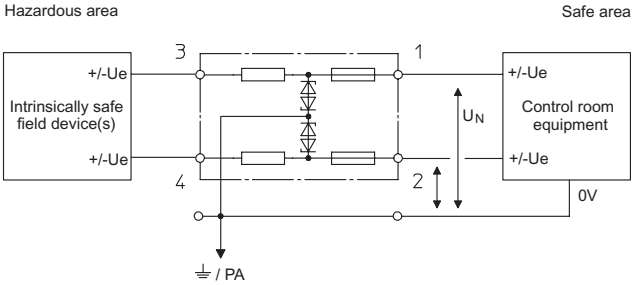
Auxiliary Power	
Power supply	Controlled, nominal voltage
Ambient Conditions	
Ambient temperature °C	-20 °C ... +60 °C
Ambient temperature °F	-4°F ... +140°F
Storage temperature °C	-20 °C ... +75 °C
Storage temperature °F	-4°F ... +167°F
Max. relative humidity	95% on average, no condensation
Temperature influence	≤ 0,25 %/10K
Mechanical Data	
Degree of protection (IP)	IP40
Terminal degree of protection (IP)	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
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 mm²
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



Two-channel safety barriers, potential: ~ / ~

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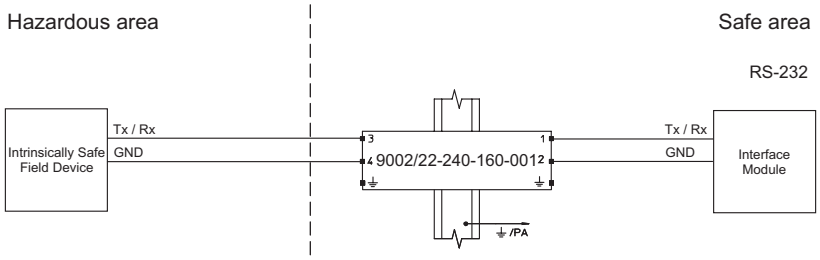
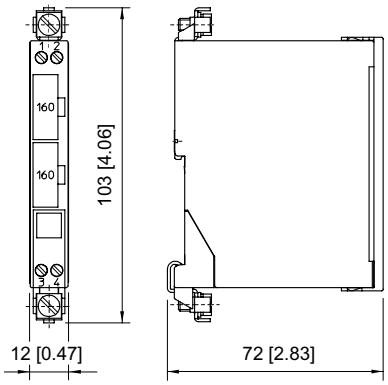
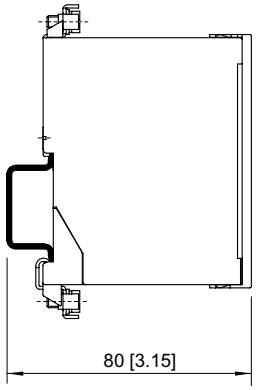


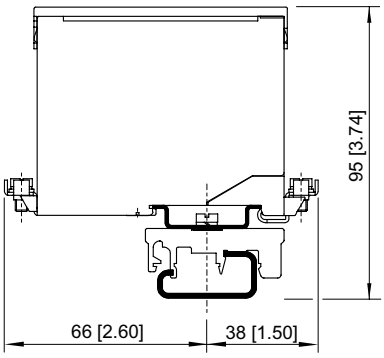
Application with RS 232

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

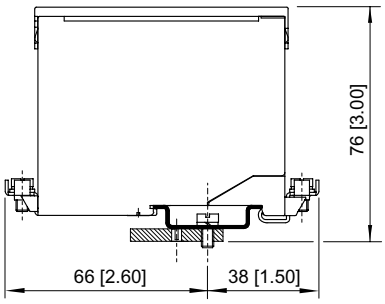




Mounting on DIN rail NS 35/15

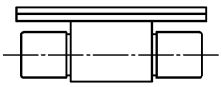


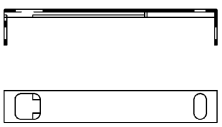
Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic



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

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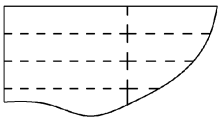
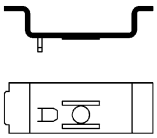
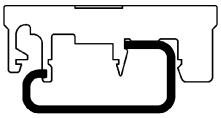
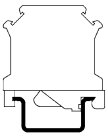
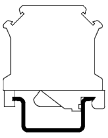
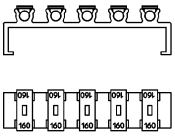
Labelling paper	Art. No.
 Perforated, for typing Format: DIN A4 Packaging unit: 80 pieces	158973

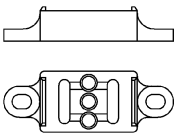
Adaptor	Art. No.
 Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series.	158826

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