

# Zener Barriers

## Dual-channel safety barrier



9002/13-280-093-001 Art. No. 158852



- 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 - RP112.06)

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 gas certificate	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	⊕ II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc
ATEX dust certificate	PTB 01 ATEX 2053 X
ATEX dust explosion protection	⊕ 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] IIC
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 $U_o/V_{oc}$	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

### Electrical Data

Number of channels	2					
Rated operational voltage DC	24 V					
Maximum resistance $R_{max}$	359 $\Omega$					
Min. resistance $R_{min}$	322 $\Omega$					
Maximum output current $I_{max}$	67 mA					
Potential	Positive potential with diode feedback					
Potential Ch 1	Positive potential					
Potential Ch 2	Evaluation barrier +potential					
Resistive current limitation using frequency $\geq 50$ mA	$\leq 100$ kHz					
Resistive current limitation using frequency $\leq 50$ mA	$\leq 50$ kHz					
Leakage current $I_{leak}$ for $U_N$	$\leq 2$ $\mu$ A					
Leakage current $I_{leak}$ 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	24.00 V	322.00 $\Omega$	359.00 $\Omega$	28.00 V	90.0 mA	630.000 mW
2	24.00 V			28.00 V	3.0 mA	21.000 mW
1 + 2				28.00 V	93.0 mA	651.000 mW

### Auxiliary Power

Nominal voltage $V_{nom}$	24 V
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### Auxiliary Power

Power supply	Controlled, nominal voltage
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### 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

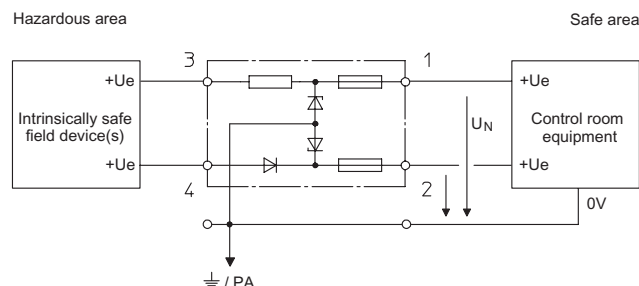
### Mechanical Data

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 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
Mounting depth	72 mm
Mounting depth inches	2.76 in
Weight	0.11 kg
Weight	0.24 lb

### Mounting / Installation

Connection cross-sect. ground	4 mm <sup>2</sup>
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

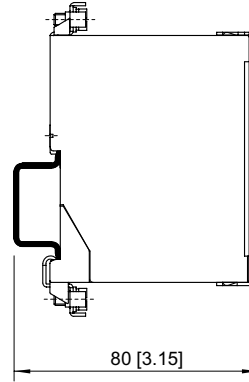
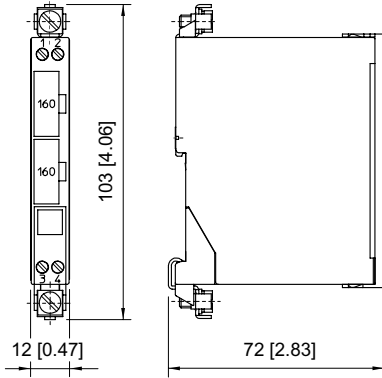
### Technical Drawings – Subject to Alterations



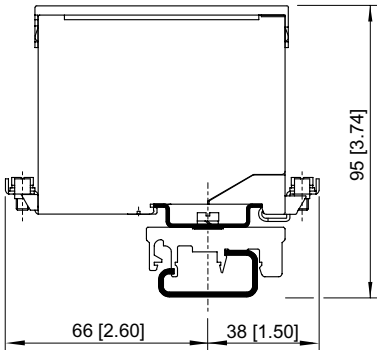
Two-channel safety barriers, safety barrier potential: + / evaluation barrier potential: +

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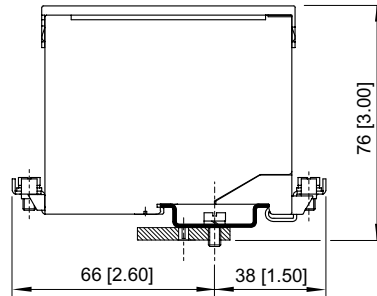
**Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations**



Mounting on DIN rail NS 35/15



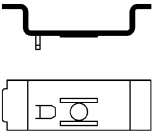
Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic

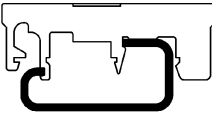


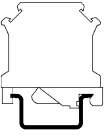
Mounting on mounting plate by means of adaptor

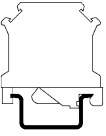
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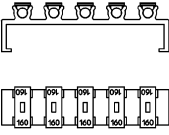
## Accessories

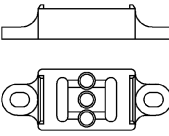
Adaptor		Art. No.
	Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series.	158826

Mounting attachment moulded plastic		Art. No.
	Enables mounting of zener barrier on a G-rail.	165283

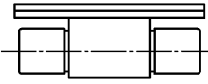
Protective conductor terminal		Art. No.
	USLKG 5 (wire range AWG 12 / 4 mm <sup>2</sup> ) Terminal enables connection of protective conductors to DIN rail. Color green-yellow.	112760

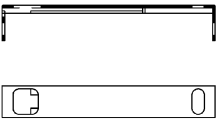
Ground terminal		Art. No.
	USLKG 6 N (wire range AWG 10 / 6 mm <sup>2</sup> ) Terminal enables connection of protective /Ground conductors to DIN rail. Color green-yellow.	112599

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

Insulating stand off		Art. No.
	Suitable for DIN rail NS35/15, allows electrically insulated mounting of DIN rail from mounting plate.	158828

## 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

# Zener Barriers

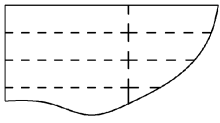
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### Labelling paper

Art. No.



Perforated, for typing  
Format: DIN A4  
Packaging unit: 80 pieces

158973

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