

# Safety barriers

## Dual-channel safety barrier



9002/77-220-146-001 Art. No. 158885



- For the intrinsically safe operation of a wide range of devices, such as HART transmitters, solenoid valves, sensors, potential-free contacts and many more
- Compact and space-saving devices that are easy to install on a DIN rail
- Quick to install as barriers can be simultaneously snapped onto the rail and connected to PE

MY R. STAHL 9002A



The series 9002 INTRINSPAK dual-channel safety barriers enable the intrinsically safe operation of virtually all field devices. The comprehensive portfolio and the combination of safety 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 standardised 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	⊕ II 3 (1) G Ex ec [ia Ga] IIC 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 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), 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 areas
Further information	See relevant certificate and operating instructions

### Safety Data

Max. voltage $U_o$	22 V				
Max. current $I_o$	73 mA				
Max. power $P_o$	400 mW				
Max. permissible external capacity $C_o$ for IIC	0.165 $\mu$ F				
Max. permissible external capacity $C_o$ for IIB	1.14 $\mu$ F				
Max. permissible external inductance $L_o$ for IIC	7 mH				
Max. permissible external inductance $L_o$ for IIB	26 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]	5 mH	1 mH	0.100 mH
		$C_o$ [ $\mu$ F]	0.090 $\mu$ F	0.0960 $\mu$ F	0.1650 $\mu$ F
	IIB	$L_o$ [mH]	10 mH	1 mH	0.1 mH
		$C_o$ [ $\mu$ F]	0.55 $\mu$ F	0.63 $\mu$ F	1 $\mu$ F
Channel 2	IIC	$L_o$ [mH]	5 mH	1 mH	0.1 mH
		$C_o$ [ $\mu$ F]	0.090 $\mu$ F	0.096 $\mu$ F	0.165 $\mu$ F
	IIB	$L_o$ [mH]	10 mH	1 mH	0.1 mH
		$C_o$ [ $\mu$ F]	0.55 $\mu$ F	0.63 $\mu$ F	1 $\mu$ F
Channels 1 + 2	IIC	$L_o$ [mH]		0.5 mH	0.10 mH
		$C_o$ [ $\mu$ F]		0.091 $\mu$ F	0.160 $\mu$ F
	IIB	$L_o$ [mH]	5 mH	1 mH	0.1 mH
		$C_o$ [ $\mu$ F]	5.600 $\mu$ F	5.70 $\mu$ F	0.990 $\mu$ F

### Electrical Data

Number of channels	2
Maximum resistance $R_{max}$	359 $\Omega$
Minimum resistance $R_{min}$	322 $\Omega$
Potential channel 1	Star barrier (positive)
Potential channel 2	Star barrier (negative)
Transmission frequency channel 1	$\leq$ 50 kHz
Type of voltage	AC/DC
$I_{leak}$ leakage current for $U_n$	$\leq$ 2 $\mu$ A

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Channel	Nominal voltage $U_N$	Maximum output current $I_{max}$	Minimum resistance $R_{min}$	Maximum resistance $R_{max}$	Maximum voltage $U_o$	Maximum current $I_o$	Maximum power $P_o$
1			322 $\Omega$	359 $\Omega$	22 V	73 mA	400 mW
2			322 $\Omega$	359 $\Omega$	22 V	73 mA	400 mW
1 + 2	18 V				22 V	296 mA	800 mW

### Auxiliary Power

Power supply	Controlled
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### Ambient Conditions

Ambient temperature	-20 °C ... 50 °C
Ambient temperature	-4°F ... +140°F
Storage temperature	-20 °C ... 75 °C
Storage temperature	-4°F ... +167°F
Maximum 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 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
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 mm <sup>2</sup>
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

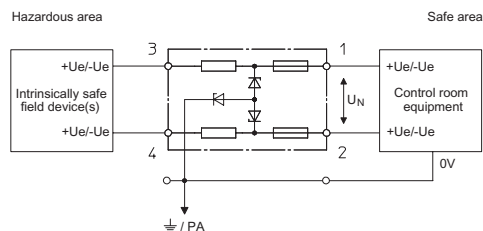
# Safety barriers

## Dual-channel safety barrier



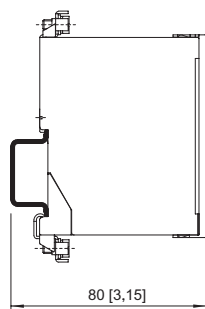
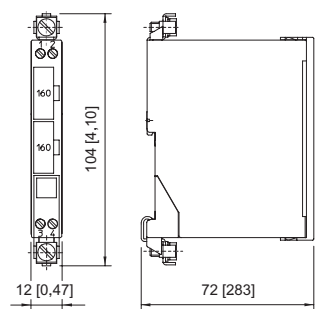
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### Technical Drawings – Subject to Alterations

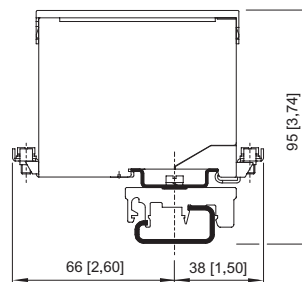


Dual-channel safety barriers, star barrier/star barrier

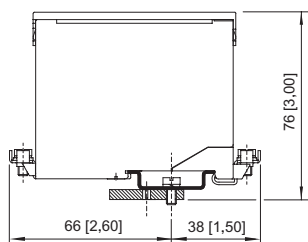
### Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



mounted on the NS 35/15 mounting rail



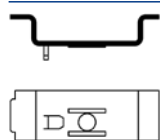
mounted on the NS 32 mounting rail with adaptor and clamping base made of moulded material



installed on mounting plate with adaptor

## Accessories

### Adaptor

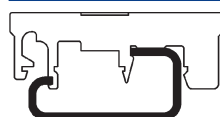


The adaptor enables a series 900x safety barrier to be installed on a mounting plate from a previous series.

Art. No.

158826

### Clamping base, moulded material

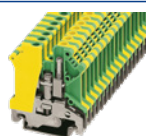


Enables the safety barrier to be mounted on a G-rail.

Art. No.

165283

### Protective conductor terminal



USLKG 5 (clamping range 4 mm<sup>2</sup>)  
The terminal enables protective conductors to be connected to the DIN rail. Colour green-yellow.

Art. No.

112760

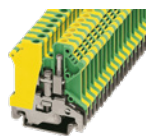
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### Earthing terminal

Art. No.



USLKG 6 N (clamping range 6 mm<sup>2</sup>)  
The terminal enables protective conductors/earthing conductors to be connected to the DIN rail. Colour green-yellow.

112599

### Fuse holder

Art. No.



The fuse holder is snapped onto the side of a safety barrier and can be equipped with up to five back-up fuses (replacement).

158834



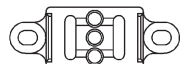
### Insulation and fastening material

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 series 9001, 9002 and 9004 safety barriers  
Packaging unit: 5 pieces

158964

### Label carrier

Art. No.



Transparent cover for the label

158977



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