

# Zener Barriers

## Single-channel safety barriers



9001/01-199-050-101 Art. No. 158616



- 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)
- Convenient maintenance and repair through back-up fuse feature

MY R. STAHL 9001A



The 9001 series INTRINSPAK single-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 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 09.0001X
IECEX gas explosion protection	Ex ec [ia Ga] IIC T4 Gc
IECEX dust certificate	IECEX PTB 09.0001X
IECEX dust explosion protection	[Ex ia Da] IIIC
ATEX gas certificate	PTB 01 ATEX 2088 X
ATEX gas explosion protection	⊕ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
ATEX dust certificate	PTB 01 ATEX 2088 X
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
FMus certificate	3011002
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. 90 016 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. 90 016 11 31 3
Inmetro gas certificate	UL-BR 12.0353
Inmetro dust certificate	UL-BR 12.0353
Certificates	ATEX (PTB), Brazil (ULB), Canada (FM), China (NEPSI), IECEX (PTB), India (PESO), Japan (CML), Korea (KGS), USA (FM), USA (UL)
Declaration of conformity	ATEX (EUK), China (CCC)
Installation	in Zone 2, Class I, Div. 2, and Class I, Zone 2 and in safe area
Further information	see respective certificate and operating instructions

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**Safety Data**

Max. voltage $U_o/V_{oc}$	19.9 V			
Max. current $I_o/I_{sc}$	50 mA			
Max. power $P_o$	249 mW			
Max. permissible external capacitance $C_o/C_a$ for IIC	0.223 $\mu$ F			
Max. permissible external inductance $L_o/L_a$ for IIC	15 mH			
Max. permissible external capacitance $C_o/C_a$ for IIB	1.42 $\mu$ F			
Max. permissible external inductance $L_o/L_a$ for IIB	56 mH			
Intrinsically safe limiting values Inductance $L_o$ /capacitance $C_o$	Jointly connectable inductance $L_o$ /capacitance $C_o$			
IIC	$L_o$ [mH]	10 mH	1 mH	0.100 mH
	$C_o$ [ $\mu$ F]	0.140 $\mu$ F	0.150 $\mu$ F	0.210 $\mu$ F
IIB	$L_o$ [mH]	50 mH	1 mH	0.100 mH
	$C_o$ [ $\mu$ F]	0.500 $\mu$ F	0.95 $\mu$ F	1.30 $\mu$ F

**Electrical Data**

Number of channels	1
Type of voltage	DC
Maximum resistance $R_{max}$	462 $\Omega$
Min. resistance $R_{min}$	415 $\Omega$
Maximum output current $I_{max}$	34 mA
Potential	Positive
Transmission frequency channel 1	$\leq$ 50 kHz
$I_{leak}$ leakage current for $U_n$	$\leq$ 2 $\mu$ A

**Auxiliary Power**

Nominal voltage $V_{nom}$	16 V
Power supply	Controlled

**Output**

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

Ambient temperature $^{\circ}$ C	-20 $^{\circ}$ C ... 60 $^{\circ}$ C
Ambient temperature $^{\circ}$ F	-4 $^{\circ}$ F ... +140 $^{\circ}$ F
Storage temperature $^{\circ}$ C	-20 $^{\circ}$ C ... 75 $^{\circ}$ C
Storage temperature $^{\circ}$ F	-4 $^{\circ}$ F ... +167 $^{\circ}$ F
Max. relative humidity	95% average, no condensation

**Mechanical Data**

Degree of protection (IP)	IP40
Degree of protection note	according to IEC 60529
Degree of protection (IP) terminals	IP20
Enclosure material	Polyamide 6GF
Number of connection terminals	4
Connection cross section min.	1.5 mm <sup>2</sup>
Connection cross-section max.	1.5 mm <sup>2</sup>
Connection cross-section AWG	16 AWG

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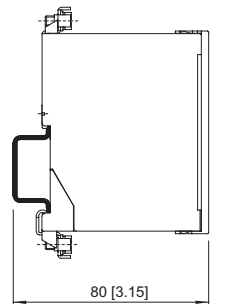
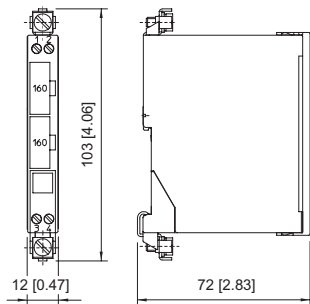
### Mechanical Data

Type of connection cable	Finely stranded Solid
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

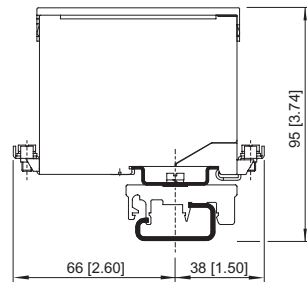
### Mounting / Installation

Earthing connection cross-section	4 mm <sup>2</sup>
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

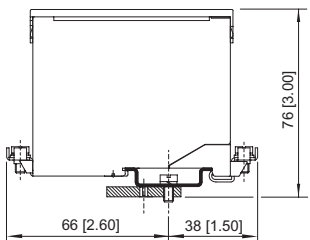
### Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



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

### Terminal block



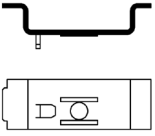
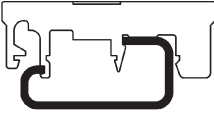
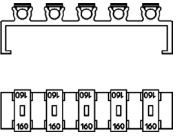
	Art. No.
Phoenix Contact terminal block UT 4-PE	113057
Phoenix Contact terminal block UT 6-PE	113058

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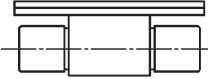
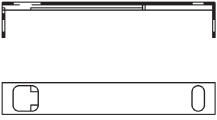
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<b>Adaptor</b>		<b>Art. No.</b>
	The adaptor enables a zener barrier to be installed on a clamping base (Art. No. 165283) or mounting plate from a previous series.	158826
<b>Clamping base, moulded material</b>		<b>Art. No.</b>
	Enables mounting of zener barrier on a G-rail. The safety barrier is mounted using the adaptor (Art. No. 158826).	165283
<b>Fuse holder</b>		<b>Art. No.</b>
	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

<b>Back-up fuse</b>		<b>Art. No.</b>
	For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs.	158964
<b>Label carrier</b>		<b>Art. No.</b>
	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.