



- > For binary signal and control circuits
- > Intrinsically safe inputs or outputs [Ex ia] IIC
- > Galvanic isolation between inputs and outputs
- > For use up to SIL 2 (IEC 61508)

A3



08578E00

Basic function: binary input / output, 1 and 2 channels  
The I.S. Relay Modules are used for isolation of intrinsically safe and non intrinsically safe signal and control circuits. Depending on the version either the control circuit or the signal circuit is intrinsically safe.



	ATEX / IECEx						NEC 505						NEC 506						NEC 500					
	0	1	2	20	21	22	Class I						Class II						Class III					
Zone	0	1	2	20	21	22	Zone	0	1	2	20	21	22	Division	1	2	1	2	1	2				
Ex i interface	x	x	x	x	x	x	Ex i interface	x	x	x				Ex i interface	x	x	x	x	x	x	x			
Installation in			x <sup>*)</sup>			x <sup>*)</sup>	Installation in			x <sup>*)</sup>			x <sup>*)</sup>	Installation in		x <sup>*)</sup>		x <sup>*)</sup>		x <sup>*)</sup>				

<sup>\*)</sup> Restrictions see table explosion protection

WebCode 9172A

### Selection Table

Version	Channels	Input	Output / channel	Order number
I.S. relay module Series 9172	1	Ex i / I.S. signal	1 change over contact (250 V / 4 A)	<b>9172/10-11-00s</b>
			Ex i / I.S., 1 change over contact (125 V / 4 A, 30 V / 4 A)	<b>9172/12-11-00s</b>
		Non-Ex i / Non I.S. signal	Ex i / I.S., 1 change over contact (125 V / 4 A, 30 V / 4 A)	<b>9172/11-11-00s</b>
	2	Ex i / I.S. signal	1 change over contact (250 V / 4 A)	<b>9172/20-11-00s</b>
			Ex i / I.S., 1 change over contact (125 V / 4 A, 30 V / 4 A)	<b>9172/22-11-00s</b>
		Non-Ex i / Non I.S. signal	Ex i / I.S., 1 change over contact (125 V / 4 A, 30 V / 4 A)	<b>9172/21-11-00s</b>

Note The order numbers listed in the table are for devices equipped with screw terminals.  
For devices equipped with spring clamp terminals, replace the ending "s" for screw terminals with "k" for spring clamp terminals.

### Explosion Protection

#### Global (IECEX)

Gas and dust IECEx BVS 09.0002X  
Ex nA nC [ia Ga] IIC T4 Gc  
[Ex ia Da] IIIC

#### Europe (ATEX)

Gas and dust BVS 04 ATEX E 097 X  
⊕ II 3 (1) G Ex nA nC [ia] IIC T4  
⊕ II (1) D [Ex iaD]

#### USA (NEC)

Gas and dust 3017145 (FM)  
CL. I, DIV. 2, GP. A,B,C,D;  
CL. I, ZONE 2, GP. IIC;AIS  
CL. I, II, III, DIV. 1 GP. A,B,C,D,E,F,G;  
CL. 1, ZONE 0 [AEx ia] IIC, T4 at Ta = 70°C  
UL certificate on request

#### Russia (GOST-R)

Gas and dust 2ExnAnC[ia]IICT4  
[ExiaD]

### Certificates and approvals

Certificates IECEx, ATEX, Brazil (INMETRO), Canada (cFM), India (PESO), Kazakhstan (GOST-K),  
Russia (GOST-R), Serbia (SRPS), Ukraine (GOST-U), Belarus (GOST-B), USA (FM, UL)  
Other approvals ship approval (DNV)

### Further parameters

Version	9172/0-11-00	9172/1-11-00	9172/2-11-00
Installation	in Zone 2, Div. 2 and in the safe area *) *) in Zone 2 max. contact load 125 V / 4 A	in Zone 2, Div. 2 and in the safe area --	in Zone 2, Div. 2 and in the safe area *) *) in Zone 2 max. contact load 125 V / 4 A
Further information	see respective certificate and operating instructions		

### Safety data

Version	9172/0-11-00	9172/1-11-00	9172/2-11-00
Inputs			
Max. voltage $U_i / V_{max}$	30 V	--	30 V
Max. current $I_i / I_{max}$	150 mA	--	150 mA
Max. power $P_i$	1.3 W	--	1.3 W
Ausgänge (Kontakt)	--	for connection of intrinsically safe circuits with:	
		max. voltage $U_i$	125 V AC 125 V DC 60 V DC 30 V DC
		max. current $I_i$	4 A 0.25 A 0.3 A 4 A
Internal capacitance $C_i$	negligible	negligible	negligible
Internal inductance $L_i$	negligible	negligible	negligible
Isolation voltage	253 V AC	253 V AC	253 V AC

**Technical Data**

**Electrical data**

Version	9172/0-11-00	9172/1-11-00	9172/2-11-00
Auxiliary power			
Supply	without	without	without
Max. power losses per channel	0.4 W	0.4 W	0.4 W
Galvanic isolation			
Test voltages			
Acc. to standard	EN 60079-11	EN 60079-11	EN 60079-11
Ex i / I.S. input to output	1.5 kV AC	1.5 kV AC	1.5 kV AC
Inputs to each other	500 V AC	350 V AC	350 V AC
Outputs to each other	1.1 kV AC	500 V AC	500 V AC
Electromagnetic compatibility	Tested under the following standards and regulations: EN 61326-1 (Use in industrial environment) NAMUR NE 21		
<b>Version</b>	<b>9172/0-11-00</b>	<b>9172/1-11-00</b>	<b>9172/2-11-00</b>
Input from nonhazardous location			
Input signal	Ex i	non-Ex i	Ex i
Switching signal	12 ... 30 V	12 ... 31.2 V	12 ... 30 V
Current consumption	< 16 mA at 12 V < 11 mA at 24 ... 30 V	< 16 mA at 12 V < 11 mA at 24 ... 31.2 V	< 16 mA at 12 V < 11 mA at 24 ... 30 V
Output			
Minimum load	5 V / 5 mA	5 V / 5 mA	5 V / 5 mA
Maximum load DC	220 V / 0.1 A 125 V / 0.25 A 60 V / 0.3 A 30 V / 4 A	125 V / 0.25 A 60 V / 0.3 A 30 V / 4 A	125 V / 0.25 A 60 V / 0.3 A 30 V / 4 A
Maximum load AC	for Zone 2 installation max. 125 V AC /DC 250 V / 4 A cos $\varphi > 0.7$ for Zone 2 installation max. 125 V AC /DC	for Zone 2 installation max. 125 V AC /DC 125 V / 4 A cos $\varphi > 0.7$ for Zone 2 installation max. 125 V AC /DC	for Zone 2 installation max. 125 V AC /DC 125 V / 4 A cos $\varphi > 0.7$ for Zone 2 installation max. 125 V AC /DC
Max. switching power	100 W / 100 VA	50 W / 100 VA	50 W / 100 VA
Electrical service life			
Resistive load	$\geq 1 \times 10^5$ operating cycles	$\geq 1 \times 10^5$ operating cycles	$\geq 1 \times 10^5$ operating cycles
Mechanical service life	$\geq 1 \times 10^7$ operating cycles	$\geq 1 \times 10^7$ operating cycles	$\geq 1 \times 10^7$ operating cycles
Maximum switching frequency	$\leq 15$ Hz	$\leq 15$ Hz	$\leq 15$ Hz
Switching delay ON / OFF	$\leq 10$ ms	$\leq 10$ ms	$\leq 10$ ms
Switching delay OFF / ON	$\leq 10$ ms	$\leq 10$ ms	$\leq 10$ ms

**Ambient conditions**

Ambient temperature	
Single device	-20 ... +70 °C / -4 ... +158 °F
Group assembly	-20 ... +60 °C / -4 ... +140 °F
	The installation conditions affect the ambient temperature. Observe operating instructions
Storage temperature	-40 ... +80 °C / -40 ... +176 °F
Relative humidity (no condensation)	95 %

**Technical Data**

**Electrical connection**

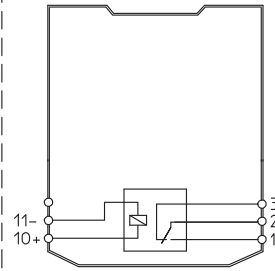
Connection diagram

**1 channel  
9172/10-11-00.**

Hazardous area  
Division 1  
Zone 0 / 1



Field device



ISpac Isolator

Safe area  
Division 2  
Zone 2

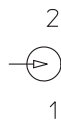


Control system

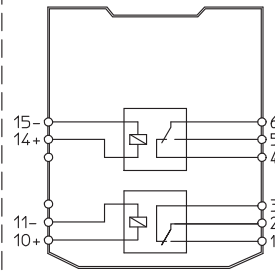
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**2 channels  
9172/20-11-00.**

Hazardous area  
Division 1  
Zone 0 / 1

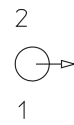


Field device



ISpac Isolator

Safe area  
Division 2  
Zone 2



Control system

10514E02

**Technical Data**

**Electrical connection**

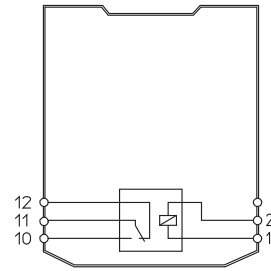
Connection diagram

**1 channel  
9172/11-11-00.**

Hazardous area  
Division 1  
Zone 0 / 1



Field device



ISpac Isolator

Safe area  
Division 2  
Zone 2

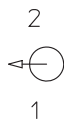


Control system

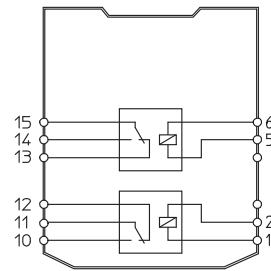
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**2 channels  
9172/21-11-00.**

Hazardous area  
Division 1  
Zone 0 / 1

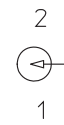


Field device



ISpac Isolator

Safe area  
Division 2  
Zone 2



Control system

10515E02

**Technical Data**

**Electrical connection**

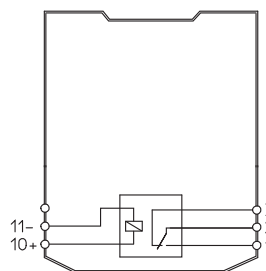
Connection diagram

**1 channel  
9172/12-11-00.**

Hazardous area  
Division 1  
Zone 0 / 1

Safe area  
Division 2  
Zone 2

Hazardous area  
Division 1  
Zone 0 / 1



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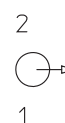
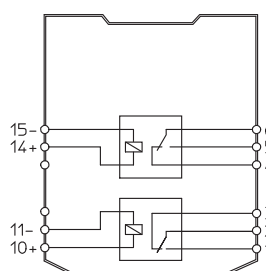
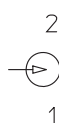
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**2 channels  
9172/22-11-00.**

Hazardous area  
Division 1  
Zone 0 / 1

Safe area  
Division 2  
Zone 2

Hazardous area  
Division 1  
Zone 0 / 1



ISpac Isolator

15194E02

**Technical Data**

**Mechanical data**

Connection

Screw terminals

Spring clamp terminals

Connection single-wire

- rigid
- flexible
- flexible, end covering sleeves (without / with plastic sleeving)

0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
0.25 ... 2.5 mm<sup>2</sup> / 22 ... 14 AWG

0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
0.2 ... 2.5 mm<sup>2</sup> / 24 ... 14 AWG  
0.25 ... 2.5 mm<sup>2</sup> / 22 ... 14 AWG

Connection two wires

- rigid
- flexible
- flexible, end covering sleeves

0.2 ... 1 mm<sup>2</sup> / 24 ... 14 AWG  
0.2 ... 1.5 mm<sup>2</sup> / 24 ... 16 AWG  
0.25 ... 1 mm<sup>2</sup> / 22 ... 16 AWG

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--  
0.5 ... 1 mm<sup>2</sup> / 20 ... 16 AWG

Weight

160 g

Installation type

on DIN rail (NS35/15, NS35/7.5) or in pac-Carrier

Installation position

vertical or horizontal

Ingress protection

Enclosure

IP30

Terminals

IP20

Enclosure material

PA 6.6

Fire resistance (UL-94)

V0

**Accessories and Spare Parts**

Designation	Description	Art. no.	Weight kg / lbs
Relay modules for installation in Zone 1	The modules 8510/122-06-6...00 contain relay modules of Series 9172. If 8510 modules are installed in an enclosure of the degree of protection Ex e (e.g. Type 8150 or 8146), installation in Zone 1 is possible.  Relay modules Type 9172      Modules Type 8510		
	9172/10-11-00s	8510/122-06-600-00	<b>165514</b> 1.470 / 3.241
	9172/20-11-00s	8510/122-06-601-00	<b>165531</b> 1.470 / 3.241
	9172/21-11-00s	8510/122-06-602-00	<b>200381</b> 1.470 / 3.241
	9172/22-11-00s	8510/122-06-604-00	<b>220076</b> 1.470 / 3.241

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**Dimensional Drawings (All Dimensions in mm / inch) - Subject to Alterations**

	Dimension X
Screw terminals	108 mm / 4.25"
Spring cage terminals	128 mm / 5.04"

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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.