Isolators

Ex i relay modules

Ex i field circuit

9172/21-11-00s Art. No. 160369

- Binary input or output with two channels
- For separating intrinsically safe and non-intrinsically safe signal and control circuits
- Can be used up to SIL 2 (IEC/EN 61508)

WebCode **9172A**

The 9172 series relay module separates intrinsically safe and non-intrinsically safe binary signal and control circuits. To do this, it makes intrinsically safe inputs and outputs available with two channels. Depending on the version, the device has either an intrinsically safe drive or an intrinsically safe output contact, and can therefore be used as an output or input isolator.

Technical Data

Explosion Protection	
Application range (zones)	2
Ex interface zone	0 1 2 20 21 22
IECEX gas certificate	IECEx BVS 09.0002 X
IECEx gas explosion protection	Ex ec nC [ia Ga] IIC T4 Gc
IECEX dust certificate	IECEx BVS 09.0002 X
IECEx dust explosion protection	[Ex ia Da] IIIC
ATEX gas certificate	BVS 04 ATEX E 097 X
ATEX gas explosion protection	Ⓔx II 3 (1) G Ex ec nC [ia Ga] IIC T4 Gc
ATEX dust certificate	BVS 04 ATEX E 097 X
ATEX dust explosion protection	Ⓔx II (1) D [Ex ia Da] IIIC
FMus certificate	FM16US0122X
cFM certificate	FM16CA0067X
Marking cFMus	Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; Class I, Zone 0, [AEx ia]/[Ex ia] IIC T4 at Ta = 70°C See Doc. 91 726 01 31 1
EAC certificate	EAEU RU S-DE.HA91.B.00100/20
EAC gas explosion protection	[Ex] 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	[Ex] [Ex ia Da] IIIC X
Certificates	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEx (BVS), India (PESO), SIL (exida), USA (FM)

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Explosion Protection			
Ship approval	CCS, EU RO MR (DNV GL)		
Installation	in Zone 2, Division 2 and in the safe area		
Further information	see respective certificate and operating instructions		
Safety Data			
Internal capacitance	Negligible		
Internal inductance	Negligible		
Safety-related max. voltage	253 V		
Max. voltage U_i	30 V AC	45 V AC	30 V DC
Max. current U_i	4 A	0.5 A	4 A
Functional Safety			
SIL	2		
HFT	0		
SFF	62%		
Lambda SD	0 FIT		
Lambda SU	41 FIT		
Lambda DD	0 FIT		
Lambda DU	25 FIT		
PFDavg at Tproof 1 year	1,17E-04		
PFDavg at Tproof 2 years	2,23E-04		
PFDavg at Tproof 5 years	5,42E-04		
Electrical Data			
Number of channels	2		
LFD relay	No		
Auxiliary Power			
Auxiliary power	without		
Max. power dissipation	0.4 W		
Galvanic Isolation			
Test voltage as per standard	IEC EN 60079-11		
Ex i input to output	1.5 kV AC		
ON to ON galvanic separation	350 V AC		
Input			
Input	Non-Ex i signal		
Switching signal input	12 – 31.2 V		
Input current consumption 1	< 25 mA at 12 V		
Input current consumption 2	< 17 mA at 24 to 31.2 V		
Output			
Output	Change-over contact - Ex i		
Min. output load condition	1 V/1 mA		
Max. output DC load condition	45 V/0.5 A		
Max. DC load of output 2	30 V/4 A		
Max. output AC load condition	30 V/4 A cos φ > 0.7		
Output electrical service life	≥ 1 x 10^5 operating cycles		
Output mechanical service life	≥ 1 x 10^7 operating cycles		
Output switching frequency	≤ 15 Hz		

Output	
Switching delay ON/OFF	≤ 10 ms
Switching delay ON/OFF	≤ 10 ms
Ambient Conditions	
Ambient temperature	-20 °C ... +70 °C (Single device) -20 °C ... +60 °C (Group assembly)
Ambient temperature	-4 °F ... +158 °F (Single device) -4 °F ... +140 °F (Group assembly)
Storage temperature	-40 °C ... +80 °C
Storage temperature	-40 °F ... +176 °F
Maximum relative humidity	95%
Use at the height of	< 2000 m
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 Use in industrial environment; NAMUR NE 21
Mechanical Data	
Degree of protection (IP)	IP30
Terminal degree of prot. (IP)	IP20
Fire resistance (UL 94)	V0
Enclosure material	Polyamide
Grid dimension	17.6 mm
Width	17.6 mm
Width, inches	0.69 in
Height	114.5 mm
Height, inches	4.51 in
Length	108 mm
Length, inches	4.25 in
Weight	0.19 kg
Weight	0.42 lb
Mounting / Installation	
Mounting type	DIN rail NS35/15, NS35/7.5
Connection type	Screw terminal
Min. rigid conductor cross section	0.2 mm²
Max. rigid conductor cross section	2.5 mm²
Min. flex conductor cross section	0.2 mm²
Max. flex conductor cross section	2.5 mm²
Connection cross-section AWG	24 – 13

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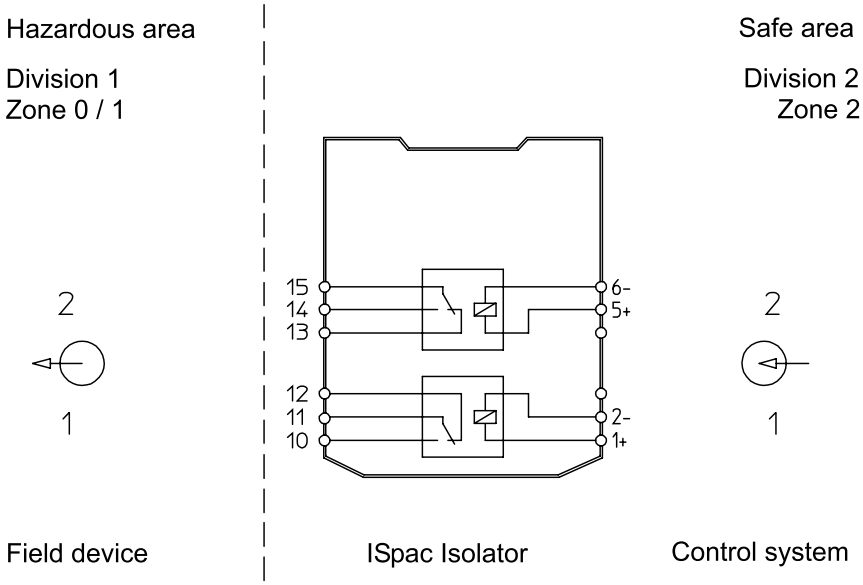
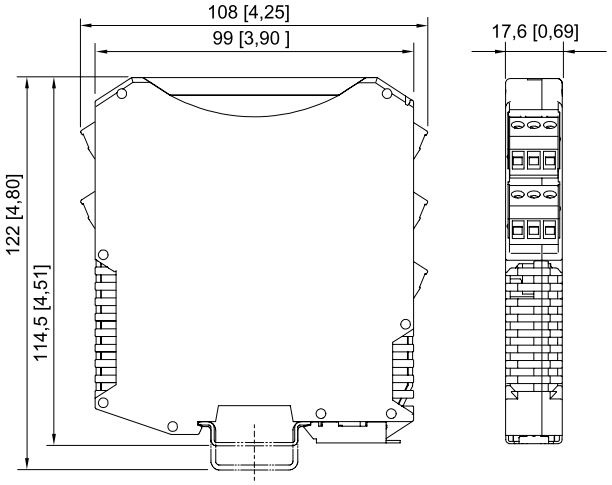
Technical Drawings – Subject to Alterations



Connection diagram 9172/21-11-00

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



ISpac Series 9146, 9147, 9160, 9162, 9163, 9165, 9167, 9170, 9172, 9175, 9176, 9180, 9182, 9193, ISbus Series 9412 with screw terminal

Accessories

Front cover		Art. No.
	for ISpac modules 91xx yellow, transparent Clear marking of the device for SIL applications. (Packaging unit: 10 pieces)	200914

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.