

Isolators

Ex i relay modules

Ex i field circuit

9172/20-11-00s Art. No. 160363



- 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 nA 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	II (1) G Ex nA nC [ia Ga] IIC T4 Gc
ATEX dust certificate	BVS 04 ATEX E 097 X
ATEX dust explosion protection	II (1) D [Ex ia Da] IIIC
Certificate FMus	FM16US0122X
Certificate cFM	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 certificate valid until	2025-01-26
EAC gas explosion protection	II 2 Ex nA nC [ia Ga] IIC T4 Gc X
EAC dust explosion protection	II [Ex ia Da] IIIC X

Explosion Protection

Certificates	ATEX (BVS), Canada (FM), EAC (ENDCE), IECEx (BVS), India (PESO), SIL (exida), USA (FM)
Ship approval	CCS, EU RO MR
Installation	in Zone 2, Division 2 and in the safe area
Further information	see respective certificate and operating instructions

Safety Data

Max. voltage U_i	30 V
Max. current I_i	150 mA
Max. power P_i	1.3 W
Internal capacitance C_i	Negligible
Internal inductance L_i	Negligible
Safety-related maximum voltage	253 V

Functional Safety

SIL	2
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Electrical Data

Signal types	Digital input
Number of channels	2
LFD relay	No

Auxiliary Power

Auxiliary power	Without
Auxiliary power voltage range	Loop-powered
Power dissipation max.	0.4 W
Polarity reversal protection	Yes
Undervoltage monitoring	No

Galvanic Isolation

Test voltage according to standard	IEC EN 60079-11
Galvanic isolation Ex i input to output	1.5 kV AC
Test voltage according to standard 2	EN 50178
Galvanic isolation output to output	1,1 kV AC

Input

Input signal	Ex i
Switching signal input	14 – 30 V
Current consumption at 12 V	< 16 mA
Current consumption at 24 ... 30 V	< 11 mA
Notes	Digital output with electronic limitation requires a minimum output current of 20 mA.

Output

Output per channel	1 change-over contact
Output	Change-over contact - power relay
Output min. load	1 V / 1 mA
Output max. load DC	125 V / 0.25 A 220 V / 0.1 A 30 V / 4 A 60 V / 0.3 A
Output maximum load DC Note	in case of Zone 2 installation max. 125 V AC / DC
Output max. load AC	250 V / 4 A $\cos \varphi > 0.7$

Output	
Output switching capacity	100 W / 100 VA
Output electrical service life	≥ 1 x 10 ⁵ operating cycles
Electrical service life note	resistive load
Output mechanical service life	≥ 1 x 10 ⁷ operating cycles
Output switching frequency	≤ 15 Hz
Switching delay ON/OFF	≤ 10 ms
Switching delay ON/OFF	≤ 10 ms
Switching state indication	Yellow LED "OUT"

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
Relative humidity max.	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 protection (IP)	IP20
Fire resistance (UL 94)	V0
Connection cross-section	0.2-2.5 mm ² flexible 0.2-2.5 mm ² rigid 0.25-2.5 mm ² flexible core end sleeve
Enclosure material	Polyamide
Clamping range AWG	16 – 12
Grid dimension	17.6 mm
Width inches	0.69 in
Length inches	4.25 in
Mounting depth inches	4.51 in
Weight	0.19 kg
Weight	0.42 lb

Mounting / Installation	
Mounting type	NS35/15, NS35/7.5 DIN rail
Mounting position	Vertical Horizontal
Connection type	Screw terminal
Conductor cross-section solid min.	0.2 mm ²
Conductor cross-section solid max.	2.5 mm ²
Conductor cross-section flexible min.	0.2 mm ²
Conductor cross-section flexible max.	2.5 mm ²

Isolators

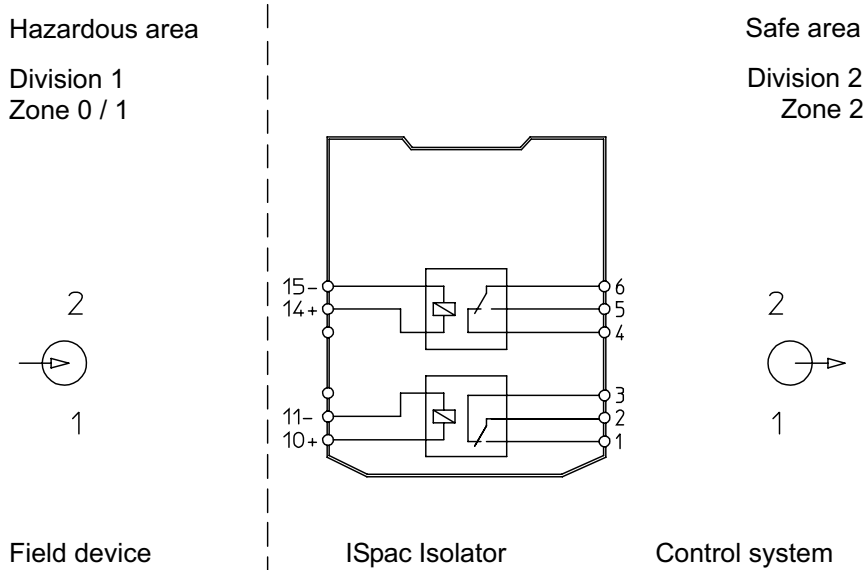
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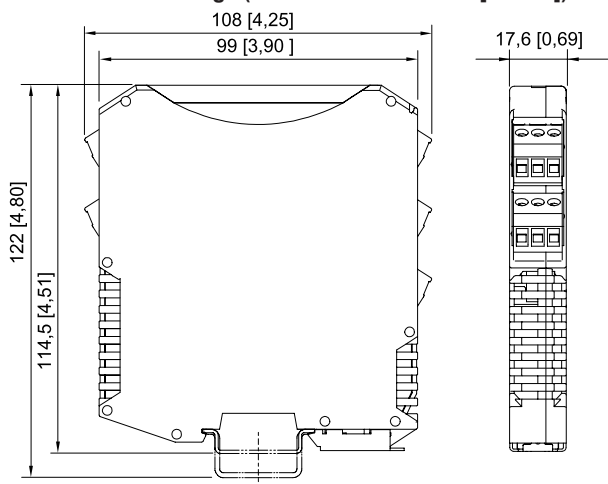


Technical Drawings – Subject to Alterations



Connection diagram 9172/20-11-00

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

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