

Isolators

Ex i/Ex e relay module For Zone 1

Isolators

9177/12-11-01 Art. No. 273000



- Slim design – 12 mm width
- Choice of circuitry of coil and contact between Ex i or non-Ex i (Ex e)
- Integrated fuse for contact and coil circuit integrated
- Can be used up to SIL 3 (IEC/EN 61508)

MY R. STAHL 9177A



The Ex i/Ex e relay module type 9177 is an automation solution for hazardous areas in Zone 1, 2, 21 and 22 and in safe areas and permits galvanically separated switching of intrinsically safe (Ex i) and non-intrinsically safe (non-Ex i) electrical circuits. Both Ex i and non-Ex i electrical circuits can be connected to its coil and contact connections. Thanks to the integrated fuse for the contact and coil circuit, additional integrated fuse is not necessary.

Technical Data

Explosion Protection

Application range (zones)	1 2
Ex interface zone	0 1 2 20 21 22
IECEX gas certificate	IECEX TUR 19.0075X
IECEX gas explosion protection	Ex eb mb [ja Ga] IIC T4 Gb
IECEX dust certificate	IECEX TUR 19.0075X
IECEX dust explosion protection	[Ex ia Da] IIIC
ATEX gas certificate	TÜV 19 ATEX 8453 X
ATEX gas explosion protection	⊕ II 2 (1) G Ex eb mb [ja Ga] IIC T4 Gb
ATEX dust certificate	TÜV 19 ATEX 8453 X
ATEX dust explosion protection	⊕ II (1) D [Ex ia Da] IIIC
Certificates	ATEX (TUR), IECEX (TUR), Korea (KTL), SIL (exida)
Declaration of Conformity	ATEX (EUK)
Further information	Other Ex markings (see operating instructions)

Safety Data

Coil electrical circuit	X1.4 (+) X1.3 (-)
Max. voltage U_i (coil)	32 V DC
Max. current I_i (coil)	Internally limited
Max. power P_i (coil)	Internally limited
Internal inductance L_i (coil)	≈ 0 mH
Internal capacitance $C_{i,j}$ (coil)	≈ 0 nF

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Safety Data

Max. safety voltage U_m (coil)	60 V DC
Electrical circuit contact	X2.5 X2.6
Max. voltage U_i (contact)	253 V AC 125 V DC
Max. current I_i (contact)	≤ 2 A
Internal capacitance C_i (contact)	≈ 0 nF
Internal inductance L_i (contact)	≈ 0 mH
Max. safety voltage U_m (contact)	253 V AC 125 V DC
Max. safety-related switching capacity	100 VA (only with Ex i control)

Functional Safety

SIL	3
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Electrical Data

Number of channels	1
LFD relay	No

Auxiliary Power

Auxiliary power	without
Max. power dissipation	1.1 W
Polarity reversal protection	Yes

Galvanic Isolation

Test voltage as per standard	IEC EN 60079-11
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Input

Input (coil)	Ex i or non-Ex i (Ex e)
Nominal voltage input U_n X1	24 V DC
Voltage range input X1	18 to 32 V DC
Nominal current input I_n X1	18 mA \pm 2.5 mA
Input current consumption X1	12 to 36 mA
Input voltage for ON	> 17.5 V
Input voltage for OFF	< 3 V

Output

Output (contact)	Ex i or non-Ex i (Ex e)
Output	NO – relay
Max. switching capacity (resistive load)	24 W (at 12 V DC); Ex i or non-Ex i control 48 W (at 24 V DC); Ex i or non-Ex i control 9.6 W (at 48 V DC); Ex i or non-Ex i control 9 W (at 60 V DC); Ex i or non-Ex i control 12.5 W (at 125 V DC); Ex i or non-Ex i control 100 VA (at 230 V AC); Ex i or Ex i or non-Ex i control 460 VA (at 230 V AC); Ex i or non-Ex i control
Switching delay	typ. 8 ms
Resistive load switching frequency	6 operating cycles/min
AC switching cycles at 25 °C (resistive load)	2 million @ 100 mA 1 million @ 1 A 0.5 million @ 2 A
Switching state indication	Yellow "OUT" LED
Min. switching current	1 mA

Output	
Note	When new, gold-plated relay contacts enable operation with signals (voltage < 32 V and current < 50 mA and resistive load). After any other use, restrictions may apply to the switching of signals.

Ambient Conditions	
Ambient temperature	-40 °C ... +70 °C
Ambient temperature	-40 °F ... +158 °F
Note	Temperature reduction depending on mounting (see operating instructions)
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	Checked in accordance with the following standards and regulations: EN 61326-1 For use in industrial areas: NAMUR NE 21

Mechanical Data	
Degree of protection (IP)	IP40
Degree of protection (IP) (IEC 60529)	IP20
Fire resistance (UL 94)	V2
Pollutant class	Corresponds to G3
Enclosure material	Polyamide 6GF
Grid dimension	12 mm
Width	12.5 mm
Width, inches	0.49 in
Height	79 mm
Height, inches	3.11 in
Length	101.5 mm
Length, inches	4 in
Weight	110 g
Weight	0.24 lb

Mounting / Installation	
Mounting type	DIN rail NS35/15, NS35/7.5
Mounting orientation	any
Connection type	Screw terminal, push-in terminal
Min. rigid conductor cross section	0.2 mm ²
Max. rigid conductor cross section	4 mm ²
Min. flex conductor cross section	0.2 mm ²
Max. flex conductor cross section	4 mm ²
Connection cross-section AWG	24 – 12
Connection type X1	Screw terminal
Conductor cross-section X1	rigid 0.2 ... 1.5 mm ² (AWG 24 ... 16) flexible 0.2 ... 1.5 mm ² (AWG 24 ... 16)
Stripping length X1	10 mm
Connection type X2	Push-in spring connection

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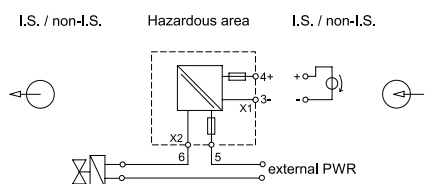
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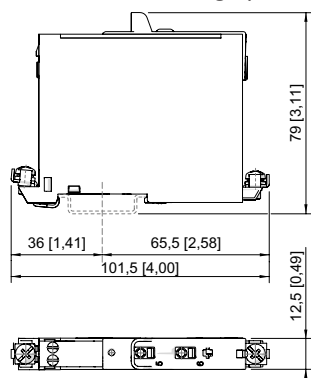
Mounting / Installation

Conductor cross-section X2	rigid 0.2 ... 4 mm ² (AWG 24 ... 12) flexible 0.2 ... 2.5 mm ² (AWG 24 ... 14) flexible with core end sleeve (without plastic sleeve) 0.25 ... 2.5 mm ² (stripping length 8 mm) flexible with core end sleeve (with plastic sleeve) 0.25 ... 1.5 mm ² (stripping length 8 mm)
Stripping length X2	10 mm

Technical Drawings – Subject to Alterations



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



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