

Switch Amplifier KFA6-SR2-Ex1.W

SIL 2

- 1-channel isolated barrier
- 230 V AC supply
- Dry contact or NAMUR inputs
- Relay contact output
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC 61508/IEC 61511



Function

This isolated barrier is used for intrinsic safety applications. It transfers digital signals (NAMUR sensors/mechanical contacts) from a hazardous area to a safe area. The proximity sensor or switch controls a form C changeover relay contact for the safe area load. The barrier output changes state when the input signal changes state. The normal output state can be reversed using switch S1. Switch S3 is used to enable or disable line fault detection of the field circuit. During an error condition, relays revert to their de-energized state and LEDs indicate the fault according to NAMUR NE44.

Technical Data

General specifications

Signal type	Digital Input
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Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
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Supply

Connection	terminals 14, 15
Rated voltage	U_r 207 ... 253 V AC, 45 ... 65 Hz
Power dissipation	1 W
Power consumption	max. 1 W

Input

Connection side	field side
Connection	terminals 1+, 2+, 3-
Rated values	acc. to EN 60947-5-6 (NAMUR)
Open circuit voltage/short-circuit current	approx. 8 V DC / approx. 8 mA
Switching point/switching hysteresis	1.2 ... 2.1 mA / approx. 0.2 mA
Line fault detection	breakage $I \leq 0.1$ mA , short-circuit $I > 6$ mA
Pulse/Pause ratio	min. 20 ms / min. 20 ms

Output

Connection side	control side
Connection	terminals 7, 8, 9
Output	signal ; relay
Contact loading	253 V AC/2 A/cos $\phi > 0.7$; 126.5 V AC/4 A/cos $\phi > 0.7$; 40 V DC/2 A resistive load
Energized/De-energized delay	approx. 20 ms / approx. 20 ms
Mechanical life	10^7 switching cycles

Transfer characteristics

Switching frequency	< 10 Hz
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

Galvanic isolation			
Input/Output			reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Input/power supply			reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output/power supply			reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Indicators/settings			
Display elements			LEDs
Labeling			space for labeling at the front
Directive conformity			
Electromagnetic compatibility			
Directive 2014/30/EU			EN 61326-1:2013 (industrial locations)
Low voltage			
Directive 2014/35/EU			EN 61010-1:2010
Conformity			
Electromagnetic compatibility			NE 21:2006
Degree of protection			IEC 60529:2001
Input			EN 60947-5-6:2000
Ambient conditions			
Ambient temperature			-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications			
Degree of protection			IP20
Connection			screw terminals
Mass			approx. 150 g
Dimensions			20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) , housing type B2
Mounting			on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas			
EU-type examination certificate			PTB 00 ATEX 2081
Marking			⊕ II (1)G [Ex ia Ga] IIC ⊕ II (1)D [Ex ia Da] IIIC ⊕ I (M1) [Ex ia Ma] I
Input			Ex ia
Voltage	U _o		10.6 V
Current	I _o		19.1 mA
Power	P _o		51 mW (linear characteristic)
Supply			
Maximum safe voltage	U _m		253 V AC (Attention! U _m is no rated voltage.)
Output			
Contact loading			253 V AC/2 A/cos φ > 0.7; 126.5 V AC/4 A/cos φ > 0.7; 40 V DC/2 A resistive load
Maximum safe voltage	U _m		253 V AC (Attention! The rated voltage can be lower.)
Galvanic isolation			
Input/Output			safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply			safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity			
Directive 2014/34/EU			EN 60079-0:2012+A11:2013 , EN 60079-11:2012
International approvals			
FM approval			
Control drawing			116-0035
UL approval			
Control drawing			116-0145
CSA approval			
Control drawing			116-0047
IECEx approval			IECEx PTB 11.0031
Approved for			[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information			

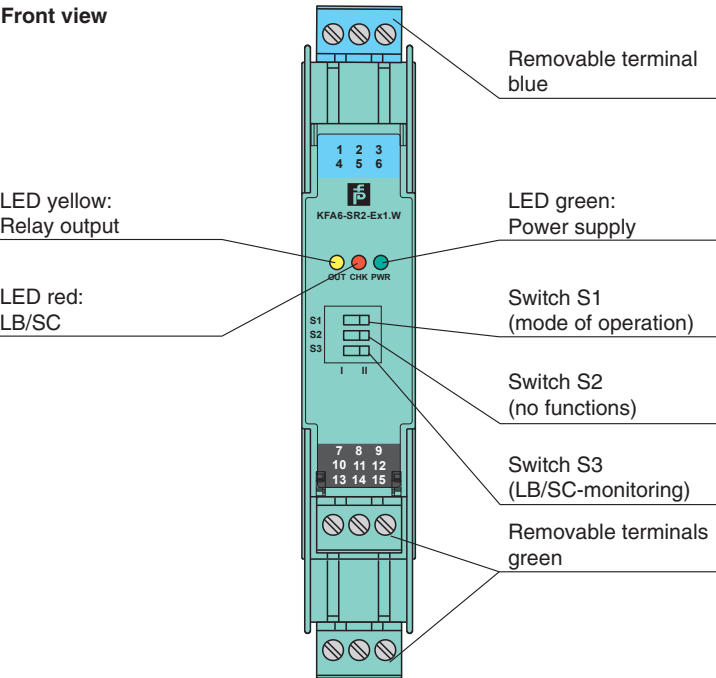
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Technical Data

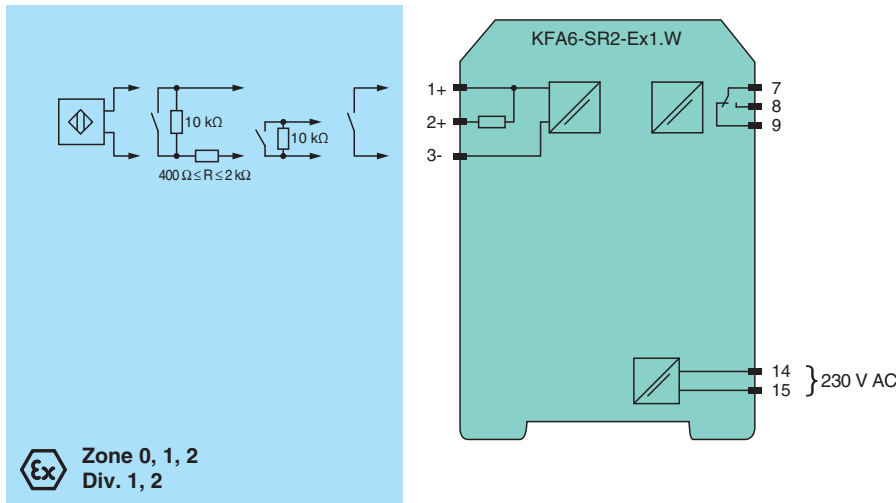
Supplementary information

Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

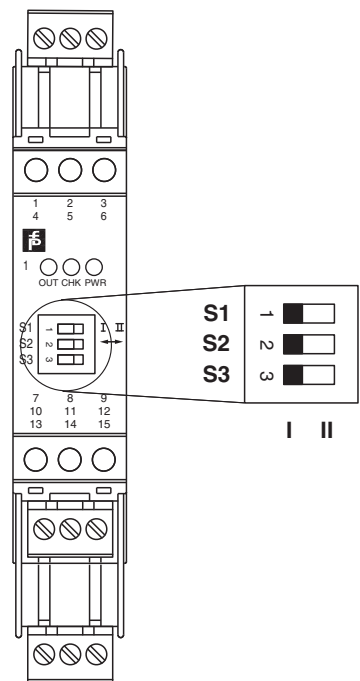
Assembly



Connection



Configuration



Switch position

S	Function	Position
1	Mode of operation output (relay) energized	with high input current
		with low input current
2	No function	
3	Line fault detection	ON
		OFF

Operating states

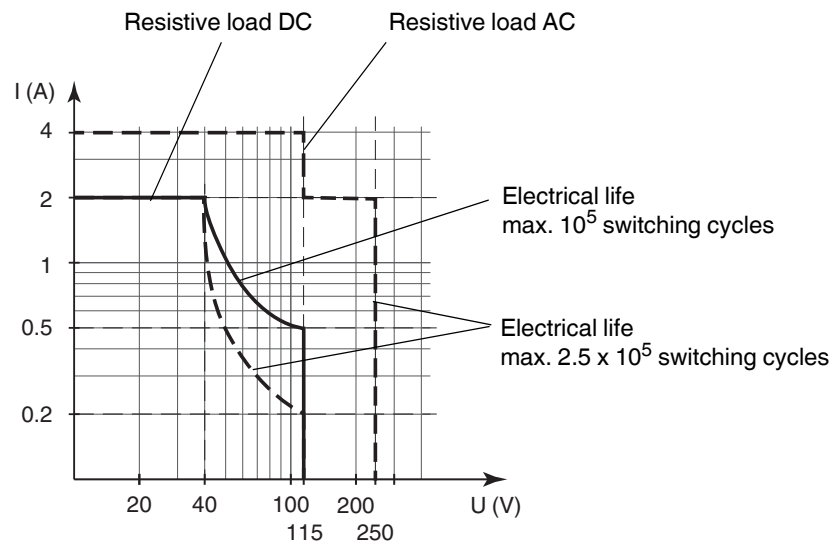
Control circuit	Input signal
Initiator high impedance/contact opened	low input current
Initiator low impedance/contact closed	high input current
Lead breakage, lead short circuit	Line fault

Factory setting: switch 1, 2 and 3 in position I

Characteristic Curve

Maximum switching power of output contacts

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The maximum number of switching cycles is depending on the electrical load and may be higher when reduced currents and voltages are applied.