

Switch Amplifier KCD2-SR-Ex2

SIL 2

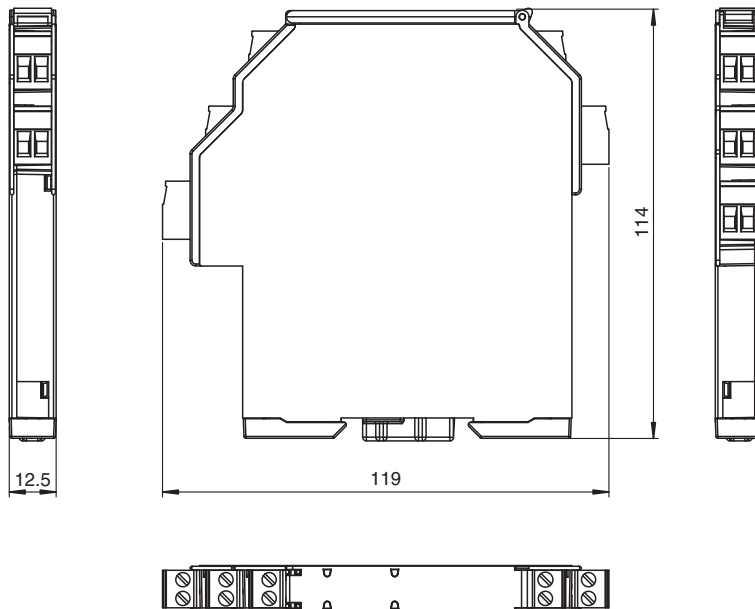
- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Relay contact output
- Line fault detection (LFD)
- Housing width 12.5 mm
- Up to SIL 2 acc. to IEC 61508



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 A normally open relay contact for the safe area load. The normal output state can be reversed using switch S1. Switch S2 allows output II to be switched between a signal output and an error message output. Switch S3 enables or disables 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. A unique collective error messaging feature is available when used with the Power Rail system. Due to its compact housing design and low heat dissipation, this device is useful for detecting positions, end stops, and switching states in space-critical applications.

Dimensions



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Technical Data

General specifications

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

Signal type	Digital Input	
Functional safety related parameters		
Safety Integrity Level (SIL)	SIL 2	
Supply		
Connection	Power Rail or terminals 9+, 10-	
Rated voltage	U_r	19 ... 30 V DC
Ripple	$\leq 10 \%$	
Rated current	I_r	$\leq 30 \text{ mA}$
Power dissipation	$\leq 600 \text{ mW}$	
Power consumption	$\leq 600 \text{ mW}$	
Input		
Connection side	field side	
Connection	terminals 1+, 2-; 3+, 4-	
Rated values	acc. to EN 60947-5-6 (NAMUR)	
Open circuit voltage/short-circuit current	approx. 10 V DC / approx. 8 mA	
Switching point/switching hysteresis	1.2 ... 2.1 mA / approx. 0.2 mA	
Line fault detection	breakage $I \leq 0.1 \text{ mA}$, short-circuit $I \geq 6.5 \text{ mA}$	
Pulse/Pause ratio	min. 20 ms / min. 20 ms	
Output		
Connection side	control side	
Connection	terminals 5, 6; 7, 8	
Output I	signal ; relay	
Output II	signal ; relay	
Contact loading	253 V AC/2 A/cos $\phi > 0.7$; 126.5 V AC/4 A/cos $\phi > 0.7$; 30 V DC/2 A resistive load	
Minimum switch current	2 mA / 24 V DC	
Energized/De-energized delay	$\leq 20 \text{ ms} / \leq 20 \text{ ms}$	
Mechanical life	10^7 switching cycles	
Transfer characteristics		
Switching frequency	$\leq 10 \text{ Hz}$	
Galvanic isolation		
Input/Output	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Input/power supply	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Output/power supply	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Input/input	Basic insulation according to EN 50178, rated insulation voltage 300 V _{eff}	
Output/Output	reinforced insulation acc. to EN 50178, rated insulation voltage 300 V _{eff}	
Indicators/settings		
Display elements	LEDs	
Control elements	DIP-switch	
Configuration	via DIP switches	
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	
Degree of protection	IEC 60529:2001	
Ambient conditions		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
Mechanical specifications		
Degree of protection	IP20	
Connection	screw terminals	

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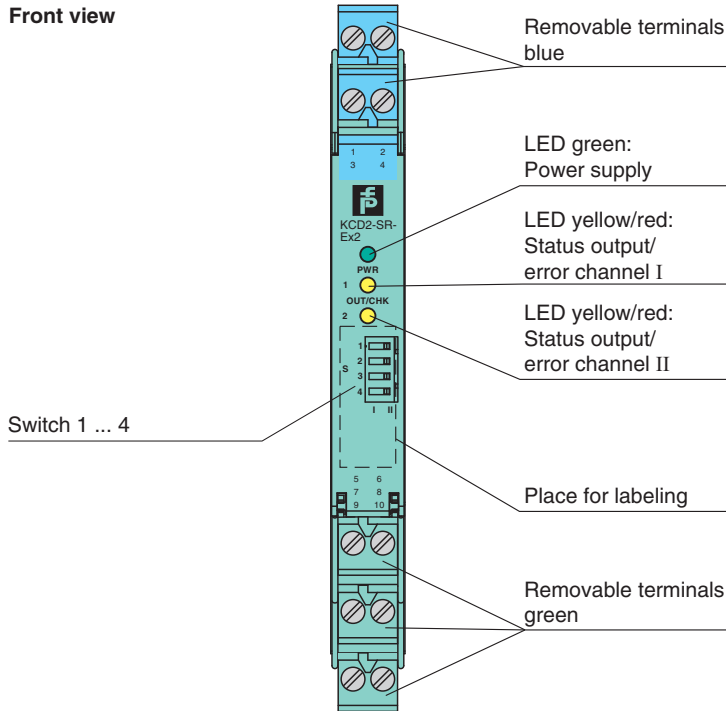
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Technical Data

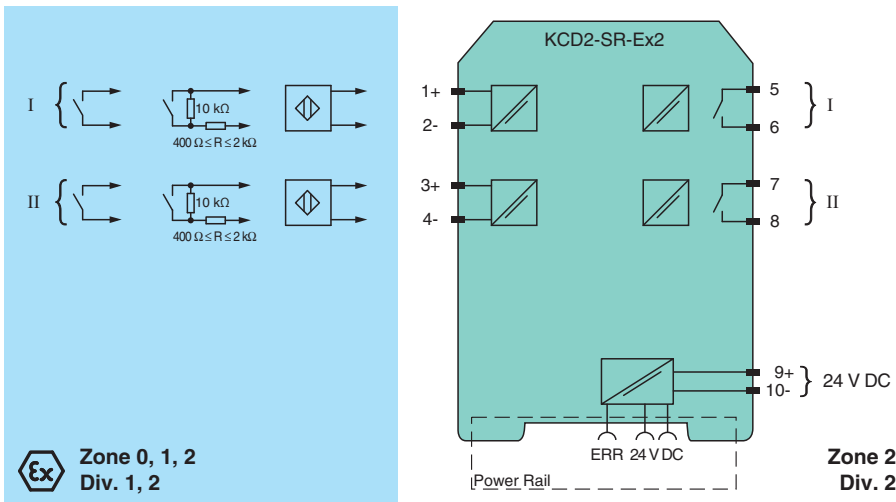
Mass		approx. 100 g
Dimensions		12.5 x 114 x 119 mm (0.5 x 4.5 x 4.7 inch) , housing type A2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		BASEEFA 06 ATEX 0092
Marking		Ⓜ II (1)G [Ex ia Ga] IIC , Ⓜ II (1)D [Ex ia Da] IIIC , Ⓜ I (M1) [Ex ia Ma] I
Input		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
Voltage	U _o	10.5 V
Current	I _o	17.1 mA
Power	P _o	45 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; 30 V DC/2 A resistive load
Maximum safe voltage	U _m	253 V AC (Attention! The rated voltage can be lower.)
Certificate		PF 06 CERT 0972 X
Marking		Ⓜ II 3G Ex nA nC IIC T4 Gc
Output I, II		
Contact loading		50 V AC/2 A/cos φ > 0.7; 30 V DC/2 A resistive load
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 , EN 60079-15:2010
International approvals		
FM approval		
Control drawing		116-0419 (cFMus)
UL approval		
Control drawing		116-0420 (cULus)
IECEx approval		IECEx BAS 06.0025
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly

Front view



Connection



Ex Zone 0, 1, 2
Div. 1, 2

Accessories

	KFD2-EB2	Power Feed Module
	UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	K-DUCT-BU	

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Accessories



K-DUCT-BU-UPR-03

Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue

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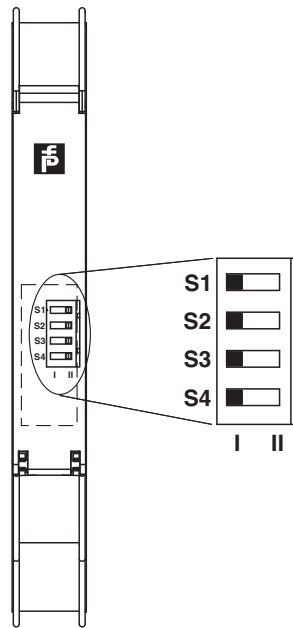
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Configuration



Switch position

S	Function		Position
1	Mode of operation Output I (relay) energized	with high input current	I
		with low input current	II
2	Mode of operation Output II (relay) energized	with high input current	I
		with low input current	II
3	Line fault detection Input I	ON	I
		OFF	II
4	Line fault detection Input II	ON	I
		OFF	II

Operating status

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

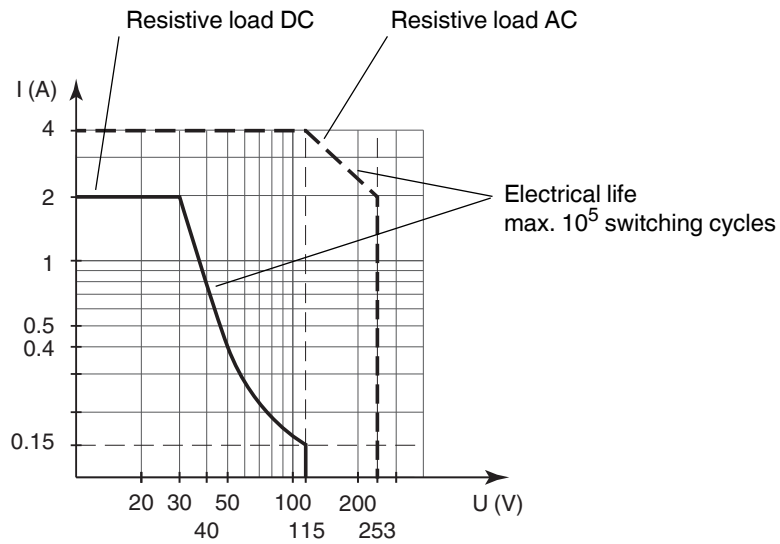
Factory settings: switch 1, 2, 3 and 4 in position I

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.

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