



Switch Amplifier KCD2-SON-Ex1.SP

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR input
- 2 passive transistor outputs (resistive acc. to EN 60947-5-6)
- Line fault transparency (LFT)
- Housing width 12.5 mm
- Connection via spring terminals with push-in connection technology
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



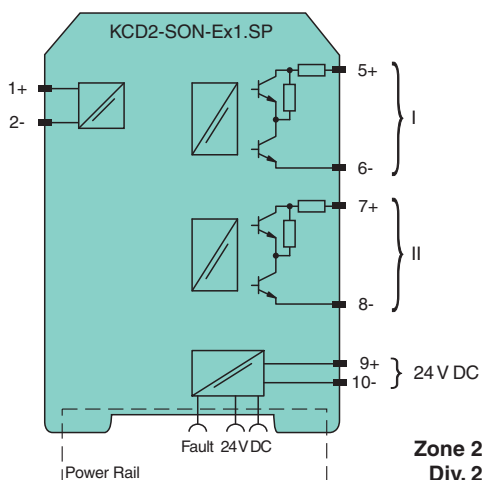
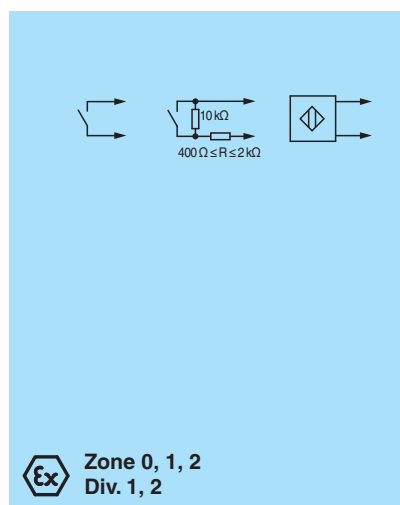
SIL 2



Function

This isolated barrier is used for intrinsic safety applications. The device transfers digital signals (NAMUR sensors or dry contacts) from a hazardous area to a safe area. The input controls two passive transistor outputs with a resistive output characteristic (acc. to EN60947-5-6). The outputs have three defined states: 1-Signal = 1.8 k Ω , 0-Signal = 14 k Ω and fault > 100 k Ω . This output characteristic offers line fault transparency on the signal lines. Via switches the mode of operation can be reversed and the line fault detection can be switched off. A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output.

Connection



Technical Data

General specifications		
Signal type		Digital Input
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Systematic capability (SC)		SC 3
Supply		
Connection		Power Rail or terminals 9+, 10-
Rated voltage	U _r	19 ... 30 V DC
Ripple		≤ 10 %
Rated current	I _r	18 ... 14 mA

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

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Technical Data

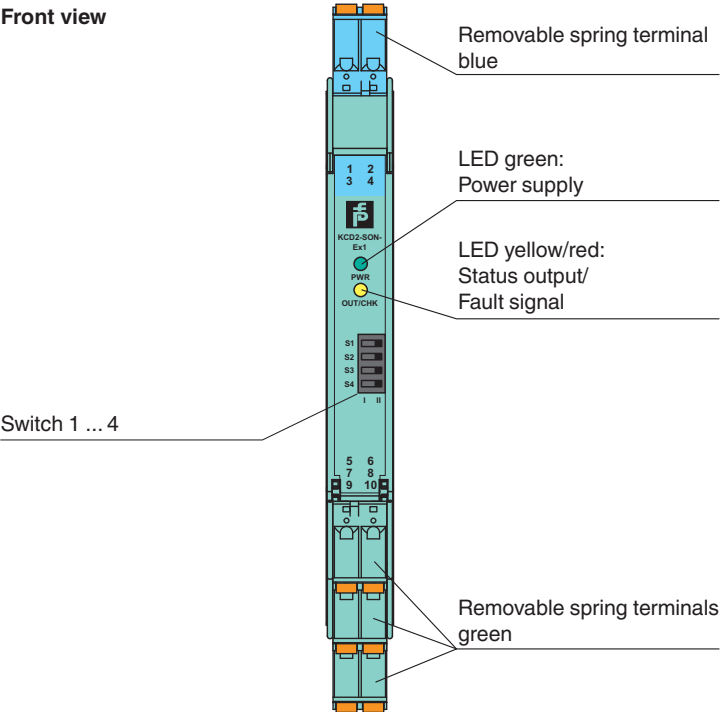
Power dissipation		≤ 500 mW
Input		
Connection side		field side
Connection		terminals 1+, 2-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Open circuit voltage/short-circuit current		approx. 10 V DC / approx. 8 mA
Switching point/switching hysteresis		1.2 ... 2.1 mA / approx. 0.2 mA
Line fault detection		breakage $I \leq 0.1$ mA , short-circuit $I \geq 6.5$ mA
Pulse/Pause ratio		min. 100 μ s / min. 100 μ s
Output		
Connection side		control side
Connection		output I: terminals 5, 6 ; output II: terminals 7, 8
Rated voltage	U_r	typ. 8 V max. 20 V DC
Response time		≤ 200 μ s
Output I, II		signal or fault message, passive transistor output (resistive) 0-signal: $14 \text{ k}\Omega \pm 10 \%$ 1-signal: $1.8 \text{ k}\Omega \pm 10 \%$ fault: $> 100 \text{ k}\Omega$
Collective error message		Power Rail
Transfer characteristics		
Switching frequency		≤ 5 kHz
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		basic insulation according to EN 50178, rated insulation voltage 50 V _{eff}
Output/Output		basic insulation according to EN 50178, rated insulation voltage 50 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)
Conformity		
Electromagnetic compatibility		NE 21:2011 , EN 61326-3-2:2008
Degree of protection		IEC 60529:2001
Protection against electrical shock		IEC 61010-1:2010
Input		EN 60947-5-6:2000
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F) extended ambient temperature range up to 70 °C (158 °F), refer to manual for necessary mounting conditions
Mechanical specifications		
Degree of protection		IP20
Connection		spring terminals
Mass		approx. 100 g
Dimensions		12.5 x 119 x 114 mm (0.5 x 4.7 x 4.5 inch) (W x H x D) , 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 13 ATEX 0080
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	10.5 V

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Technical Data

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		
Maximum safe voltage	U _m	253 V AC (Attention! The rated voltage can be lower.)
Certificate	CML 19 ATEX 4410 X	
Marking		Ⓔ II 3G Ex ec IIC T4 Gc
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 IEC 60079-0:2018 , EN 60079-7:2015+A1:2018 , EN 60079-11:2012	
International approvals		
UL approval		
Control drawing		116-0374 (cULus)
IECEEx approval		
IECEEx certificate		IECEEx BAS 13.0046 IECEEx CML 19.0147X
IECEEx marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc	
General information		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .	

Assembly



Matching System Components

	KFD2-EB2	Power Feed Module
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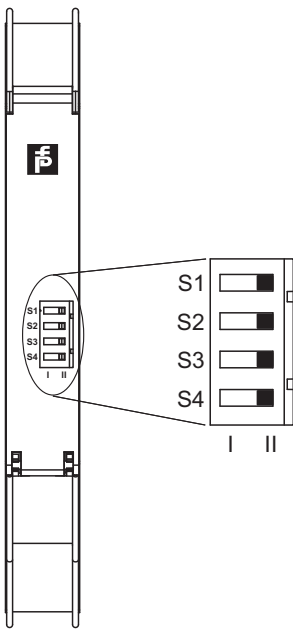
Matching System Components

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

Accessories

	F-NR3-Ex1	NAMUR Resistor Network
	KC-CTT-3GN2BU	Terminal block for KC modules, 2-pin spring terminal, with test sockets
	KC-CTT-5BU	Terminal block for KC modules, 2-pin spring terminal, with test sockets, blue
	KC-CTT-5GN	Terminal block for KC modules, 2-pin spring terminal, with test sockets, green
	KF-CP	Red coding pins, packaging unit: 20 x 6

Configuration



Switch settings

S	Function		Position
1	Mode of operation output I, II (active)	with high input current	I
		with low input current	II
2	no function		
3	Line fault detection of the input	ON	I
		OFF	II
4	no function		

Operating states

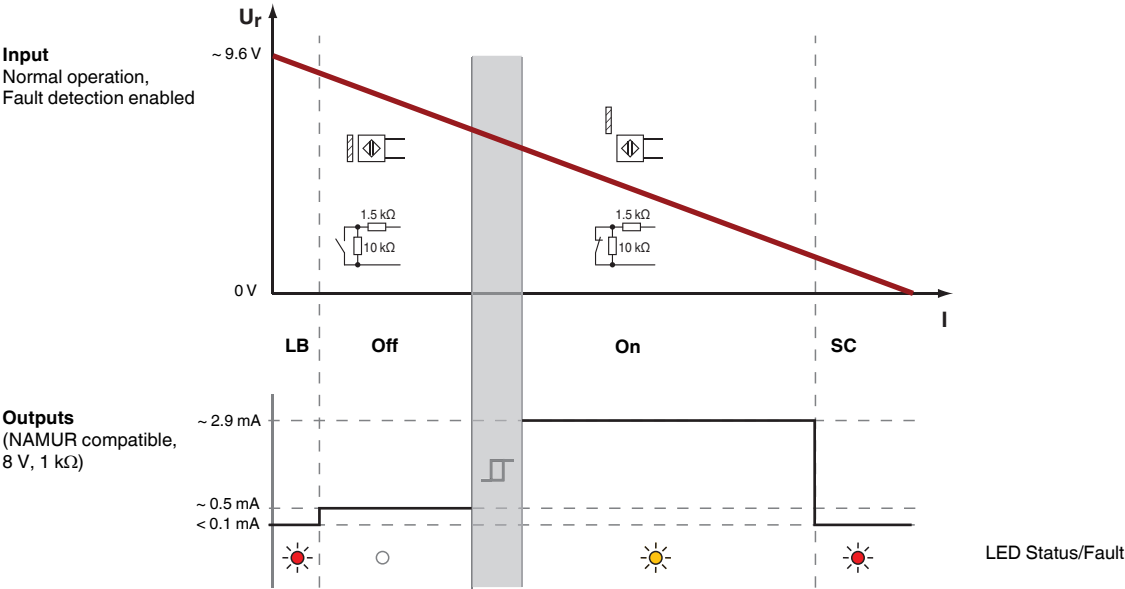
Control circuit	Input signal
Initiator high impedance/contact opened	low input current
Initiator low impedance/contact closed	high input current
Lead breakage, lead short circuit	Line fault

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

Characteristic Curve

Switching points

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