



Switch Amplifier

KCD2-SOT-Ex1.LB

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR input
- 2 passive transistor outputs
- Usable as signal splitter (1 input and 2 outputs)
- Reversible mode of operation
- Line fault detection (LFD)
- Housing width 12.5 mm
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



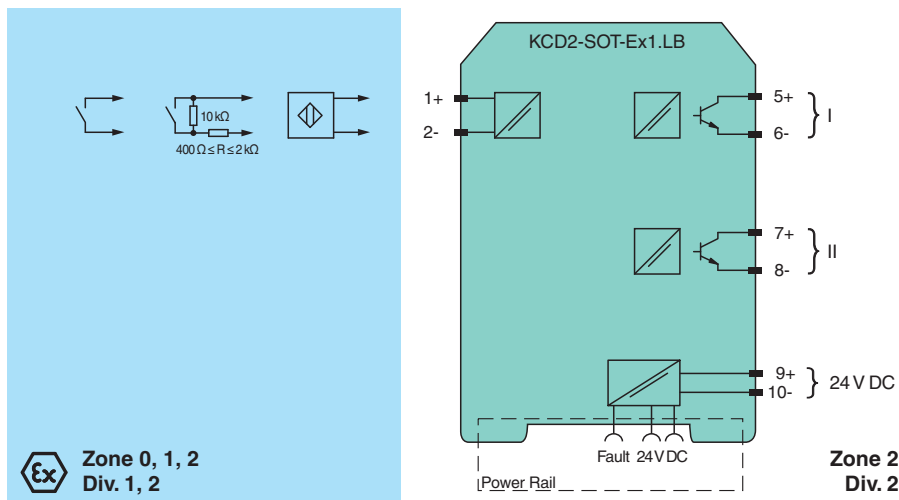
SIL 2



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. Via switches the mode of operation can be reversed and the line fault detection can be switched off. Via switch the function of the second output can be defined as a signal output or an error output. 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	20 ... 15 mA
Power dissipation		≤ 700 mW including maximum power dissipation in the output

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

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Technical Data

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	30 V DC
Rated current	I_r	50 mA
Response time		≤ 200 μ s
Signal level		1-signal: (external voltage) - 3 V max. for 50 mA 0-signal: blocked output (off-state current ≤ 10 μ A)
Output I		signal ; Transistor
Output II		signal or fault message ; Transistor
Collective error message		Power Rail

Transfer characteristics

Switching frequency		≤ 5 kHz
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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
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 ... 70 °C (-4 ... 158 °F) extended ambient temperature range up to 70 °C (158 °F) , refer to manual and derating characteristics in the datasheet for necessary mounting conditions
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Mechanical specifications

Degree of protection		IP20
Connection		screw 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

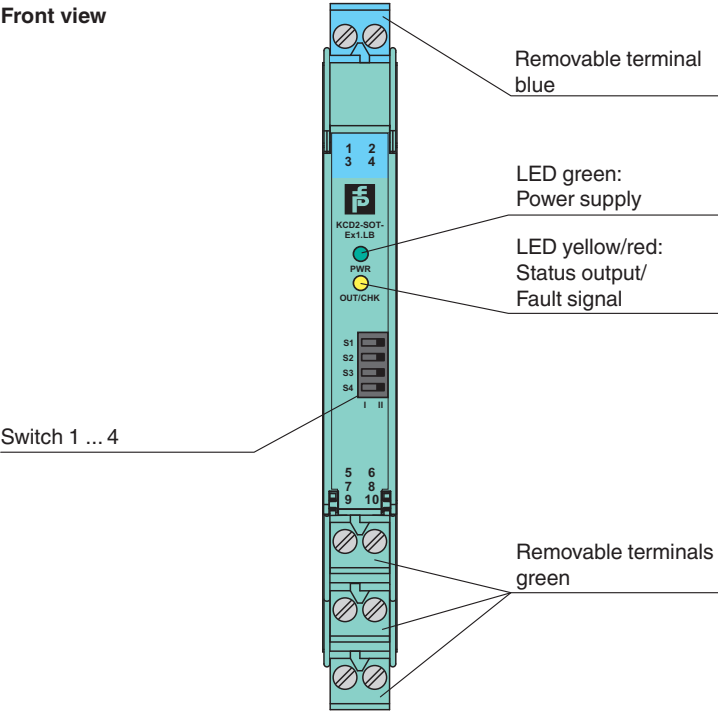
EU-type examination certificate		BASEEFA 13 ATEX 0080
Marking		Ⓔ II (1)G [Ex ia Ga] IIC Ⓔ II (1)D [Ex ia Da] IIIC Ⓔ I (M1) [Ex ia Ma] I
Input		Ex ia

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Technical Data

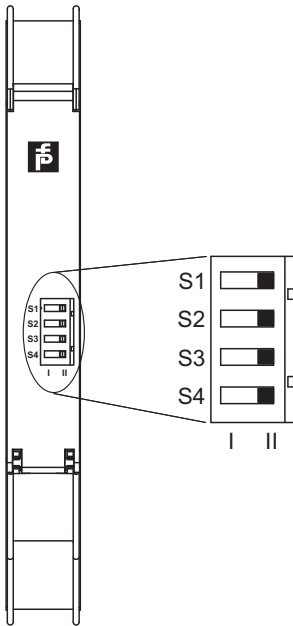
Voltage	U _o	10.5 V
Current	I _o	17.1 mA
Power	P _o	45 mW (linear characteristic)
Supply		
Maximum safe voltage	U _m	253 V AC (Attention! U _m is no rated voltage.)
Output		
Maximum safe voltage	U _m	253 V AC (Attention! The rated voltage can be lower.)
Certificate		CML 19 ATEX 4410 X
Marking		II 3G 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



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Configuration



Switch settings

S	Function		Position
1	Mode of operation output I (active)	with high input current	I
		with low input current	II
2	Assignment output II	Switching state like output I	I
		Fault indication output (passive if fault)	II
3	Line fault detection of the input	ON	I
		OFF	II
4	no function		

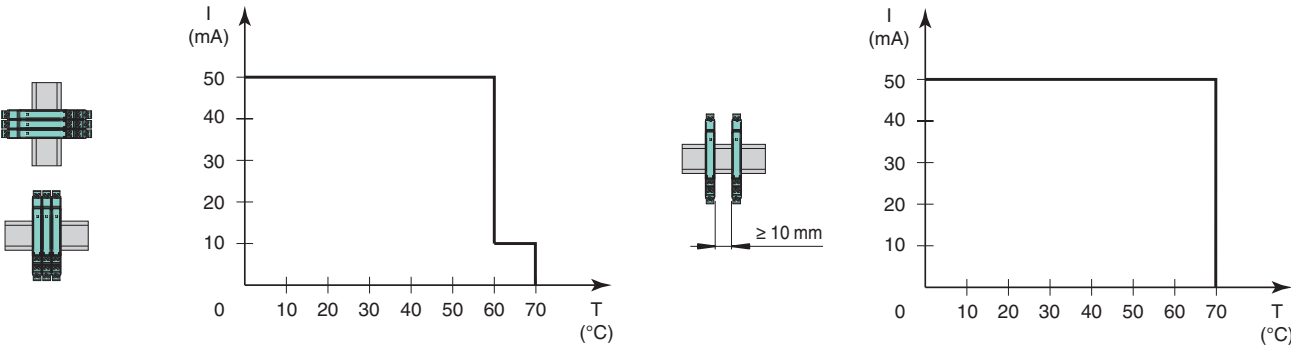
Operating states

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

Derating of the rated current I_r at the output



- Horizontal or vertical mounting
- without separation distance
 - with the same device type

- Horizontal mounting
- with separation distance
 - with different device types