

# Switch Amplifier

## KCD2-SOT-1.LB.SP

- 1-channel signal conditioner
- 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
- Connection via spring terminals with push-in connection technology
- Up to SIL 2 acc. to IEC/EN 61508

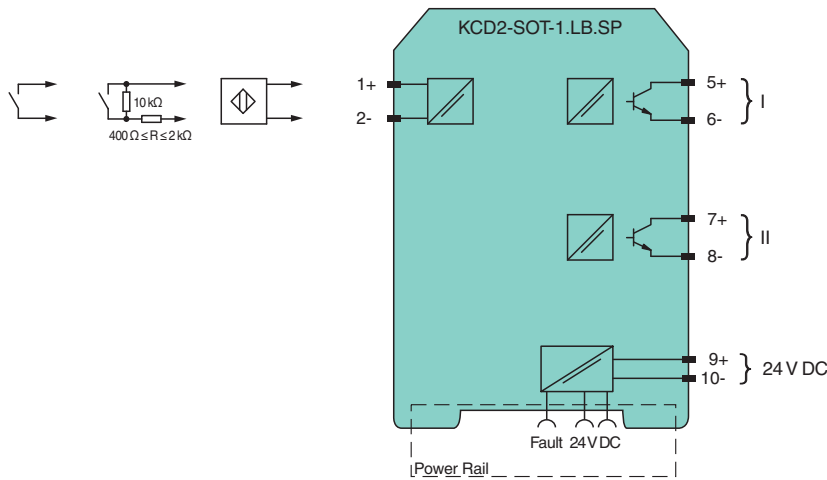
24 V DC

# CE SIL2

### Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device transfers digital signals (NAMUR sensors or dry contacts) from the field to the control system. 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 signalized by LEDs acc. to NAMUR NE44 and a separate collective error message output.

### Connection



### Technical Data

<b>General specifications</b>			
Signal type	Digital Input		
<b>Functional safety related parameters</b>			
Safety Integrity Level (SIL)	SIL 2		
<b>Supply</b>			
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		

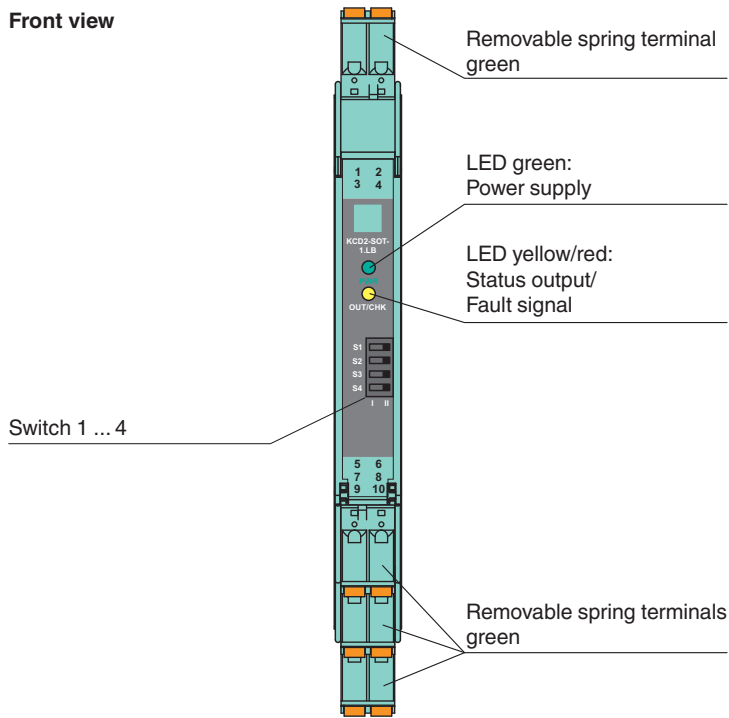
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## Technical Data

<b>Input</b>	
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 $\mu$ s / min. 100 $\mu$ s
<b>Output</b>	
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	$\leq 200$ $\mu$ s
Signal level	1-signal: (external voltage) - 3 V max. for 50 mA 0-signal: blocked output (off-state current $\leq 10$ $\mu$ A)
Output I	signal ; Transistor
Output II	signal or fault message ; Transistor
Collective error message	Power Rail
<b>Transfer characteristics</b>	
Switching frequency	$\leq 5$ kHz
<b>Galvanic isolation</b>	
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 $V_{eff}$
<b>Indicators/settings</b>	
Display elements	LEDs
Control elements	DIP switch
Configuration	via DIP switches
Labeling	space for labeling at the front
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
<b>Conformity</b>	
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
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F) extended ambient temperature range up to 70 °C (158 °F) , refer to manual and derating characteristics for necessary mounting conditions
<b>Mechanical specifications</b>	
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
<b>General information</b>	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

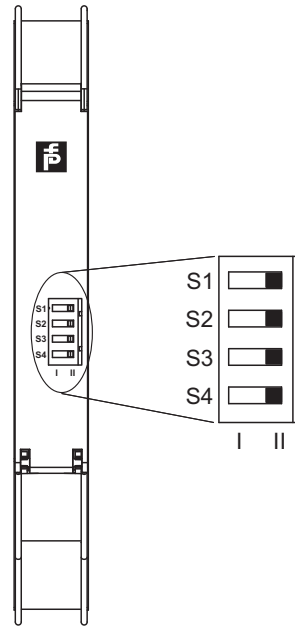
Assembly

Front view



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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		

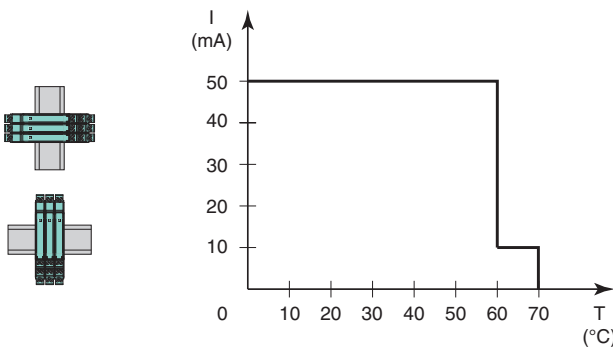
**Operating states**

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

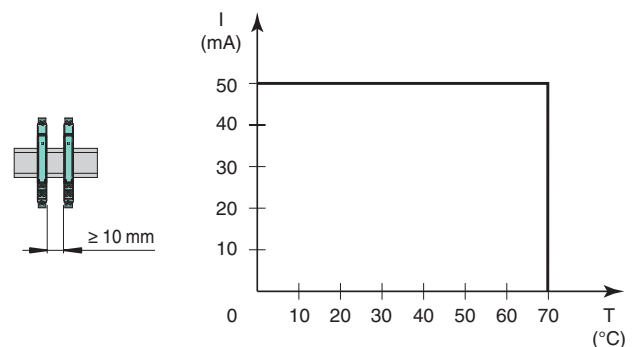
Factory setting: switch 1, 2, 3 and 4 in position I

**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

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