

Switch Amplifier

KCD2-SOT-Ex1.LB.SP

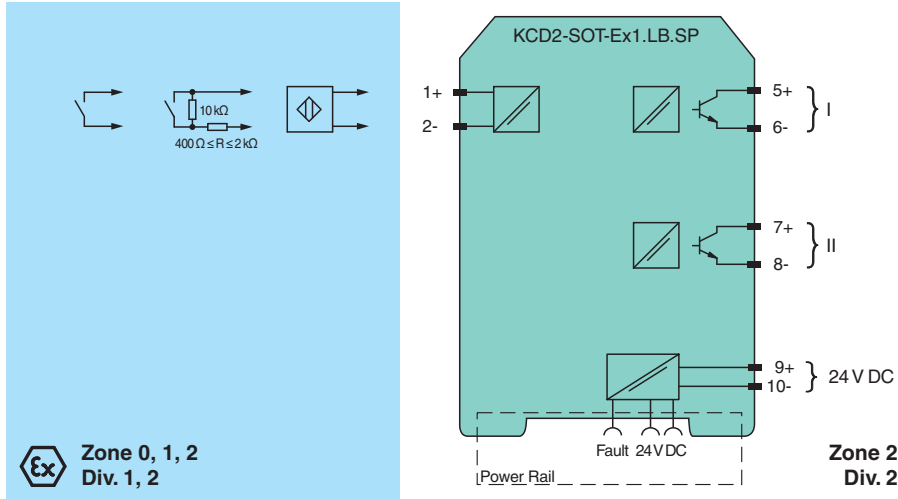
- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR input
- 2 passive transistor outputs
- Usable as signal splitter (1 input and 2 outputs)
- Reversible mode of operation
- Line fault detection (LFD)
- Housing width 12.5 mm
- Connection via spring terminals with push-in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



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 |

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Technical Data

| | | |
|----------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power dissipation | | ≤ 700 mW including maximum power dissipation in the output |
| 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 |
| 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 ... 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 |
| 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 |

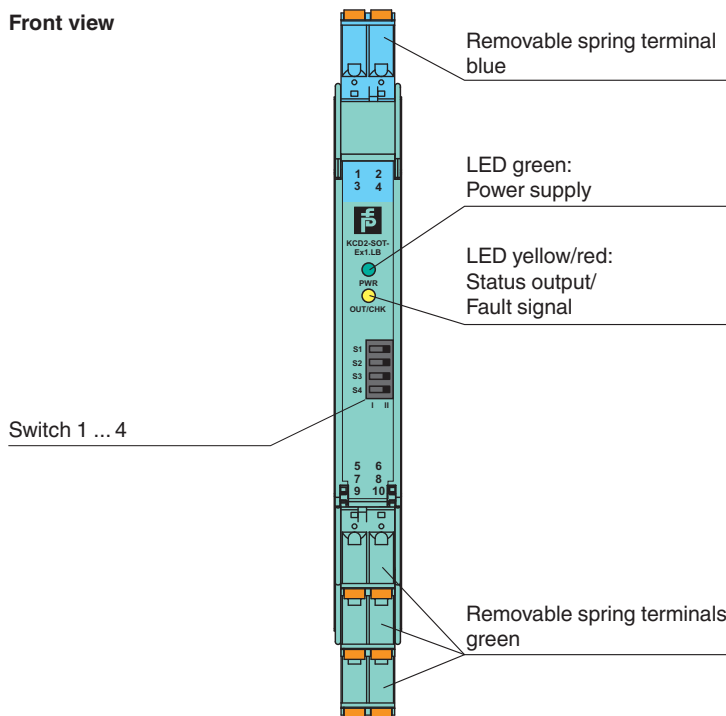
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Technical Data

| | | |
|--------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input | | Ex ia |
| 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) |
| IECEX approval | | |
| IECEX certificate | | IECEX BAS 13.0046 IECEX CML 19.0147X |
| IECEX 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 . |

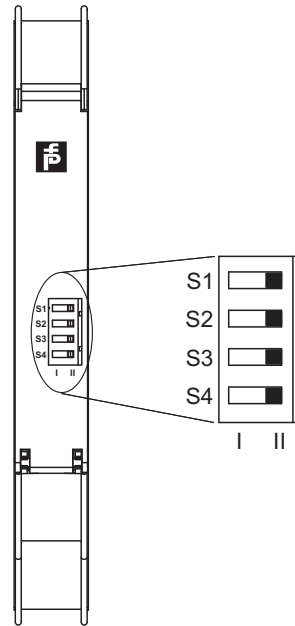
Assembly

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 | | |

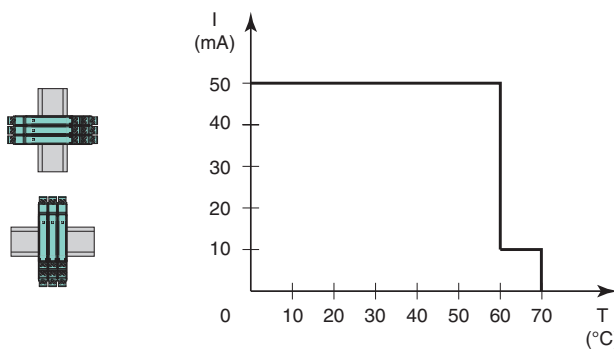
Operating states

| 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 |

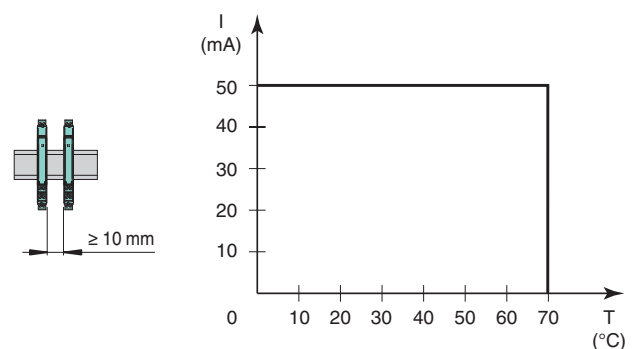
Factory setting: switch 1, 2, 3 and 4 in position I

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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