

# Switch Amplifier KCD2-SOT-2.SP

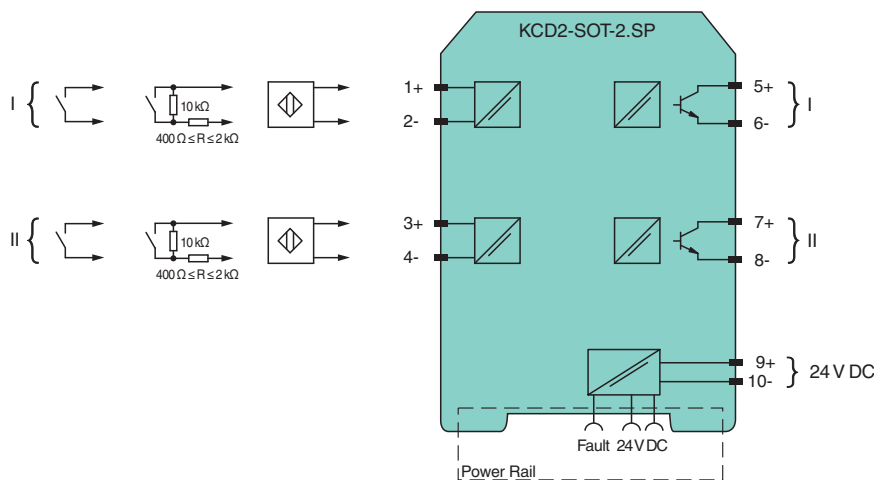
- 2-channel signal conditioner
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- 2 passive transistor outputs
- Reversible mode of operation
- Line fault detection (LFD)
- Housing width 12.5 mm
- Connection via spring terminals with push-in connection technology
- SIL 2 (SC 3) acc. to IEC/EN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

## 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. Each input controls a passive transistor output. 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  $\leq 10\%$

Rated current  $I_r$  30 ... 20 mA

Power dissipation  $\leq 800$  mW including maximum power dissipation in the output

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

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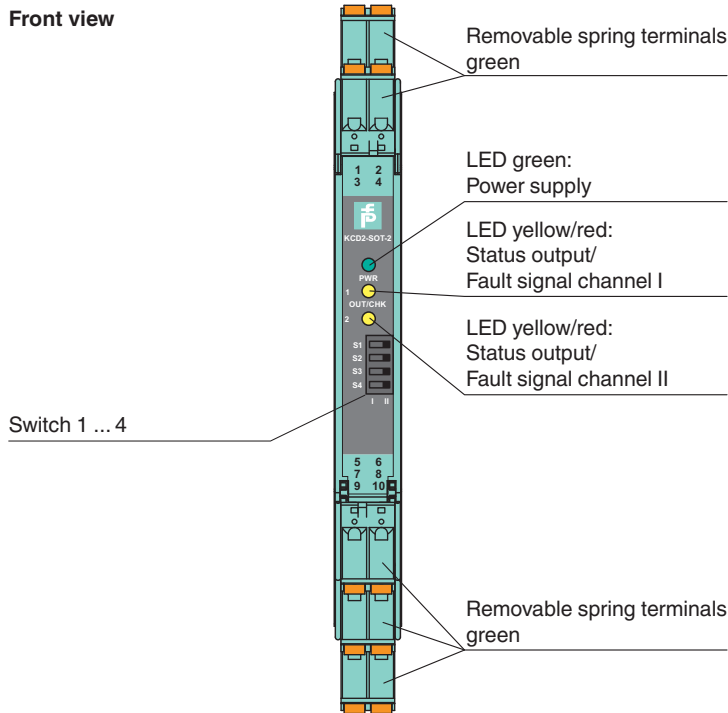
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## Technical Data

|  |       |   |
|--|-------|---|
| <b>Input</b>                               |       |   |
| 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 $I \leq 0.1$ 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                                 |       | terminals 5, 6; 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<br>0-signal: blocked output (off-state current $\leq 10$ $\mu$ A)   |
| Output I                                   |       | signal ; Transistor   |
| Output II                                  |       | signal ; 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)<br>extended ambient temperature range up to 70 °C (158 °F), refer to manual 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



**Matching System Components**

|  |                         |   |
|--|-------------------------|---|
|  | <b>KFD2-EB2</b>         | Power Feed Module   |
|  | <b>UPR-03</b>           | Universal Power Rail with end caps and cover, 3 conductors, length: 2 m       |
|  | <b>UPR-03-M</b>         | Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m     |
|  | <b>UPR-03-S</b>         | Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m     |
|  | <b>K-DUCT-GY</b>        | Profile rail, wiring comb field side, gray                                    |
|  | <b>K-DUCT-GY-UPR-03</b> | Profile rail with UPR-03-* insert, 3 conductors, wiring comb field side, gray |

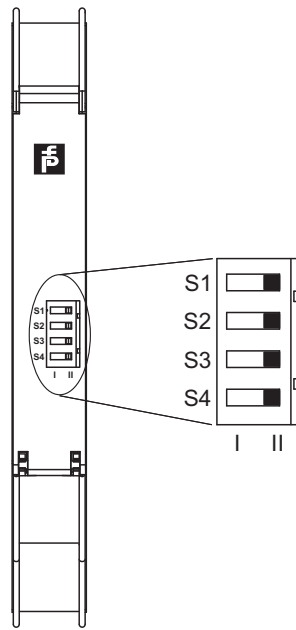
**Accessories**

|  |                   |  |
|--|-------------------|--|
|  | <b>KC-CTT-5GN</b> | Terminal block for KC modules, 2-pin spring terminal, with test sockets, green |
|  | <b>KF-CP</b>      | Red coding pins, packaging unit: 20 x 6  |

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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 | Mode of operation output II (active) | with high input current | I        |
|   |                                      | with low input current  | II       |
| 3 | Line fault detection of the input I  | ON                      | I        |
|   |                                      | OFF                     | II       |
| 4 | Line fault detection of the input II | ON                      | I        |
|   |                                      | OFF                     | II       |

**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

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