## Features

- 2-channel signal conditioner
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Relay contact output
- Line fault detection (LFD)
- Housing width 12.5 mm
- Up to SIL 2 acc. to IEC 61508

## Function

This signal conditioner transfers digital signals (NAMUR sensors/mechanical contacts) from the field to the control system.

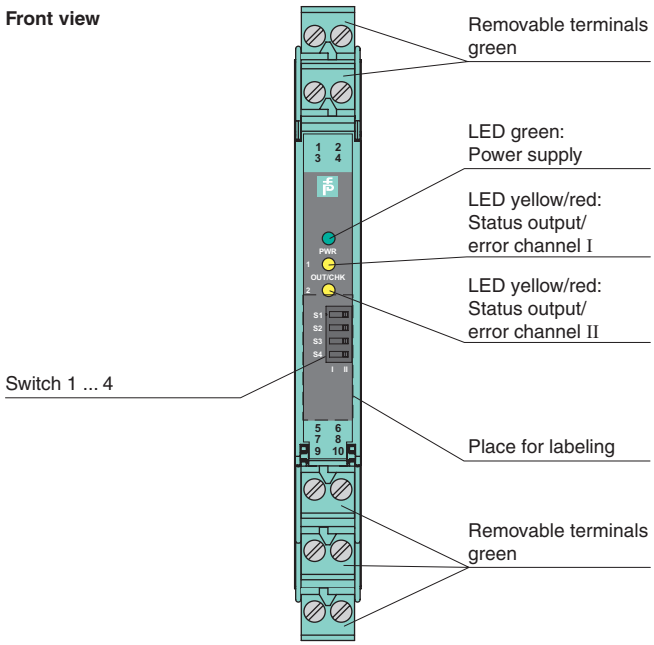
The proximity sensor or switch controls a form A normally open relay contact for the load. The normal output state can be reversed using switches S1 and S2. Switch S3 is used to enable or disable line fault detection of the field circuit.

During an error condition, relays revert to their de-energized state and LEDs indicate the fault according to NAMUR NE44.

A unique collective error messaging feature is available when used with the Power Rail system.

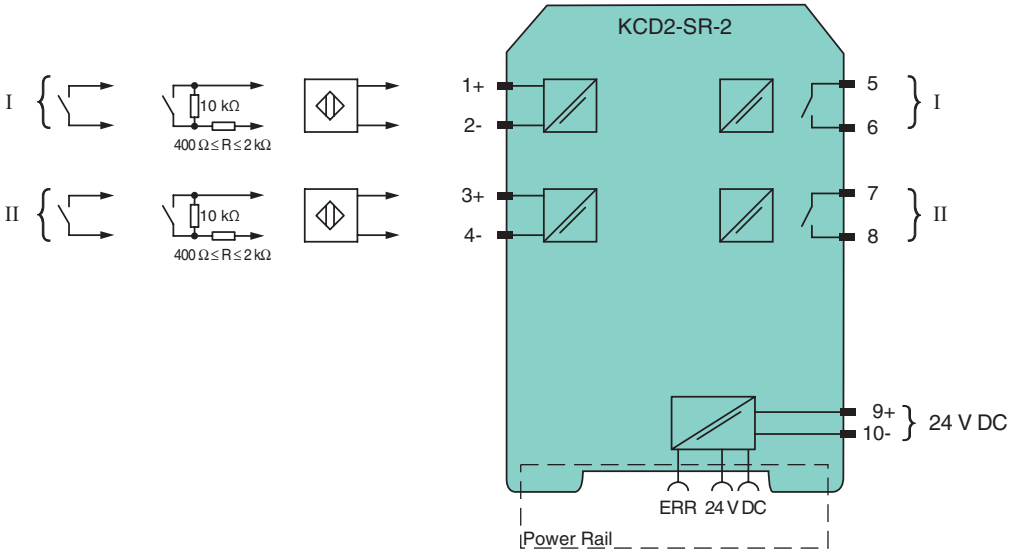
Due to its compact housing design and low heat dissipation, this device is useful for detecting positions, end stops, and switching states in space-critical applications.

## Assembly




CE SIL 2

## Connection

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| | | |
|---|---|---|
| **General specifications** | | |
| Signal type | | Digital Input |
| **Functional safety related parameters** | | |
| Safety Integrity Level (SIL) | | SIL 2 |
| **Supply** | | |
| Connection | | Power Rail or terminals 9+, 10- |
| Rated voltage | $U_r$ | 19 ... 30 V DC |
| Ripple | | ≤ 10 % |
| Rated current | $I_r$ | ≤ 30 mA |
| Power dissipation | | ≤ 600 mW |
| Power consumption | | ≤ 600 mW |
| **Input** | | |
| 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 ≤ 0.1 mA , short-circuit I ≥ 6.5 mA |
| Pulse/Pause ratio | | ≥ 20 ms / ≥ 20 ms |
| **Output** | | |
| Connection side | | control side |
| Connection | | terminals 5, 6; 7, 8 |
| Output I | | signal ; relay |
| Output II | | signal ; relay |
| Contact loading | | 253 V AC/2 A/cos ϕ > 0.7; 126.5 V AC/4 A/cos ϕ > 0.7; 30 V DC/2 A resistive load |
| Minimum switch current | | 2 mA / 24 V DC |
| Energized/De-energized delay | | ≤ 20 ms / ≤ 20 ms |
| Mechanical life | | $10^7$ switching cycles |
| **Transfer characteristics** | | |
| Switching frequency | | ≤ 10 Hz |
| **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 | | reinforced insulation acc. to EN 50178, rated insulation voltage 300 $V_{eff}$ |
| Input/input | | Basic insulation according to EN 50178, rated insulation voltage 300 $V_{eff}$ |
| Output/Output | | reinforced insulation acc. to EN 50178, rated insulation voltage 300 $V_{eff}$ |
| **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) |
| Low voltage | | |
| Directive 2014/35/EU | | EN 61010-1:2010 |
| **Conformity** | | |
| Electromagnetic compatibility | | NE 21:2006 |
| Degree of protection | | IEC 60529 |
| **Ambient conditions** | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| **Mechanical specifications** | | |
| Degree of protection | | IP20 |
| Connection | | screw terminals |
| Mass | | approx. 100 g |
| Dimensions | | 12.5 x 114 x 119 mm (0.5 x 4.5 x 4.7 inch) , housing type A2 |
| Mounting | | on 35 mm DIN mounting rail acc. to EN 60715:2001 |
| **General information** | | |
| Supplementary information | | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com. |

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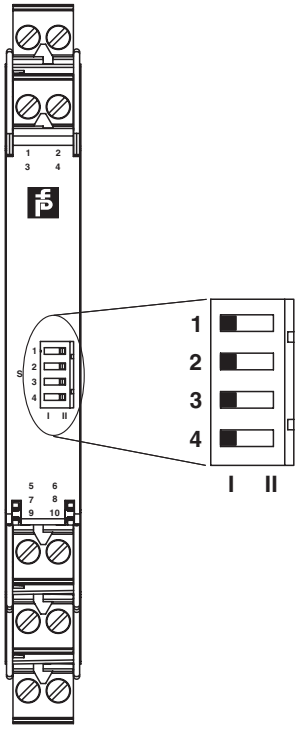
## Configuration




### Switch position

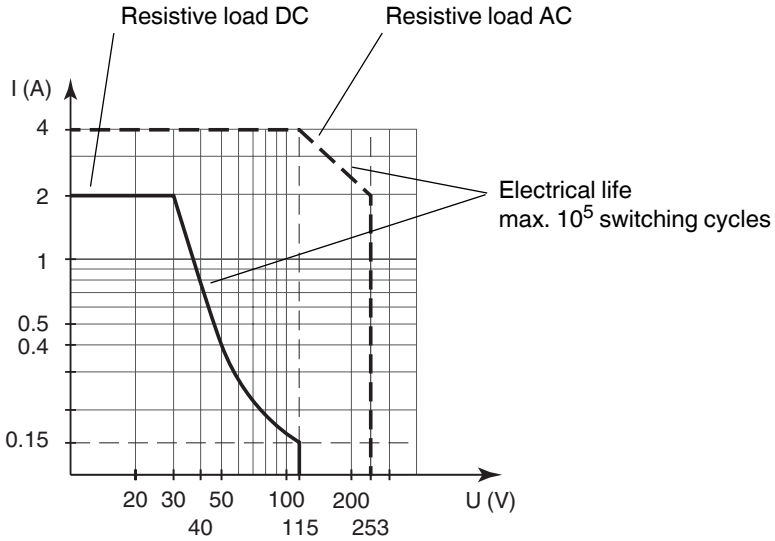
| S | Function | | Position |
|---|---|---|---|
| 1 | Mode of operation Output I (relay) energized | with high input current | I |
| | | with low input current | II |
| 2 | Mode of operation Output II (relay) energized | with high input current | I |
| | | with low input current | II |
| 3 | Line fault detection Input I | ON | I |
| | | OFF | II |
| 4 | Line fault detection Input II | ON | I |
| | | OFF | II |

### Operating status

| 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 settings: switch 1, 2, 3 and 4 in position I

## Maximum switching power of output contacts




The maximum number of switching cycles is depending on the electrical load and may be higher when reduced currents and voltages are applied.

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## Accessories

### Power feed module KFD2-EB2

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 150 individual devices depending on the power consumption of the devices. Collective error messages received from the Power Rail activate a galvanically-isolated mechanical contact.

### Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical insert and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

### Profile Rail K-DUCT with Power Rail

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.

*Power Rail and Profile Rail must not be fed via the device terminals of the individual devices!*

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