

# Switch Amplifier

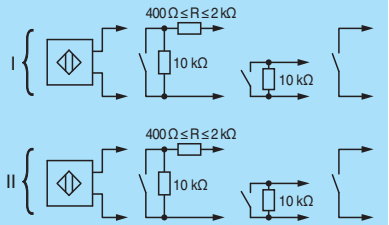
## KFD2-SOT3-Ex2

- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- 2 passive transistor outputs
- Reversible mode of operation
- Line fault detection (LFD)
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508

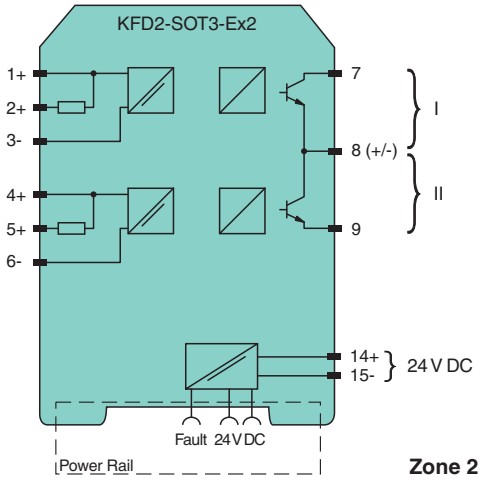
## Function

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.
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 signalized by LEDs acc. to NAMUR NE44 and a separate collective error message output.

## Wiring Diagram




Zone 0, 1, 2




Zone 2

## 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 14+, 15- |
| Rated voltage | $U_r$ | 19 ... 30 V DC |
| Ripple | | ≤ 10 % |
| Rated current | $I_r$ | 30 ... 20 mA |
| Power dissipation | | ≤ 1.1 W including maximum power dissipation in the output |

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## Technical Data

| | | |
|---|---|---|
| **Input** | | |
| Connection side | | field side |
| Connection | | terminals 1+, 2+, 3-; 4+, 5+, 6- |
| Rated values | | acc. to EN 60947-5-6 (NAMUR), see manual for electrical data |
| 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 | | min. 100 µs / min. 100 µs |
| **Output** | | |
| Connection side | | control side |
| Connection | | output I: terminals 7, 8 ; output II: terminals 8, 9 |
| Rated voltage | $U_r$ | 30 V DC |
| Rated current | $I_r$ | 100 mA , short-circuit protected |
| Response time | | ≤ 200 µs |
| Signal level | | 1-signal: (external voltage) - 3 V max. for 100 mA<br>0-signal: blocked output (off-state current ≤ 10 µA) |
| Output I | | signal ; Transistor |
| Output II | | signal ; Transistor |
| Collective error message | | Power Rail |
| **Transfer characteristics** | | |
| Switching frequency | | ≤ 5 kHz |
| **Galvanic isolation** | | |
| Input/Output | | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| Input/power supply | | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 $V_{eff}$ |
| Output/power supply | | basic insulation according to IEC/EN 61010-1, 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) |
| **Conformity** | | |
| Electromagnetic compatibility | | NE 21:2012 , EN 61326-3-2:2008 |
| Degree of protection | | IEC 60529:2001 |
| Input | | EN 60947-5-6:2000 |
| **Ambient conditions** | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| **Mechanical specifications** | | |
| Degree of protection | | IP20 |
| Connection | | screw terminals |
| Mass | | approx. 150 g |
| Dimensions | | 20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , housing type B2 |
| Mounting | | on 35 mm DIN mounting rail acc. to EN 60715:2001 |
| **Data for application in connection with hazardous areas** | | |
| EU-type examination certificate | | EXA 16 ATEX 0016 X |
| Marking | | ⟨Ex⟩ II 3(1)G Ex nA [ia Ga] IIC T4 Gc<br>⟨Ex⟩ II (1)D [Ex ia Da] IIIC<br>⟨Ex⟩ I (M1) [Ex ia Ma] I |
| Input | | Ex ia |
| Voltage | $U_o$ | 10.5 V |
| Current | $I_o$ | 17.1 mA |
| Power | $P_o$ | 45 mW (linear characteristic) |

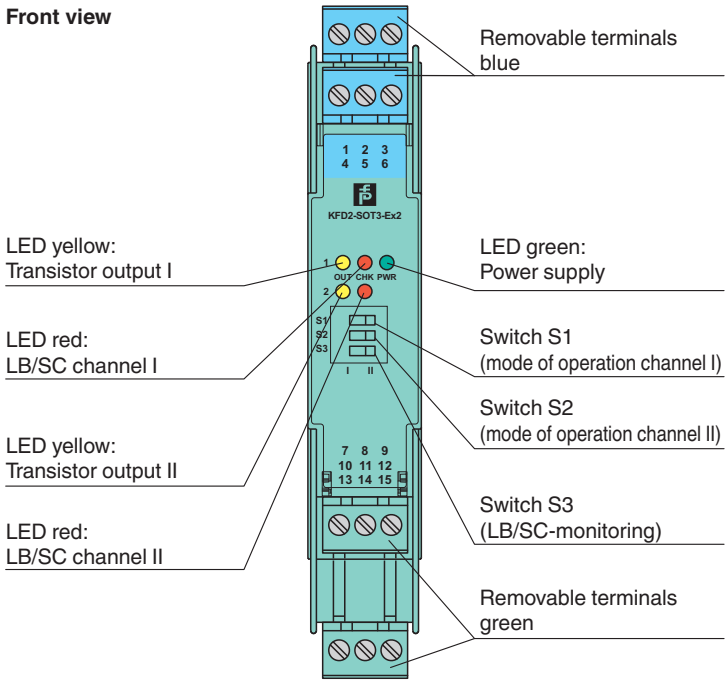
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## Technical Data

| | | |
|---|---|---|
| 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.) |
| 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+AC:2020 , EN IEC 60079-11:2024 , EN 60079-15:2010 |
| **International approvals** | | |
| UL approval | | E106378 |
| Control drawing | | 116-0424 (cULus) |
| IECEx approval | | |
| IECEx certificate | | IECEx EXA 16.0009X |
| IECEx marking | | Ex nA [ia Ga] IIC T4 Gc , [Ex ia Da] IIIC , [Ex ia Ma] I |
| **General information** | | |
| Supplementary information | | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com. |

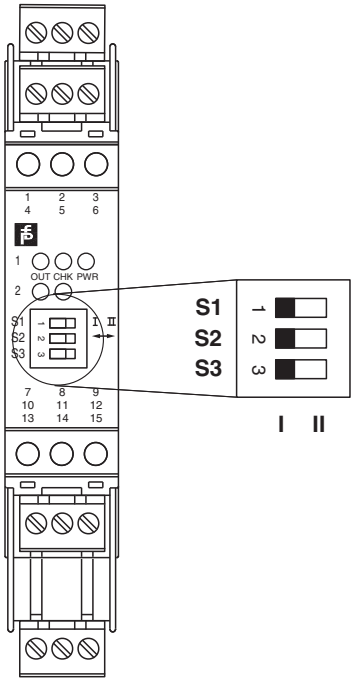
## Assembly

**Front view**




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## Configuration




### Switch position

| 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 | 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 and 3 in position I

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