



# Switch Amplifier KFU8-SR-Ex2.W

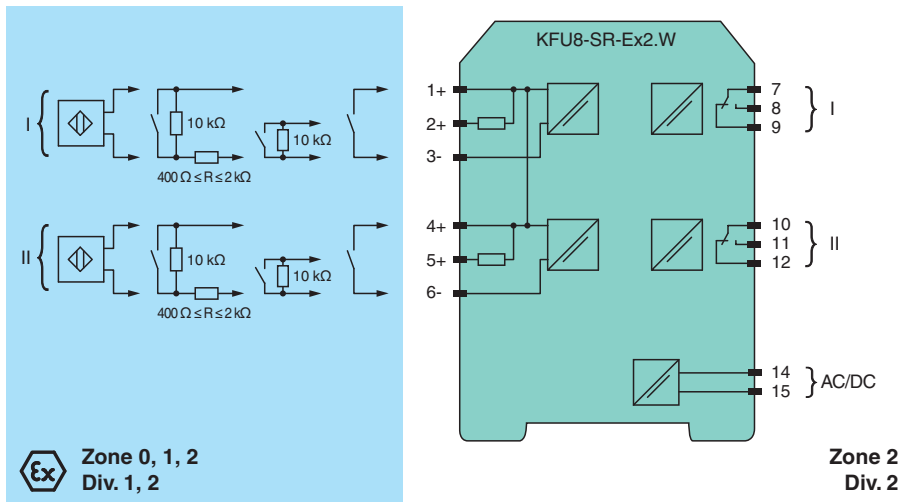
- 2-channel isolated barrier
- Universal usage at different power supplies
- Dry contact or NAMUR inputs
- Relay contact output
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



## Function

This isolated barrier is used for intrinsic safety applications. It transfers digital signals (NAMUR sensors/mechanical contacts) from a hazardous area to a safe area. The proximity sensor or switch controls a form C changeover relay contact for the safe area 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, the relays revert to their de-energized state and the LEDs indicate the fault according to NAMUR NE44.

## 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 terminals 14, 15

Rated voltage  $U_r$  19 ... 30 V DC / 90 ... 253 V AC 50 ... 60 Hz

Power dissipation/power consumption  $\leq 1.3 \text{ W} / \leq 1.3 \text{ W} ; 3.6 \text{ VA}$

### Input

Connection side field side

Release date: 2023-01-03 Date of issue: 2023-01-03 Filename: 204136\_eng.pdf

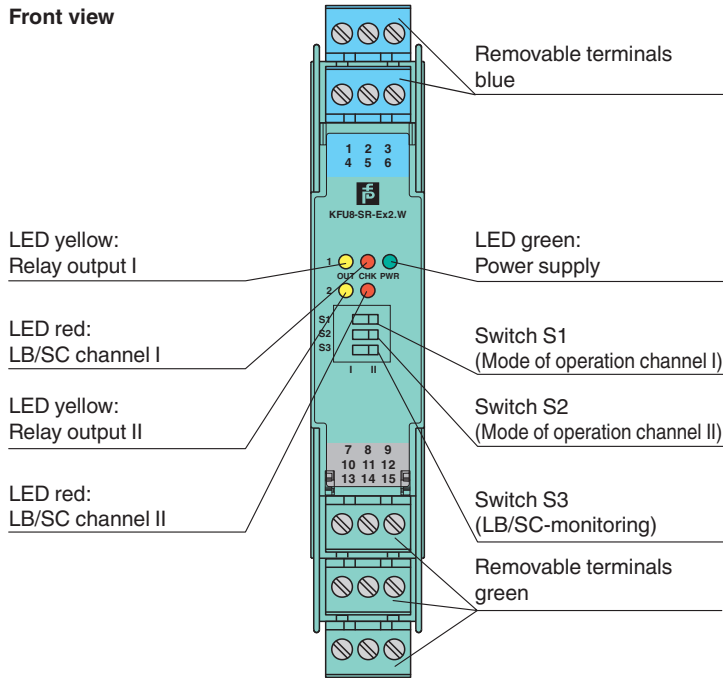
## Technical Data

|  |  |                               |
|--|--|-------------------------------|
| Connection   | terminals 1+, 2+, 3-; 4+, 5+, 6-   |                               |
| Rated values   | acc. to EN 60947-5-6 (NAMUR)   |                               |
| Open circuit voltage/short-circuit current                     | approx. 8 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 $I > 6$ mA  |                               |
| Pulse/Pause ratio  | min. 20 ms / min. 20 ms  |                               |
| <b>Output</b>  |  |                               |
| Connection side  | control side   |                               |
| Connection   | output I: terminals 7, 8, 9 ; output II: terminals 10, 11, 12  |                               |
| Output I, II   | signal ; relay   |                               |
| Contact loading  | 250 V AC/2 A/cos $\phi > 0.75$ ; 126.5 V AC/4 A/cos $\phi > 0.75$ ; 40 V DC/2 A resistive load   |                               |
| Minimum switch current   | 2 mA / 24 V DC   |                               |
| Energized/De-energized delay                                   | approx. 20 ms / approx. 20 ms  |                               |
| Mechanical life  | 10 <sup>7</sup> switching cycles   |                               |
| <b>Transfer characteristics</b>                                |  |                               |
| Switching frequency  | $\leq 10$ Hz   |                               |
| <b>Galvanic isolation</b>                                      |  |                               |
| Input/Output   | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>   |                               |
| Input/power supply   | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>   |                               |
| Output/power supply  | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>   |                               |
| Output/Output  | reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>   |                               |
| <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)   |                               |
| Low voltage  |  |                               |
| Directive 2014/35/EU   | EN 61010-1:2010+A1:2019+A1:2019/AC:2019  |                               |
| <b>Conformity</b>  |  |                               |
| Electromagnetic compatibility                                  | NE 21:2017 , EN 61326-3-1:2017 , EN IEC 61326-3-2:2018 , EN IEC 61326-1:2021 (industrial locations)  |                               |
| Degree of protection   | IEC 60529:1989+A1:1999+A2:2013   |                               |
| Input  | EN 60947-5-6:2000  |                               |
| <b>Ambient conditions</b>                                      |  |                               |
| Ambient temperature  | -40 ... 60 °C (-40 ... 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   | 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   |                               |
| <b>Data for application in connection with hazardous areas</b> |  |                               |
| EU-type examination certificate                                | FIDI 22 ATEX 0029 X  |                               |
| Marking  | Ⓢ II 3(1)G Ex ec nC [ia Ga] IIC T4 Gc<br>Ⓢ II (1)D [Ex ia Da] IIIC<br>Ⓢ I (M1) [Ex ia Ma] I  |                               |
| Input  | Ex ia  |                               |
| Voltage  | U <sub>o</sub>   | 10.5 V                        |
| Current  | I <sub>o</sub>   | 13 mA                         |
| Power  | P <sub>o</sub>   | 34 mW (linear characteristic) |



**Technical Data**

|                                |                |   |  |
|--------------------------------|----------------|---|--|
| <b>Supply</b>                  |                |   |  |
| Maximum safe voltage           | U <sub>m</sub> | 253 V AC (Attention! U <sub>m</sub> is no rated voltage.)   |  |
| <b>Output</b>                  |                |   |  |
| Maximum safe voltage           | U <sub>m</sub> | 253 V AC (Attention! The rated voltage can be lower.)   |  |
| <b>Galvanic isolation</b>      |                |   |  |
| Input/input                    |                | not available   |  |
| 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   |  |
| <b>Directive conformity</b>    |                |   |  |
| Directive 2014/34/EU           |                | EN IEC 60079-0:2018 , EN 60079-7:2015+A1:2018 , EN 60079-11:2012 , EN IEC 60079-15:2019   |  |
| <b>International approvals</b> |                |   |  |
| UL approval                    |                | E106378   |  |
| Control drawing                |                | 116-0489  |  |
| Contact loading                |                | 250 V AC/2 A/cos φ > 0.75; 126.5 V AC/4 A/cos φ > 0.75; 30 V DC/2 A resistive load  |  |
| <b>IECEx approval</b>          |                |   |  |
| IECEx certificate              |                | IECEx FIDI 22.0003X   |  |
| IECEx marking                  |                | Ex ec nC [ia Ga] IIC T4 Gc , [Ex ia Da] IIIC , [Ex ia Ma] I   |  |
| <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**




**Accessories**

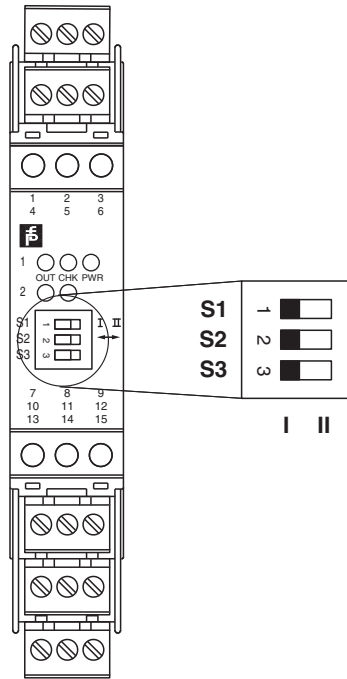
|   |                  |  |
|---|------------------|--|
|  | <b>KF-ST-5GN</b> | Terminal block for KF modules, 3-pin screw terminal, green |
|  | <b>KF-ST-5BU</b> | Terminal block for KF modules, 3-pin screw terminal, blue  |

Release date: 2023-01-03 Date of issue: 2023-01-03 Filename: 204136\_eng.pdf

**Accessories**

|   |              |   |
|---|--------------|---|
|  | <b>KF-CP</b> | Red coding pins, packaging unit: 20 x 6 |
|---|--------------|---|

**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                          | ON                      | I        |
|   |   | OFF                     | II       |

**Operating states**

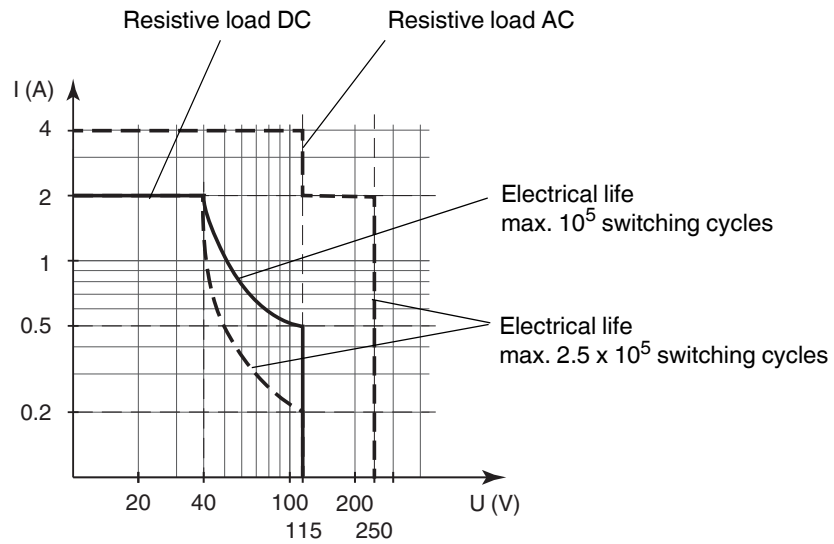
| Control circuit                         | Input signal       |
|---|--------------------|
| Initiator high impedance/contact opened | low input current  |
| Initiator low impedance/contact closed  | high input current |
| Lead breakage, lead short circuit       | Line fault         |

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

**Characteristic Curve**

**Maximum switching power of output contacts**

Release date: 2023-01-03 Date of issue: 2023-01-03 Filename: 204136\_eng.pdf



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