



# Solenoid Driver

## KFD0-SD2-Ex1.1065

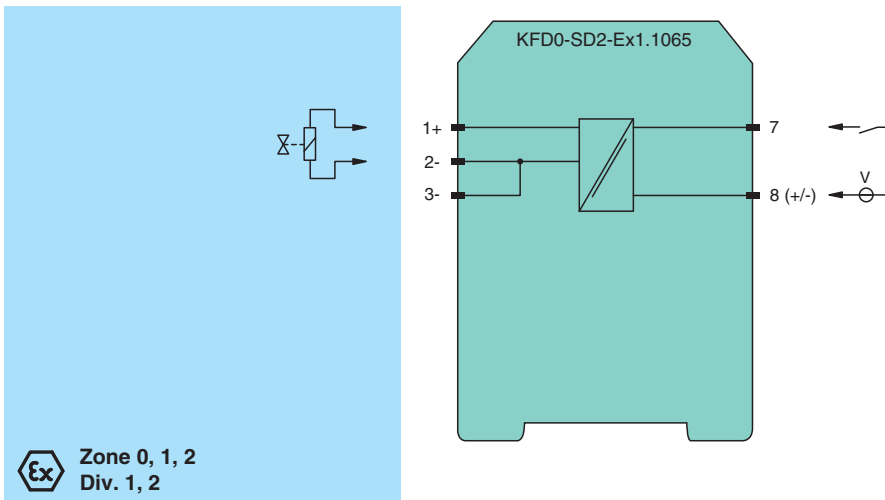
- 1-channel isolated barrier
- 24 V DC supply (loop powered)
- Current limit 65 mA at 9.8 V DC
- Up to SIL 3 acc. to IEC/EN 61508



### Function

This isolated barrier is used for intrinsic safety applications. It supplies power to solenoids, LEDs, and audible alarms located in a hazardous area. It is loop powered, so the available energy at the output is received from the input signal. The output signal has a resistive characteristic. As a result the output voltage and current are dependent on the load and the input voltage. At full load, 9.8 V at 65 mA is available for the hazardous area application.

### Connection



**Ex** Zone 0, 1, 2  
Div. 1, 2

### Technical Data

#### General specifications

Signal type Digital Output

#### Functional safety related parameters

Safety Integrity Level (SIL) SIL 3

#### Supply

Rated voltage  $U_r$  loop powered  
Power dissipation  $< 1 \text{ W } (\leq 30 \text{ V})$

#### Input

Connection side control side  
Connection terminals 7, 8  
Rated voltage  $U_r$  20 ... 35 V DC

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

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## Technical Data

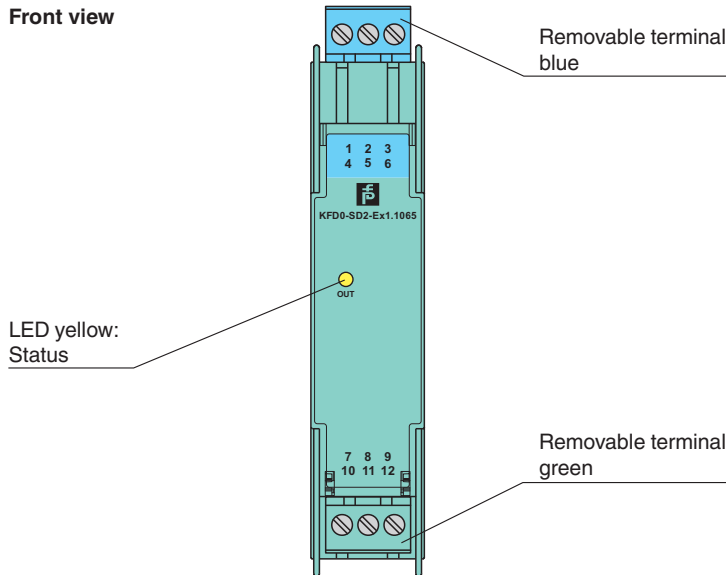
|  |       |   |
|--|-------|---|
| Current  |       | 72 mA at 20 V input voltage, load = 150 $\Omega$<br>50 mA at 35 V input voltage, load = 150 $\Omega$  |
| <b>Output</b>  |       |   |
| Connection side  |       | field side  |
| Connection   |       | terminals 1+, 2-  |
| Internal resistor  | $R_i$ | $\leq 90 \Omega$  |
| Current  | $I_e$ | $\leq 65 \text{ mA}$  |
| Voltage  | $U_e$ | $\geq 9.8 \text{ V}$  |
| Open loop voltage  | $U_s$ | min. 15.4 V   |
| Output rated operating current                                 |       | 65 mA   |
| Output signal  |       | These values are valid for the rated operating voltage 20 ... 35 V DC.  |
| Energized/De-energized delay                                   |       | single operation: 300 $\mu\text{s}$ /50 $\mu\text{s}$ ; periodical: 5 $\mu\text{s}$ / 50 $\mu\text{s}$  |
| <b>Indicators/settings</b>                                     |       |   |
| Display elements   |       | LED   |
| 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 21:2006  |
| Degree of protection   |       | IEC 60529:2001  |
| Protection against electrical shock                            |       | UL 61010-1:2004   |
| <b>Ambient conditions</b>                                      |       |   |
| Ambient temperature  |       | -20 ... 60 $^{\circ}\text{C}$ (-4 ... 140 $^{\circ}\text{F}$ )  |
| <b>Mechanical specifications</b>                               |       |   |
| Degree of protection   |       | IP20  |
| Connection   |       | screw terminals   |
| Mass   |       | approx. 100 g   |
| Dimensions   |       | 20 x 107 x 115 mm (0.8 x 4.2 x 4.5 inch) (W x H x D) , housing type B1  |
| 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                                |       | BASEEFA 06 ATEX 0252  |
| Marking  |       | ⊕ II (1)G [Ex ia Ga] IIC, II (1)D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I (-20 $^{\circ}\text{C} \leq T_{\text{amb}} \leq 60 \text{ }^{\circ}\text{C}$ ) |
| Voltage  | $U_o$ | 17.22 V   |
| Current  | $I_o$ | 220 mA  |
| Power  | $P_o$ | 947 mW  |
| <b>Input</b>   |       |   |
| Maximum safe voltage   | $U_m$ | 250 V (Attention! The rated voltage can be lower.)  |
| Certificate  |       | TÜV 99 ATEX 1499 X  |
| Marking  |       | ⊕ II 3G Ex nA II T4 [device in zone 2]  |
| <b>Galvanic isolation</b>                                      |       |   |
| Input/Output   |       | 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+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010   |
| <b>International approvals</b>                                 |       |   |
| <b>FM approval</b>   |       |   |
| Control drawing  |       | 116-0309  |
| <b>UL approval</b>   |       |   |
| Control drawing  |       | 116-0316 (cULus)  |
| <b>IECEx approval</b>  |       |   |
| IECEx certificate  |       | IECEx BAS 06.0058<br>IECEx CML 19.0093X   |

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
## Technical Data

|                            |   |
|----------------------------|---|
| IECEX marking              | [Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I<br>Ex ec IIC T4 Gc  |
| <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



## Matching System Components

|   |                  |  |
|---|------------------|--|
|  | <b>K-DUCT-BU</b> | Profile rail, wiring comb field side, blue |
|---|------------------|--|

## Accessories

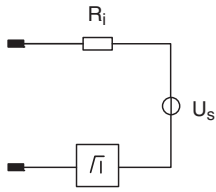
|   |                  |  |
|---|------------------|--|
|  | <b>KF-ST-5GN</b> | Terminal block for KF modules, 3-pin screw terminal, green |
|  | <b>KF-ST-5BU</b> | Terminal block for KF modules, 3-pin screw terminal, blue  |
|  | <b>KF-CP</b>     | Red coding pins, packaging unit: 20 x 6                    |

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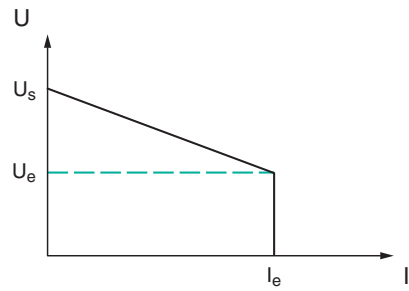
# Characteristic Curve

## Output characteristics

Output circuit diagram



Output characteristic



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