



# Solenoid Driver

## KFD0-SD2-Ex1.1180

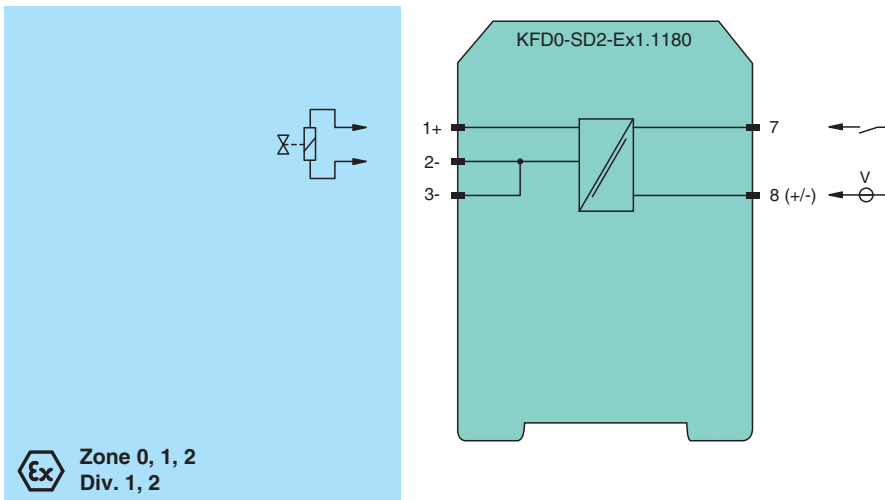
- 1-channel isolated barrier
- 24 V DC supply (loop powered)
- Current limit 80 mA at 11 V DC
- Up to SIL 3 acc. to IEC/EN 61508



### 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, 11 V at 80 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 W ( $\leq 30$  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		140 mA at 20 V input voltage, load = 140 $\Omega$ 100 mA at 35 V input voltage, load = 140 $\Omega$
<b>Output</b>		
Connection side		field side
Connection		terminals 1+, 2-
Internal resistor	$R_i$	$\leq 150 \Omega$
Current	$I_e$	$\geq 80 \text{ mA}$
Voltage	$U_e$	$\geq 11 \text{ V}$
Open loop voltage	$U_s$	min. 22.7 V
Output rated operating current		80 mA
Output signal		These values are valid for the rated operating voltage 20 ... 35 V DC.
Energized/De-energized delay		single operation: typ. 1.7 ms/50 $\mu\text{s}$ ; periodical: typ. 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] IIB, II (1)D [Ex ia Da] IIIB, I (M1) [Ex ia Ma] I (-20 $^{\circ}\text{C} \leq T_{\text{amb}} \leq 60 \text{ }^{\circ}\text{C}$ )
Voltage	$U_o$	25.2 V
Current	$I_o$	184 mA
Power	$P_o$	1159 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 IECEx CML 19.0093X
IECEx marking		[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc

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**Technical Data**

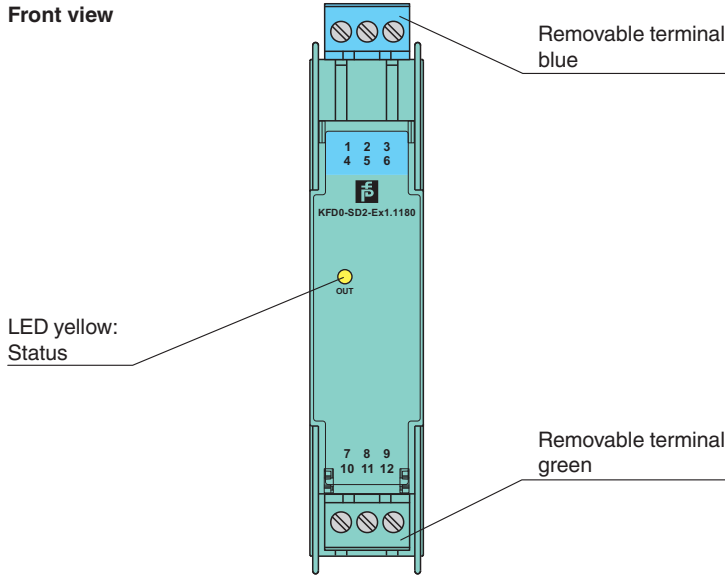
**General information**

Supplementary information


Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

**Assembly**




Front view



**Matching System Components**

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

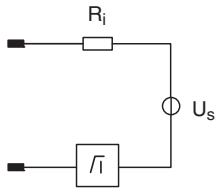
	<b>KF-ST-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, green
	<b>KF-ST-5BU</b>	Terminal block for KF modules, 3-pin screw terminal, blue
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6

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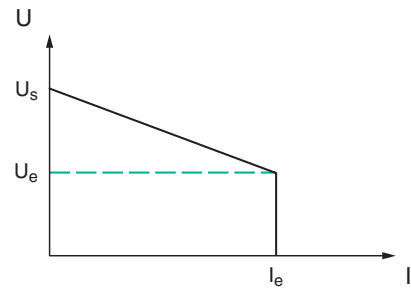
# Characteristic Curve

## Output characteristics

Output circuit diagram



Output characteristic



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