

# Solenoid Driver

## KFD0-SD2-Ex2.1045

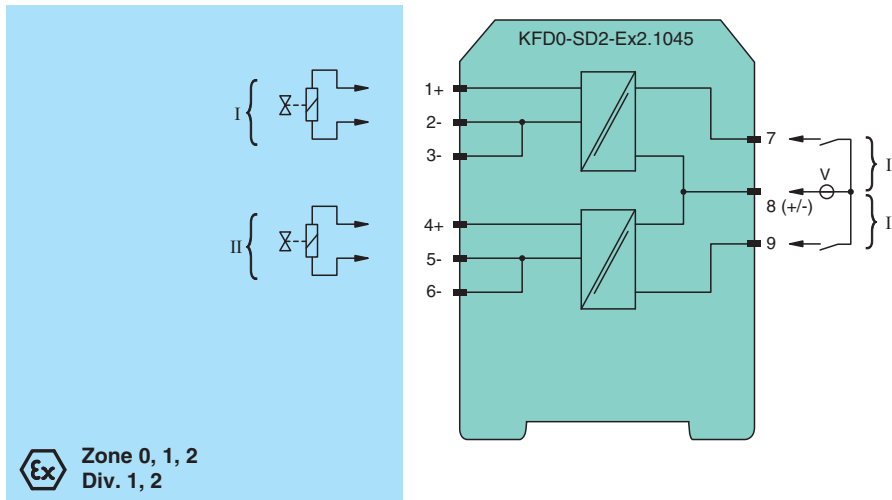
- 2-channel isolated barrier
- 24 V DC supply (loop powered)
- Current limit 45 mA at 10 V DC
- Up to SIL 3 acc. to IEC/EN 61508



### 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, 10 V at 45 mA is available for the hazardous area application.

### Connection



### Technical Data

<b>General specifications</b>	
Signal type	Digital Output
<b>Functional safety related parameters</b>	
Safety Integrity Level (SIL)	SIL 3
<b>Supply</b>	
Rated voltage	$U_r$ 20 ... 35 V DC , loop powered
Power dissipation	< 1.05 W ( $\leq$ 30 V) per channel
<b>Input</b>	
Connection side	control side
Connection	terminals 7, 8; 8, 9
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 = 220 $\Omega$ 50 mA at 35 V input voltage, load = 220 $\Omega$
Inrush current		$\leq 200$ mA after 100 $\mu$ s
<b>Output</b>		
Connection side		field side
Connection		terminals 1+, 2-; 4+, 5-
Internal resistor	$R_i$	max. 282 $\Omega$
Current	$I_e$	$\leq 45$ mA
Voltage	$U_e$	$\geq 10$ V
Open loop voltage	$U_s$	min. 22.7 V
Output rated operating current		45 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 $\mu$ s; periodical: typ. 5 $\mu$ s/50 $\mu$ s
<b>Indicators/settings</b>		
Display elements		LEDs
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		
Degree of protection		NE 21:2006
Protection against electrical shock		IEC 60529:2001
		UL 61010-1:2004
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 $^{\circ}$ C (-4 ... 140 $^{\circ}$ 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
Voltage	$U_o$	25.2 V
Current	$I_o$	93 mA
Power	$P_o$	590 mW
<b>Input</b>		
Maximum safe voltage	$U_m$	250 V (Attention! The rated voltage can be lower.)
<b>Certificate</b>		
Marking		⊕ II 3G Ex nA II T4
<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>		

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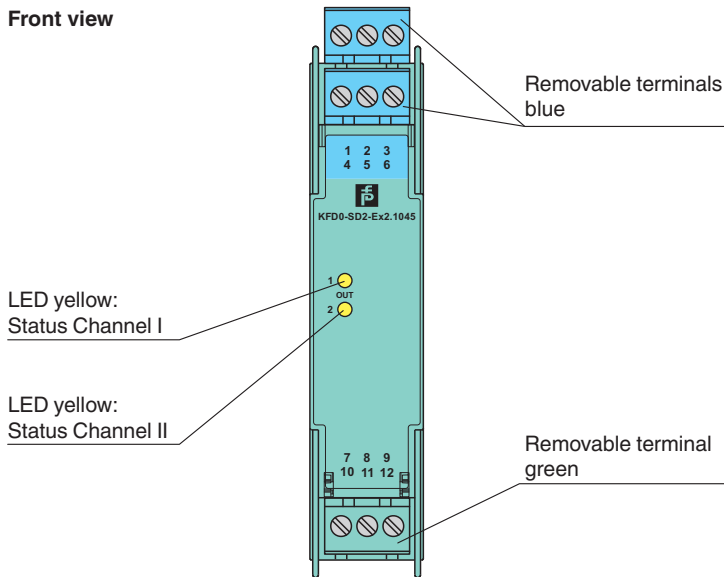
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**Technical Data**


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
<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**




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

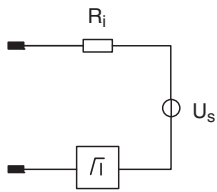
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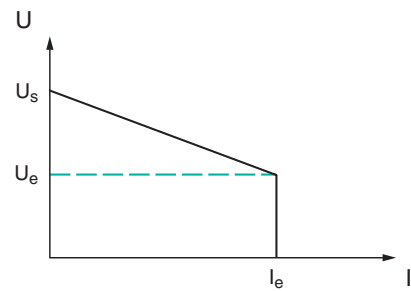
## Characteristic Curve

### Output characteristics

Output circuit diagram



Output characteristic



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