

Data Sheet

# KFD2-SL2-EX1



Supplied by

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## Solenoid Driver

## KFD2-SL2-Ex1

### Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Output 45 mA at 11.7 V DC
- Logic input, non-polarized
- Lead monitoring
- Up to SIL2 acc. to IEC 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.

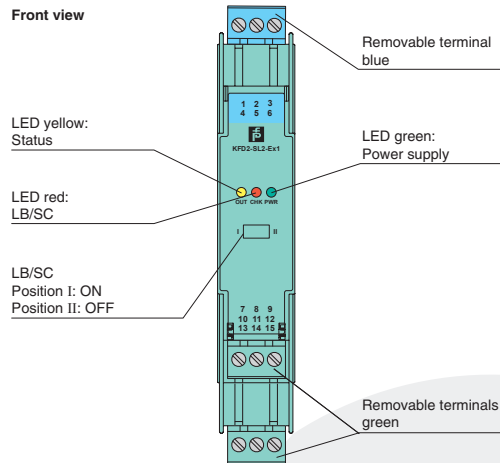
It is controlled via a logic signal. The input has two defined states: 1-Signal = 16 V DC ... 30 V DC, 0-Signal = 0 V DC ... 5 V DC. The current consumption of the input is about 3 mA.

At full load, 11.7 V at 45 mA is available for the hazardous area application.

If the field impedance is > 10 kΩ for lead breakage or < 50 Ω for short circuits a line fault is detected.

A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output.

### Assembly

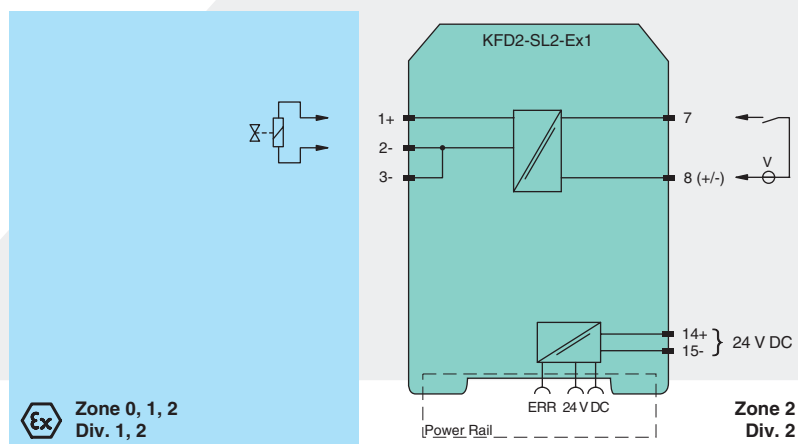


CE



SIL2

### Connection



## Technical data

KFD2-SL2-Ex1

<b>General specifications</b>	
Signal type	Digital Output
<b>Supply</b>	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	20 ... 30 V DC
Power consumption	≤ 1.7 W at 45 mA output current
<b>Input</b>	
Connection	terminals 7, 8
Input current	approx. 3 mA at 24 V DC
Signal level	1-signal: 16 ... 30 V DC 0-signal: 0 ... 5 V DC
<b>Output</b>	
Connection	terminals 1+, 2- or 3-
Internal resistor	$R_i$ 272 Ω
Current	$I_e$ ≤ 45 mA
Voltage	$U_e$ ≥ 11.7 V
Open loop voltage	$U_s$ ≥ 24 V
Output signal	These values are valid for the rated operating voltages from 20 ... 30 V DC.
Energized/De-energized delay	≤ 20 ms / ≤ 20 ms
Line fault detection	signal at short-circuit $R_B < 50 \Omega$ , lead breakage $R_B > 10 \text{ k}\Omega$ , test current < 650 μA
<b>Electrical 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>
Power supply/Output	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
<b>Conformity</b>	
Electromagnetic compatibility	NE 21:2006
Protection degree	IEC 60529:2001
Protection against electrical shock	EN 61010-1:2010
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>	
Protection degree	IP20
Mass	approx. 150 g
Dimensions	20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in), housing type B2
<b>Data for application in connection with Ex-areas</b>	
EC-Type Examination Certificate	ZELM 00 ATEX 0024, for additional certificates see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a>
Group, category, type of protection	⊕ II (1)G [Ex ia Ga] IIC ⊕ II (1)D [Ex ia Da] IIIC ⊕ I (M1) [Ex ia Ma] I
Output	Ex ia
Voltage	$U_o$ 28 V
Current	$I_o$ 110 mA
Power	$P_o$ 770 mW (linear characteristic)
<b>Supply</b>	
Maximum safe voltage	$U_m$ 40 V (Attention! The rated voltage can be lower.)
<b>Input</b>	
Maximum safe voltage	$U_m$ 60 V (Attention! The rated voltage can be lower.)
Collective error message	
Maximum safe voltage	$U_m$ 40 V (Attention! The rated voltage can be lower.)
Statement of conformity	TÜV 02 ATEX 1820 X
Group, category, type of protection, temperature class	⊕ II 3G Ex nA II T4
<b>Electrical isolation</b>	
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Output/power supply	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
<b>Directive conformity</b>	
Directive 94/9/EC	EN 60079-0:2012, EN 60079-11:2012, EN 60079-26:2007, EN 50303:2000, EN 60079-15:2010
<b>International approvals</b>	
<b>FM approval</b>	
Control drawing	16-548FM-12
IECEx approval	IECEx TUN 04.0001

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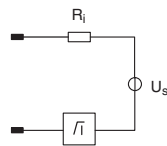
**Technical data**

**KFD2-SL2-Ex1**

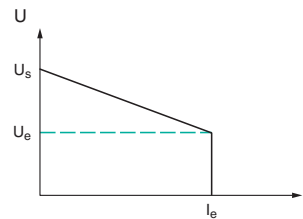
Approved for	[Ex ia] IIC , [Ex iaD]
<b>General information</b>	
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

**Output characteristics**

**Output circuit diagram**



**Output characteristic**



**Accessories**

**Power feed module KFD2-EB2**

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 100 individual devices depending on the power consumption of the devices. A galvanically isolated mechanical contact uses the Power Rail to transmit collective error messages.

**Power Rail UPR-03**

The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

**Profile Rail K-DUCT with Power Rail**

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.



*Power Rail and Profile Rail must not be fed via the device terminals of the individual devices!*