



- 1-channel
- Output EEx ia IIC
- Lead monitoring: red LED, flashing, signal on Power Rail and output error message de-energised
- · 24 V DC supply voltage
- Output current max. 45 mA
- · Logic inputs non-polarized
- · Removable terminals
- EMC acc. to NAMUR NE 21
- LED accord. to NAMUR NE 44
- Up to SIL2 acc. to IEC 61508

# KFD2-SL2-Ex1.LK

#### **Function**

The KFD2-SL2-Ex1.LK solenoid driver supplies and switches the intrinsically safe field device (valve) in hazardous areas

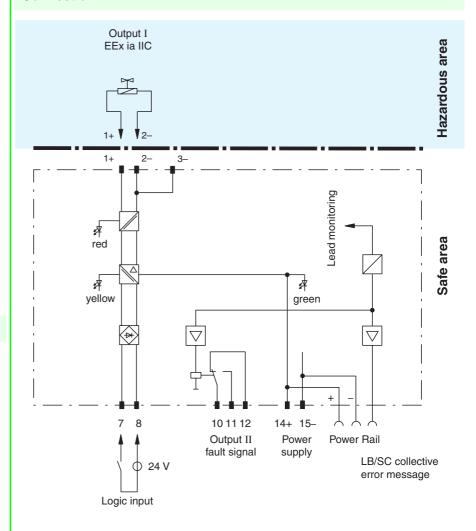
It has a logic input which is isolated from the power supply, across which the intrinsically safe output circuit is controlled.

The outputs have the characteristics of a voltage supply with 23.5 V and 270  $\Omega$ . The output current is limited to 45 mA.

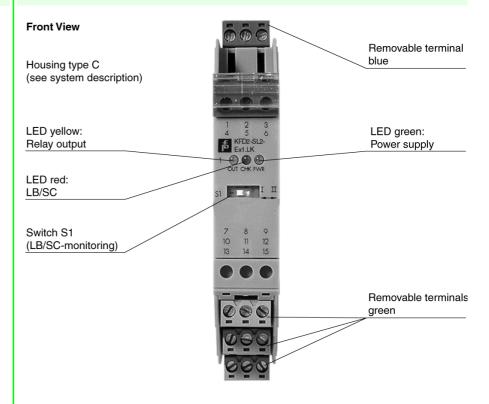
# **Application**

- Control/supply of intrinsically safe valves, audible alarms, indicators etc.
- Control/supply of semiconductors
   (e. g. LED or LCD units)
   In case of controlling
   semiconductors, a parallel resistor of
   approx. 10 kΩ, directly connected at
   the load, may be necessary, if the
   lead breakage monitoring is
   activated.

## Connection



# Composition



**Technical data** KFD2-SL2-Ex1.LK

Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	20 30 V DC
Power consumption	≤ 1.9 W at 45 mA output current
Input	
Connection	terminals 7, 8
Input current	approx. 3 mA
Signal level	1-signal: 16 30 V DC
	0-signal: 0 5 V DC
Output	
Output I	
Connection	intrinsically safe: terminals 1+, 2- or 3-
Internal resistor	270 Ω
Limit	current I <sub>E</sub> : 45 mA
	voltage U <sub>E</sub> : 11.2 V
Open loop voltage	≥ 23.5 V
Output rated operating current	45 mA
Output signal	these values are valid for rated operational voltages from 20 30 V DC
Energized/de-energized delay	≤ 20 ms / ≤ 20 ms
Output II	
Connection	non-intrinsically safe: terminals 10, 11, 12
Contact loading	terminals 10, 11, 12, 253 V AC/2 A /cos φ > 0.7; 40 V DC/2 A resistive load;
Mechanical life	2 x 10 <sup>7</sup> switching cycles
Energized/de-energized delay	approx. 20 ms / approx. 20 ms
Lead monitoring	relay ; signal at short-circuit R <sub>B</sub> < 50 $\Omega$ , lead breakage R <sub>B</sub> > 10 k $\Omega$
Electrical isolation	Total y, organical and one of the country of the co
Input/power supply	functional insulation acc. to EN 50178, rated insulation voltage 50 V <sub>eff</sub>
Directive conformity	Tunctional insulation acc. to Etv 30170, rated insulation voltage 30 veff
Electromagnetic compatibility	
Directive 89/336/EC	EN 61006 EN 50001 0
	EN 61326, EN 50081-2
Low voltage	EN 50470
Directive 73/23/EEC	EN 50178
Conformity	NE AL
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529
Ambient conditions	
Ambient temperature	-20 60 °C (253 333 K)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 150 g
Dimensions	20 x 119 x 115 mm (0.8 x 4.7 x 4.5 in)
Data for application in conjunction with hazardous areas	
EC-Type Examination Certificate	ZELM 99 ATEX 0015 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	(Ex) II (1)GD [EEx ia] IIC [circuit(s) in zone 0/1/2]
Output I	EEx ia IIC
Voltage U <sub>o</sub>	28 V
Current I <sub>o</sub>	110 mA
Power P <sub>o</sub>	770 mW (linear characteristic)
Supply	
Safety maximum voltage U <sub>m</sub>	40 V (Attention! The rated voltage can be lower.)
Input	
Safety maximum voltage U <sub>m</sub>	60 V (Attention! The rated voltage can be lower.)
Output II	
Contact loading	230 V AC + 10 % / 2 A / cos φ ≥ 0.7; 40 V DC / 2 A resistive load
Collective error indication	
Safety maximum voltage U <sub>m</sub>	40 V (Attention! The rated voltage can be lower.)
Statement of conformity	TÜV 02 ATEX 1820 X
Group, category, type of protection, temperature classification	
•	
Output II	
Output II	50 V AC/2 A/200 A > 0.7: 40 V DC/1 A resistive load
Contact loading	50 V AC/2 A/cos φ > 0.7; 40 V DC/1 A resistive load
Contact loading Electrical isolation	
Contact loading	50 V AC/2 A/cos φ > 0.7; 40 V DC/1 A resistive load safe electrical isolation acc. to EN 50020, voltage peak value 375 V

**Technical data** KFD2-SL2-Ex1.LK

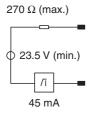
Directive 94/9 EC	EN 50014, EN 50020, EN 50021
General information	
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

#### **Notes**

## Lead monitoring

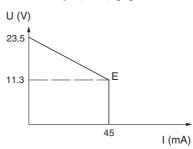
A fault signal is activated across the Power Rail (UPR-03) in the case of an error (lead breakage or lead short circuit) and at the same time the relay for the fault signal output (terminals 10, 11, 12) is de-energised. Lead breakage is indicated, for ohmic load > 10 k $\Omega$ , lead short circuit is indicated for load < 50  $\Omega$ .

## Output circuit diagramm



### Output characteristic for input voltage 20 V ... 30 V





### **Accessories**

### Power Rail UPR-03

# Power feed module KFD2-EB2...

Using Power Rail UPR-03 the devices are supplied with 24 V DC by means of the power feed modules. If no Power Rails are used, power supply of the individual devices is possible directly via their device terminals.

Each power feed module is used for fusing and monitoring groups with up to 100 individual devices. 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.

The Power Rail must not be fed via the device terminals of the individual devices!