



# Conductive Switch Amplifier

## KFD2-ER-Ex1.W.LB

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Level sensing input
- Adjustable range 1 kΩ ... 150 kΩ
- Relay contact output
- Fault relay contact output
- Adjustable time delay up to 10 s
- Minimum/maximum control
- Line fault detection (LFD)



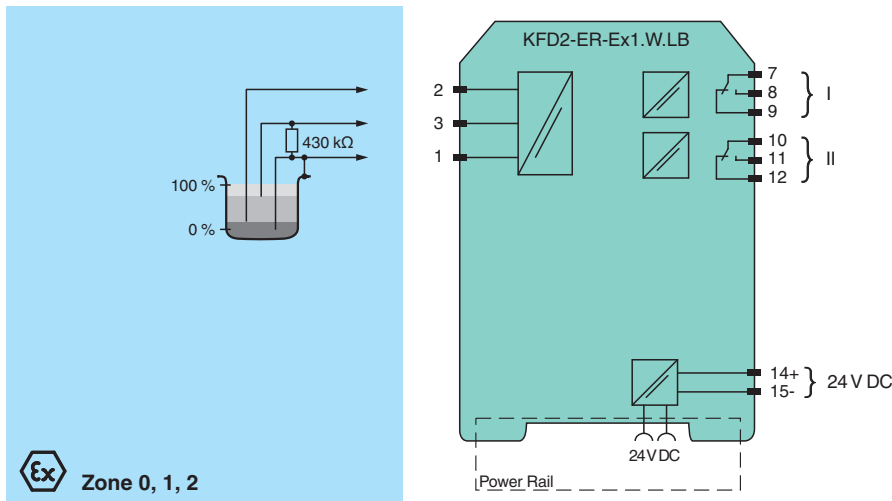
### Function

This isolated barrier is used for intrinsic safety applications. It provides the AC measuring voltage for the level sensing electrodes. Once the measured medium reaches the electrodes, the unit reacts by energizing a form C changeover relay contact. The module is voltage and temperature stabilized and guarantees a defined switching characteristic. It can be used for on/off control or minimum/maximum control. A signal delay feature is available and is adjustable between 0.5 s and 10 s. This module can also monitor the field circuit for lead breakage (LB). LB is indicated by a red LED. If LB monitoring is selected, output II serves as the fault signal output; otherwise, it will follow the function of output I.

### Application

The device is equipped with lead breakage detection (current free relay in event of failure). For this purpose, the enclosed 430 kΩ resistance must be switched between the maximum and reference electrode. This function can be deactivated by DIP switches.

### Connection



**Ex** Zone 0, 1, 2

### Technical Data

#### General specifications

Signal type	Digital Input		
<b>Supply</b>			
Connection	Power Rail or terminals 14+, 15-		
Rated voltage	$U_r$	20 ... 30 V DC	
Rated current	$I_r$	30 ... 40 mA	
<b>Input</b>			

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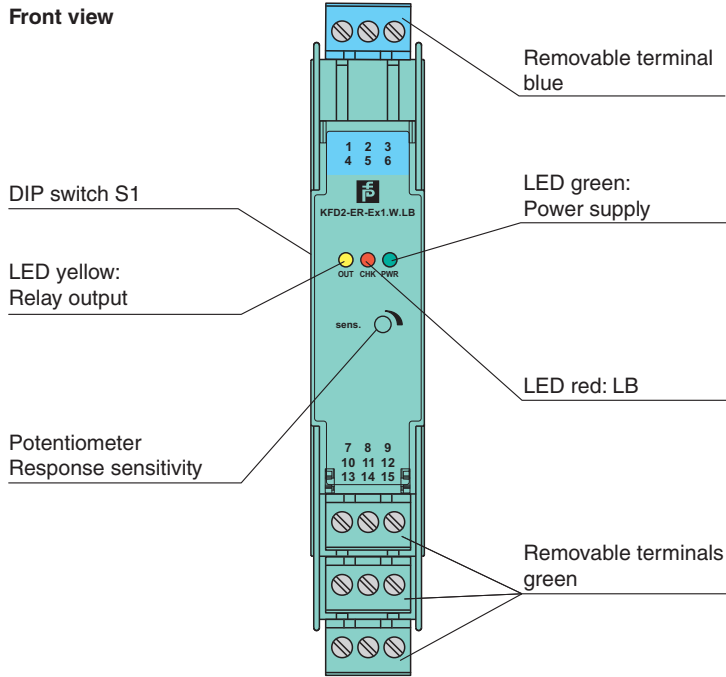
## Technical Data

Connection side	field side	
Connection	terminals 1 (mass), 2 (min), 3 (max)	
Control input	min./max. control system: terminals 1, 2, 3 on/off control system: terminals 1, 3	
Response sensitivity	1 ... 150 k $\Omega$ , adjustable via potentiometer	
<b>Output</b>		
Connection side	control side	
Connection	terminals 7, 8, 9; 10, 11, 12	
Switching power	max. 192 W , 2000 VA	
Output	signal ; relay	
Contact loading	253 V AC/2 A/cos $\phi$ > 0.7; 40 V DC/2 A resistive load	
Time constant for signal damping	0.5 s, 2 s, 5 s, 10 s	
<b>Galvanic 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>	
Output/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>	
<b>Indicators/settings</b>		
Display elements	LEDs	
Control elements	DIP switch potentiometer	
Configuration	via DIP switches via potentiometer	
Labeling	space for labeling at the front	
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)	
Low voltage		
Directive 2014/35/EU	EN 61010-1:2010	
<b>Conformity</b>		
Electromagnetic compatibility	NE 21:2006	
Degree of protection	IEC 60529:2001	
<b>Ambient conditions</b>		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
<b>Mechanical specifications</b>		
Degree of protection	IP20	
Connection	screw terminals , max. 2.5 mm <sup>2</sup>	
Mass	approx. 150 g	
Dimensions	20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , housing type B2	
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	DMT 00 ATEX E 033	
Marking	Ⓔ II (1)G [EEx ia] IIC [circuit(s) in zone 0/1/2]	
Input	[EEx ia] IIC	
Voltage	U <sub>o</sub>	10 V
Current	I <sub>o</sub>	2.5 mA
Power	P <sub>o</sub>	6 mW
Supply		
Maximum safe voltage	U <sub>m</sub>	40 V DC (Attention! U <sub>m</sub> is no rated voltage.)
Output		
Contact loading	253 V AC/2 A/cos $\phi$ > 0.7; 40 V DC/2 A resistive load	
Galvanic isolation		
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
Input/power supply	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
Directive conformity		

**Technical Data**

Directive 2014/34/EU	EN 60079-0:2012+A11:2013, EN 60079-11:2012
<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>KFD2-EB2</b>	Power Feed Module
	<b>UPR-03</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	<b>UPR-03-M</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	<b>UPR-03-S</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	<b>K-DUCT-BU</b>	Profile rail, wiring comb field side, blue
	<b>K-DUCT-BU-UPR-03</b>	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

**Accessories**

	<b>KF-ST-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, green
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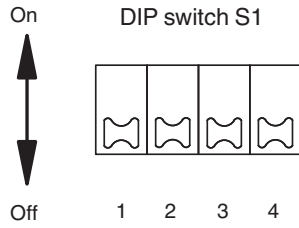
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**Accessories**

	<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

**Configuration**

DIP switch function on side of device



Switches	Position	Function
1	Off	open circuit current
	On	closed circuit current
2	Off	LB deactivated
	On	LB activated

Switch 3	Switch 4	Time constant for signal damping
Off	Off	0.5 s
Off	On	2 s
On	Off	5 s
On	On	10 s

- Open circuit current principle: In open circuit current principle the relay becomes active when the limit is reached.
- Closed circuit current principle: In closed circuit current principle, the relay is activated when power is applied. The relay is deactivated when the limit is reached.

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