

Conductivity 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)

24 V DC



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.

Technical Data

General specifications			
Signal type		Digital Input	
Supply			
Connection		Power Rail or terminals 14+, 15-	
Rated voltage	U _r	20 ... 30 V DC	
Rated current	I _r	30 ... 40 mA	
Input			
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 kΩ , adjustable via potentiometer	
Output			
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 φ > 0.7; 40 V DC/2 A resistive load	
Time constant for signal damping		0.5 s, 2 s, 5 s, 10 s	
Galvanic isolation			
Input/Output		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}	
Input/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}	
Output/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}	
Indicators/settings			
Display elements		LEDs	
Control elements		DIP-switch potentiometer	

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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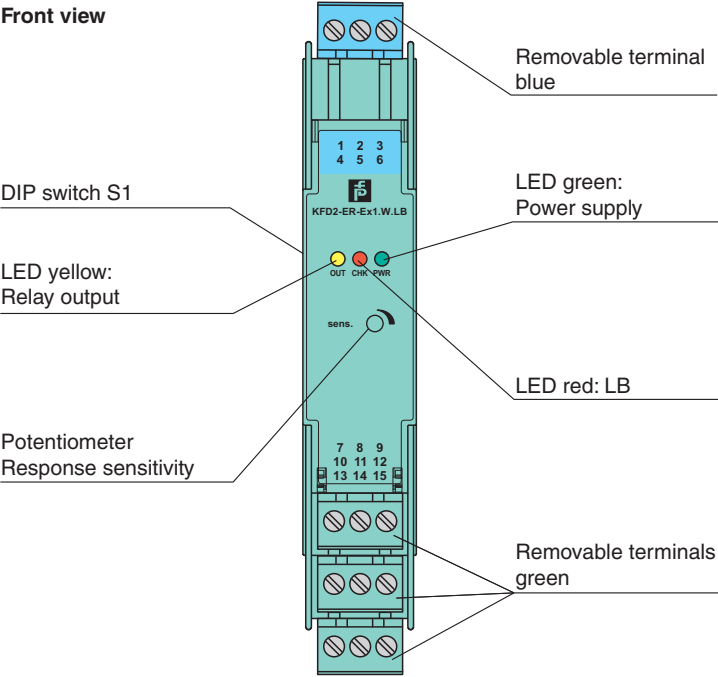
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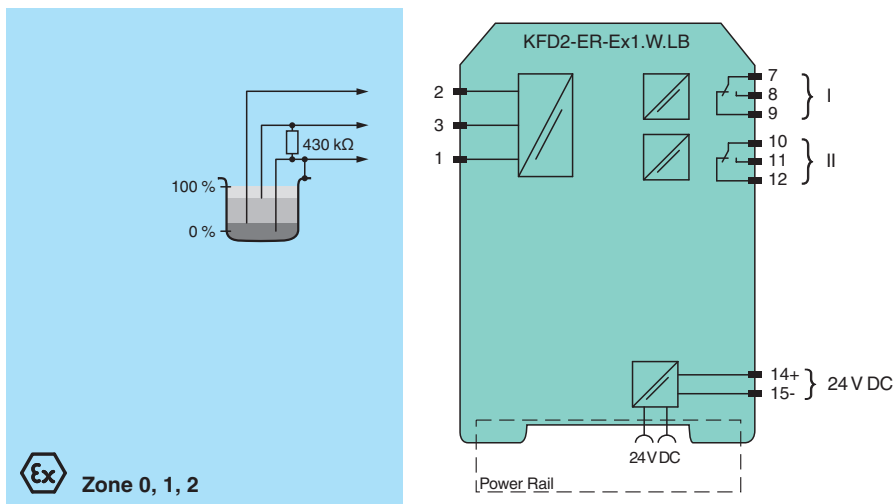
Technical Data

Configuration	via DIP switches via potentiometer	
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Low voltage		
Directive 2014/35/EU		EN 61010-1:2010
Conformity		
Electromagnetic compatibility		NE 21:2006
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals , max. 2.5 mm ²
Mass		approx. 150 g
Dimensions		20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) , housing type B2
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		DMT 00 ATEX E 033
Marking		Ⓔ II (1)G [Ex ia] IIC [circuit(s) in zone 0/1/2]
Input		[Ex ia] IIC
Voltage	U _o	10 V
Current	I _o	2.5 mA
Power	P _o	6 mW
Supply		
Maximum safe voltage	U _m	40 V DC (Attention! U _m is no rated voltage.)
Output		
Contact loading		253 V AC/2 A/cos φ > 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		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013, EN 60079-11:2012
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly



Connection



Accessories

	KFD2-EB2	Power Feed Module
	UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	K-DUCT-BU	

Accessories

**K-DUCT-BU-UPR-03**

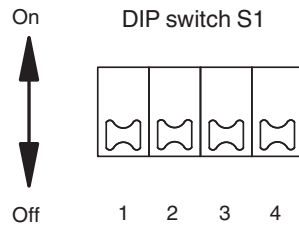
Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue

Application

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

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.