- 2-channel
- Control circuit EEx ia IIC
- Reversible mode of operation
- 1 signal output with 1 changeover contact per channel
- EMC acc. to NAMUR NE 21
- LB/SC monitoring
- LB/SC collective error message via Power Rail
- Up to SIL2 acc. to IEC 61508, up to SIL3 for a redundant structure

KFD2-SR2-Ex2.W

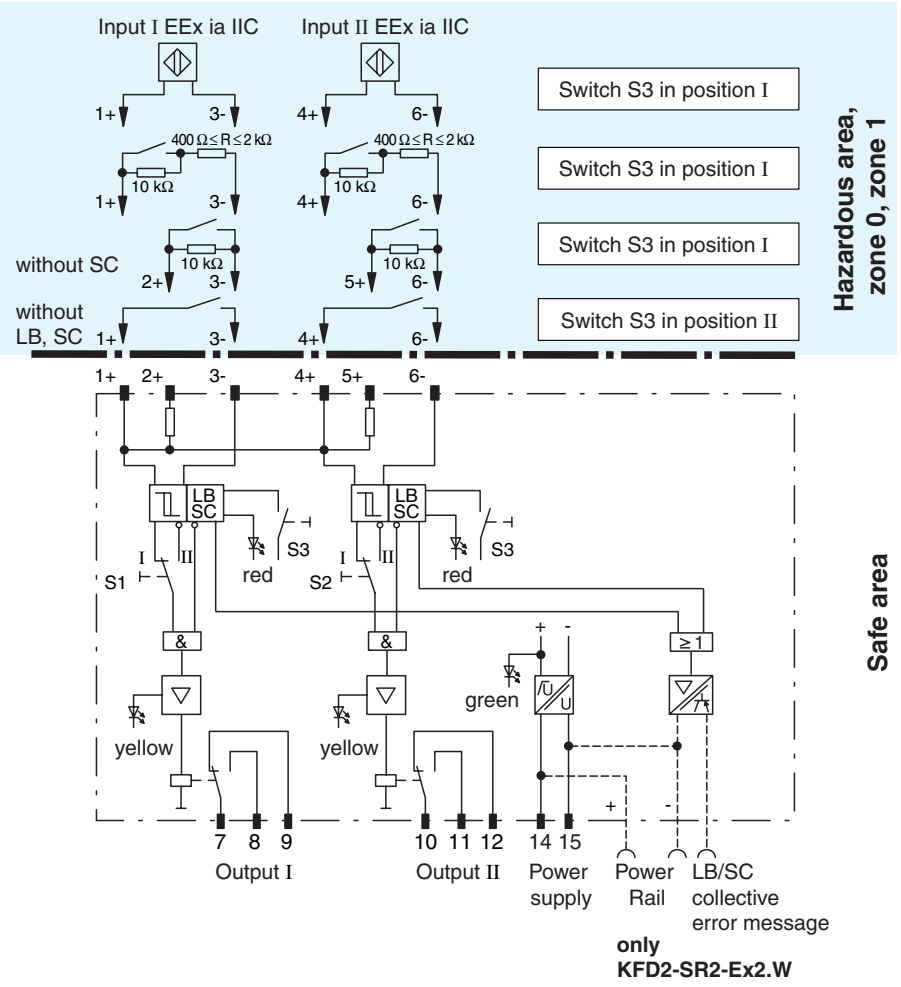
Function

The transformer isolated barrier transfers digital signals from the hazardous area. Sensors per EN 60947-5-6 (NAMUR) and mechanical contacts may be used as alarms. Control circuits are monitored for lead breakage (LB) and short circuit (SC). The external faults are indicated according to NAMUR NE44 by a red flashing LED.

For type KFD2-SR2-Ex2.W, an LB/SC collective error message is in addition transferred through the Power Rail to the power feed module.

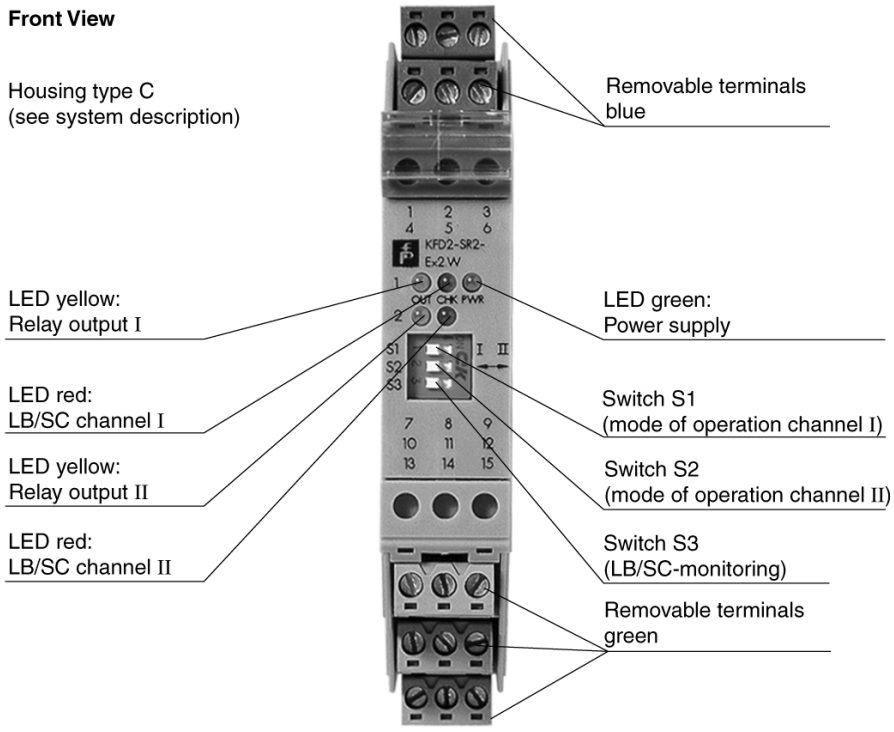
The intrinsically safe inputs per EN 50020 are safely isolated from the output and the power supply. Relay outputs are galvanically separated from the mains power in accordance with IEC 61140. Relay outputs are galvanically separated from each other in accordance with IEC 61140.

Connection



Composition

Front View



Supply		
Connection		Power Rail or terminals 14+, 15-
Rated voltage		20 ... 30 V DC
Ripple		≤ 10 %
Rated current		≤ 50 mA
Power loss		0,7 W
Power consumption		< 1,3 W
Input		
Connection		terminals 1+, 2+, 3-; 4+, 5+, 6-
Rated values		acc. to EN 60947-5-6 (NAMUR), see system description for electrical data
Open circuit voltage/Short-circuit current		approx. 8 V DC / approx. 8 mA
Switching point/Switching hysteresis		1,2 ... 2,1 mA / approx. 0,2 mA
Pulse/Pause ratio		≥ 20 ms / ≥ 20 ms
Lead monitoring		breakage I ≤ 0,1 mA , short-circuit I > 6 mA
Output		
Connection		output I: terminals 7, 8, 9 ; output II: terminals 10, 11, 12
Output I and II		signal ; Relay
Contact loading		253 V AC / 2 A / cos φ > 0.7; 126.5 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load
Energised/De-energised delay		approx. 20 ms / approx. 20 ms
Mechanical life		10^7 switching cycles
Transfer characteristics		
Switching frequency		≤ 10 Hz
Electrical isolation		
Output/power supply		reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{eff}
Output/Output		starting from january 2002 reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 89/336/EC		EN 61326
Low voltage		
Directive 73/23/EEC		IEC 62103
Conformity		
Electromagnetic compatibility		NE 21
Protection degree		IEC 60529
Protection against electric shock		IEC 61140
Ambient conditions		
Ambient temperature		-20 ... 60 °C (253 ... 333 K)
Mechanical specifications		
Protection degree		IP20
Mass		approx. 150 g
Dimensions		20 x 118 x 115 mm (0.8 x 4.6 x 4.5 in)
Data for application in conjunction with hazardous areas		
EC-Type Examination Certificate		PTB 00 ATEX 2080 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		⟨Ex⟩ II (1) G D [EEx ia] IIC [circuit(s) in zone 0/1/2]
Input		EEx ia IIC
Voltage	U_0	10,5 V
Current	I_0	13 mA
Power	P_0	34 mW (linear characteristic)
Supply		
Safety maximum voltage U_m		253 V AC / 125 V DC (Attention! U_m is no rated voltage.)
Type of protection [EEx ia and EEx ib]		
Explosion group		IIA IIB IIC
External capacitance		75 µF 16,8 µF 2,41 µF
External inductance		1 H 840 mH 210 mH
Output		
Contact loading		253 V AC / 2 A / cos φ > 0.7; 126.5 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load
Safety maximum voltage U_m		253 V AC (Attention! The rated voltage can be lower.)
Statement of conformity		Pepperl+Fuchs starting from february 2005
Group, category, type of protection		⟨Ex⟩ II (3) G (EEx nL) IIC X [circuit(s) in zone 2]
Input		[EEx nL] IIC
Voltage	U_o	10,5 V
Current	I_o	13 mA

Power	P_o	34 mW (linear characteristic)		
Type of protection [EEx nL]				
Explosion group		IIA	IIB	IIC
External capacitance		75 µF	16,8 µF	2,41 µF
External inductance		1 H	840 mH	210 mH
Output				
Contact loading		253 V AC / 2 A / cos φ > 0.7; 126.5 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load		
Statement of conformity		TÜV 99 ATEX 1493 X , observe statement of conformity		
Group, category, type of protection, temperature classification		⟨Ex⟩ II 3 G EEx nAC IIC T4 [device in zone 2]		
Output				
Contact loading		50 V AC / 4 A / cos φ > 0.7; 40 V DC / 2 A resistive load		
Electrical isolation				
Input/Output		safe electrical isolation acc. to EN 50020, voltage peak value 375 V		
Input/power supply		safe electrical isolation acc. to EN 50020, voltage peak value 375 V		
Directive conformity				
Directive 94/9 EC		EN 50014, EN 50020, EN 50021		
Entity parameter				
Certification number		J.I.3002773		
FM control drawing		No. 116-0035		
Suitable for installation in division 2		yes		
Connection		terminals 1, 3; 2, 3; 4, 6; 5, 6		
Input I				
Voltage	V_{OC}	12,9 V		
Current	I_t	19,8 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		1,273 µF	3,82 µF	10,18 µF
Max. external inductance L_a		84,8 mH	254,4 mH	678,4 mH
Safety parameter				
CSA control drawing		LR 36087-19		
Control drawing		No. 116-0047		
Connection		terminals 1, 3; 2, 3; 4, 6; 5, 6		
Input I				
Safety parameter		12,6 V / 650 Ohm		
Voltage	V_{OC}	12,9 V		
Current	I_{SC}	19,8 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		1,273 µF	3,82 µF	10,18 µF
Max. external inductance L_a		84,88 mH	298,7 mH	744,4 mH

Supplementary information

EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed. For information see www.pepperl-fuchs.com.

Accessories

Power Rail PR-03
Power Rail UPR-03
Power feed module KFD2-EB2...

By means of the Power Rail PR-03 or UPR-03 the devices can be provided with 24 V DC via the power feed module. If no Power Rails are used, power supply of the individual devices is realised 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 PR-03 is an inset component for the DIN rail. The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm x 2000 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!