

ISOLATED SWITCH AMPLIFIER - KFD2-SR2-Ex1.W
EEx ia IIC



- 1-channel
- Control circuit EEx ia IIC
- Reversible mode of operation
- 1 relay output with 1 changeover contact
- EMC acc. to NAMUR NE 21
- LB/SC monitoring
- LB/SC collective error message via Power Rail
- SIL1 up to SIL3 acc. to IEC 61508

KFD2-SR2-Ex1.W

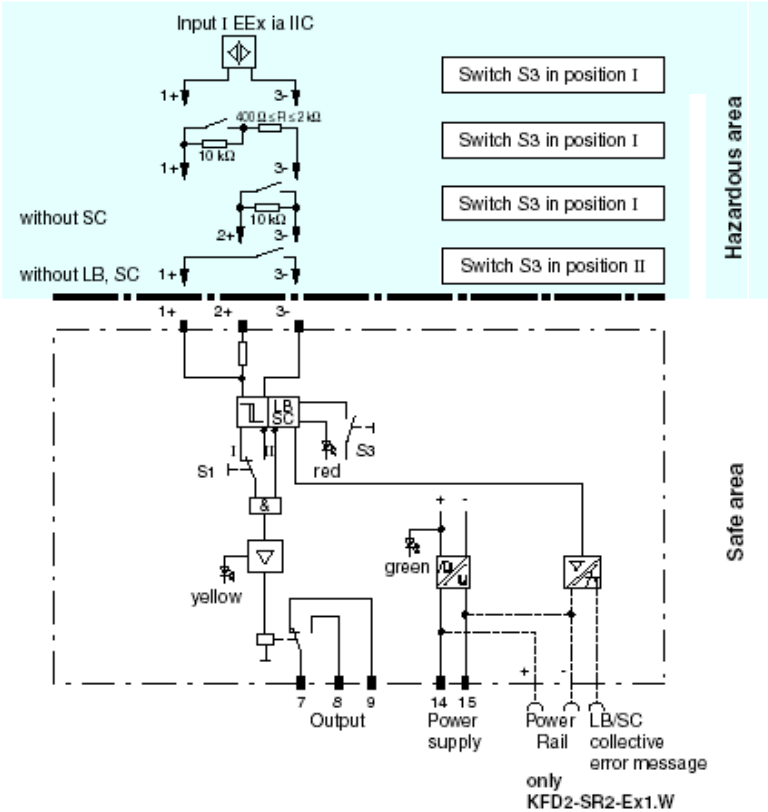
Function

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-Ex1.W, an LB/SC collective error message is in addition transferred through the Power Rail to the power feed module.

The intrinsically safe input is per EN 50020 safely isolated from the output and the power supply. The relay output is in accordance with IEC 61140 safely isolated from the power supply.

Connection



Composition

Front View

Housing type C
(see system description)

LED yellow:
Relay output

LED red:
LB/SC

Switch S2
(no functions)

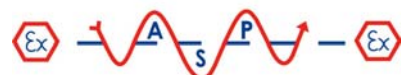
Removable terminal
blue

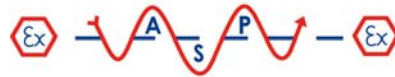
LED green:
Power supply

Switch S1
(Mode of operation)

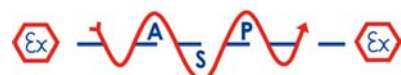
Switch S3
(LB/SC-monitoring)

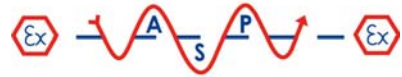
Removable terminals
green





Technical data		KFD2-SR2-Ex1.
Supply		
Connection	Power Rail or terminals 14+, 15-	
Rated voltage	20 ... 30 V DC	
Ripple	≤ 10 %	
Rated current	20 ... 23 mA	
Input		
Connection	terminals 1+, 2+, 3-	
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	terminals 7, 8, 9	
Output	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}	
Directive conformity		
Electromagnetic compatibility		
Directive 89/336/EC	EN 61326	
Low voltage		
Directive 73/23/EEC	IEC 62103	
Conformity		
Electromagnetic compatibility		
Protection degree	NE 21	
Protection against electric shock	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		
Group, category, type of protection	PTB 00 ATEX 2080 , for additional certificates see www.pepperl-fuchs.com	
Input	Ex II (1) G D [EEx ia] IIC [circuit(s) in zone 0/1/2]	
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		
Group, category, type of protection	Ex II (3) G (EEx nL) IIC X [circuit(s) in zone 2]	
Input	[EEx nL] IIC	
Voltage U ₀	10,5 V	
Current I ₀	13 mA	
Power P ₀	34 mW (linear characteristic)	
Type of protection [EEx nL]		
Explosion group	IIA	IIB IIC





Safety parameter	
UL control drawing	E 106378
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	
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 μ F 3.82 μ F 10.18 μ F
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

PR-03 Power Rail

UPR-03 Power Rail

KFD2-EB2 power feed module

The KFD2-EB2 power feed module and the PR-03 or the UPR-03 Power Rail are used to supply the devices with 24 VDC and at the same time to evaluate collective error message.

Each power feed module monitors and provides protection for up to 100 individual devices. The PR-03 Power Rail is an insert component for the DIN rail. The UPR-03 Power Rail is a complete unit consisting of an electrical insert and an aluminium DIN rail measuring 35 mm x 15 mm x 2000 mm. The devices are simply snapped in place to make electrical contact.

If a Power Rail is not being used, power can be supplied to the devices directly through the device terminals.

Supplied by:

A.S.P. Electro-Technology Ltd
Specialist Suppliers of Hazardous Area Certified
Electrical Products & Instrumentation



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