



Switch Amplifier KFD2-SR2-2.2S

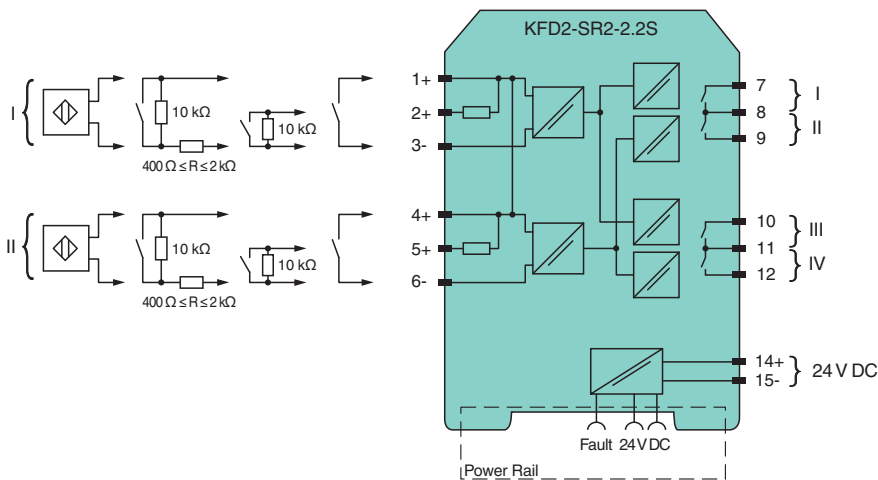
- 2-channel signal conditioner
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Usable as signal splitter (1 input and 2 outputs)
- 2 x 2 relay contact outputs with AND logic
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 acc. to IEC/EN 61508 / IEC/EN 61511

CE SIL 2

Function

This signal conditioner transfers digital signals (NAMUR sensors/mechanical contacts). Each sensor or switch controls two form A normally open relay contacts. The normal output state can be reversed using switches S1 and S2. Switch S3 is used to enable or disable line fault detection of the field circuit. During an error condition, the relays revert to their de-energized state and the LEDs indicate the fault according to NAMUR NE44. A unique collective error messaging feature is available when used with the Power Rail system.

Connection



Technical Data

General specifications

Signal type	Digital Input
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Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2
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Supply

Connection		Power Rail or terminals 14+, 15-
Rated voltage	U _r	20 ... 30 V DC
Ripple		≤ 10 %
Rated current	I _r	≤ 50 mA
Power dissipation		1 W
Power consumption		< 1.3 W

Technical Data

Input

Connection side	field side
Connection	terminals 1+, 2+, 3-; 4+, 5+, 6-
Rated values	acc. to EN 60947-5-6 (NAMUR)
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
Line fault detection	breakage $I \leq 0.1$ mA , short-circuit $I > 6$ mA
Pulse/Pause ratio	min. 20 ms / min. 20 ms

Output

Connection side	control side
Connection	output I: terminals 7, 8 ; output II: terminals 8, 9 ; output III: terminals 10, 11 ; output IV: terminals 11, 12
Output I, II, III, IV	channel 1, 2; relay
Contact loading	50 V AC/1 A/cos $\phi > 0.7$; 40 V DC/1 A resistive load
Minimum switch current	1 mA / 24 V DC
Energized/De-energized delay	approx. 20 ms / approx. 20 ms
Mechanical life	10 ⁸ switching cycles
Collective error message	Power Rail

Transfer characteristics

Switching frequency	≤ 10 Hz
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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	basic insulation according to IEC/EN 61010-1, rated insulation voltage 32 V _{eff} , functional insulation, rated insulation voltage 50 V _{eff}
Input/input	not available
Output/Output	basic insulation according to IEC/EN 61010-1, rated insulation voltage 32 V _{eff} , functional insulation, rated insulation voltage 50 V _{eff}

Indicators/settings

Display elements	LEDs
Control elements	DIP switch
Configuration	via DIP switches
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)
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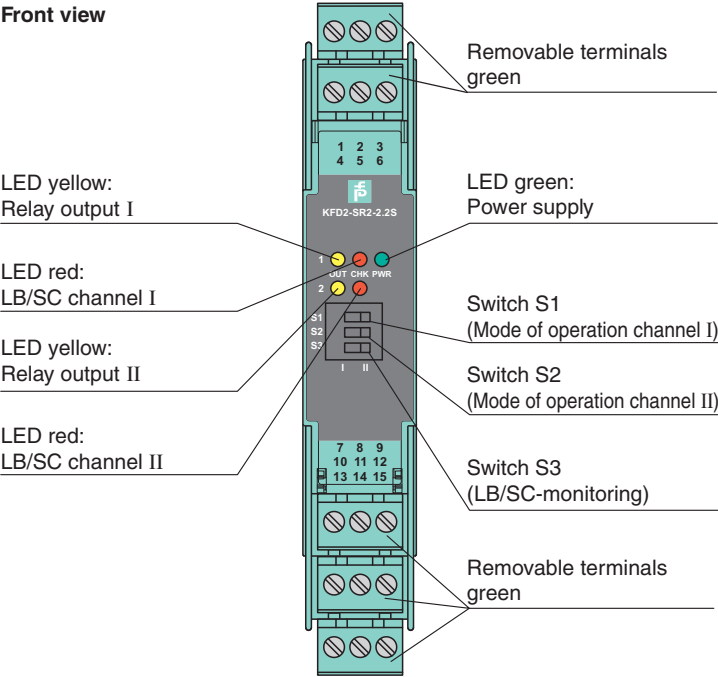
Mechanical specifications

Degree of protection	IP20
Connection	screw terminals
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







General information

Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .
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Assembly



Matching System Components

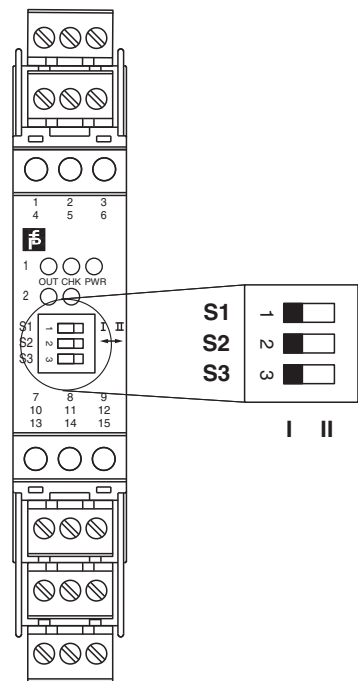
	KFD2-EB2	Power Feed Module
	UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	K-DUCT-BU	Profile rail, wiring comb field side, blue
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

Accessories

	F-NR3-Ex1	NAMUR Resistor Network
	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-CP	Red coding pins, packaging unit: 20 x 6

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Configuration



Switch position

S	Function	Position
1	Mode of operation channel I (relay) energized	with high input current with low input current
2	Mode of operation channel II (relay) energized	with high input current with low input current
3	Line fault detection	ON OFF

Operating states

Control circuit	Input signal
Initiator high impedance/contact opened	low input current
Initiator low impedance/contact closed	high input current
Lead breakage, lead short circuit	Line fault

Factory setting: switch 1, 2 and 3 in position I

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