

Switch Amplifier KFD2-ST3-Ex2

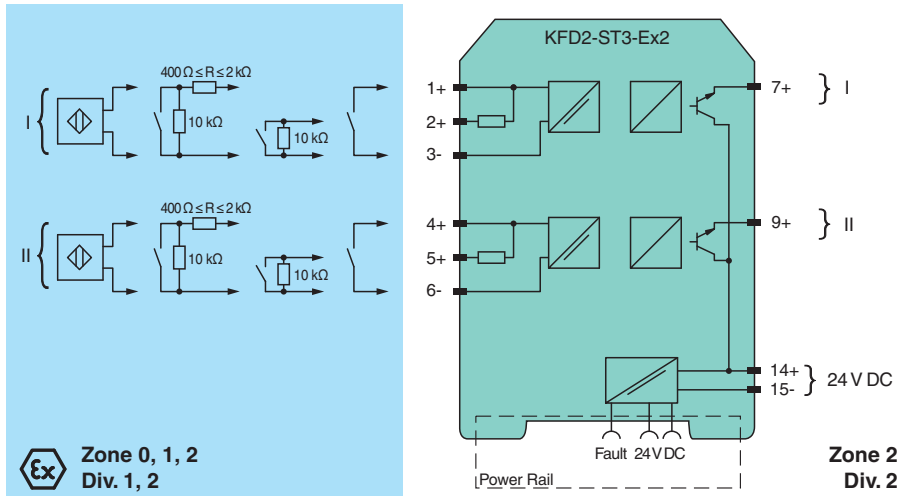
- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Dry contact or NAMUR inputs
- Active transistor output
- Line fault detection (LFD)
- Reversible mode of operation
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. The device transfers digital signals (NAMUR sensors or dry contacts) from a hazardous area to a safe area. Each input controls an active transistor output. Via switches the mode of operation can be reversed and the line fault detection can be switched off. A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output.

Connection



Technical Data

General specifications

Signal type Digital Input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2
Systematic capability (SC) SC 3

Supply

Connection Power Rail or terminals 14+, 15-
Rated voltage U_r 19 ... 30 V DC
Ripple ≤ 10 %
Rated current I_r 20 ... 15 mA + I_{out}
Power dissipation ≤ 900 mW including maximum power dissipation in the output

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

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Technical Data

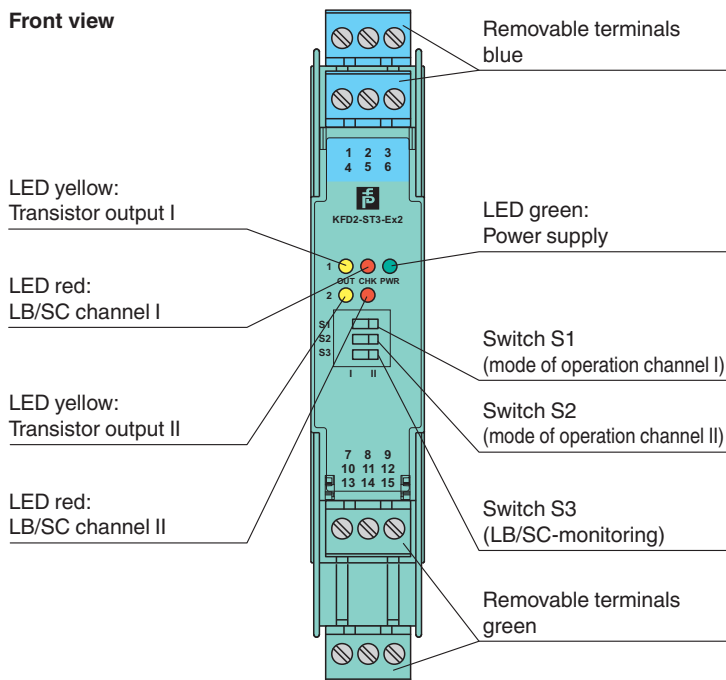
Input			
Connection side			field side
Connection			terminals 1+, 2+, 3-; 4+, 5+, 6-
Rated values			acc. to EN 60947-5-6 (NAMUR)
Open circuit voltage/short-circuit current			approx. 10 V DC / approx. 8 mA
Switching point/switching hysteresis			1.2 ... 2.1 mA / approx. 0.2 mA
Line fault detection			breakage $I \leq 0.1$ mA , short-circuit $I \geq 6.5$ mA
Pulse/Pause ratio			min. 100 μ s / min. 100 μ s
Output			
Connection side			control side
Connection			output I: terminal 7+ ; output II: terminal 9+
Rated voltage	U_r		30 V DC
Rated current	I_r		100 mA
Response time			≤ 200 μ s
Signal level			1-signal: (supply voltage) - 3 V max. for 100 mA 0-signal: blocked output (off-state current ≤ 10 μ A)
Output I			signal ; Transistor
Output II			signal ; Transistor
Collective error message			Power Rail
Transfer characteristics			
Switching frequency			≤ 5 kHz
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}
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)
Conformity			
Electromagnetic compatibility			NE 21:2012 , EN 61326-3-2:2008
Degree of protection			IEC 60529:2001
Input			EN 60947-5-6:2000
Ambient conditions			
Ambient temperature			-20 ... 60 °C (-4 ... 140 °F)
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
Data for application in connection with hazardous areas			
EU-type examination certificate			EXA 16 ATEX 0016 X
Marking			Ⓔ II 3(1)G Ex nA [ia Ga] IIC T4 Gc Ⓔ II (1)D [Ex ia Da] IIIC Ⓔ I (M1) [Ex ia Ma] I
Input			Ex ia
Voltage	U_o		10.5 V
Current	I_o		17.1 mA
Power	P_o		45 mW (linear characteristic)
Supply			

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Technical Data

Maximum safe voltage	U_m	253 V AC (Attention! U_m is no rated voltage.)
Output		
Maximum safe voltage	U_m	253 V AC (Attention! The rated voltage can be lower.)
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 IEC 60079-0:2018+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
UL approval		E106378
Control drawing		116-0424 (cULus)
IECEX approval		
IECEX certificate		IECEX EXA 16.0009X
IECEX marking		Ex nA [ia Ga] IIC T4 Gc , [Ex ia Da] IIIC , [Ex ia Ma] I
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

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





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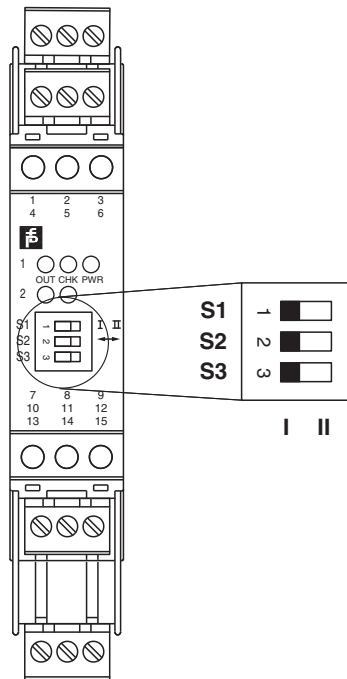
Matching System Components

	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-ST-5BU	Terminal block for KF modules, 3-pin screw terminal, blue
	KF-CP	Red coding pins, packaging unit: 20 x 6

Configuration



Switch position

S	Function		Position
1	Mode of operation output I active	with high input current	I
		with low input current	II
2	Mode of operation output II active	with high input current	I
		with low input current	II
3	Line fault detection	ON	I
		OFF	II

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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