

Current Driver/Repeater KFD0-CS-Ex1.51P

- 1-channel isolated barrier
- 24 V DC supply (loop powered)
- Current input/output 0 mA ... 40 mA
- I/P or transmitter power supply
- Accuracy 1 %
- Reverse polarity protection
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. The device transfers DC signals of fire alarms and smoke alarms from the hazardous area to the non-hazardous area. The device can also be used to control I/P converters, valves, indicators, and audible alarms. A reverse polarity protection prevents damage to the device caused by faulty wiring. The device is loop powered. From the control side no additional power supply has to be connected. Use the technical data to verify that proper voltage is available to the field devices.

Application

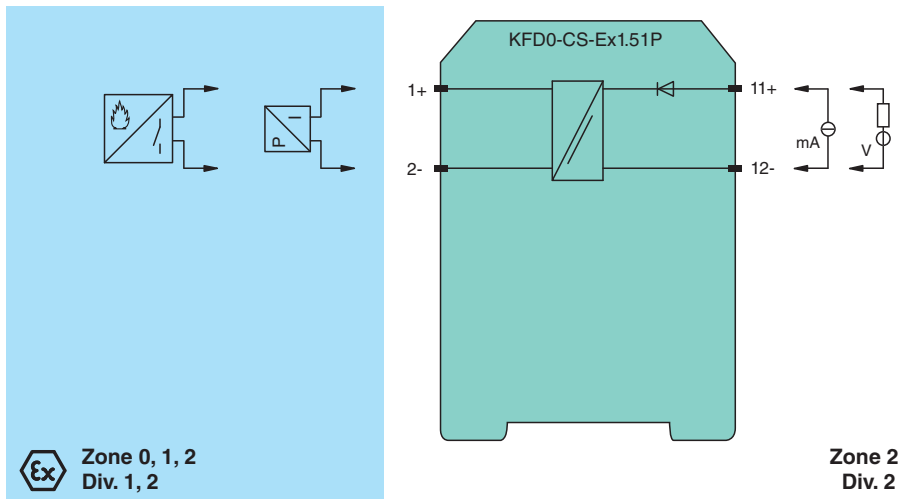
Using the device for isolation of circuits

The device is used for isolation of circuits for the control of positioner, I/P converters etc. A current source is connected to the terminals in the non-explosion-hazardous area.

Using the device for isolation of a current signal

The device is used for isolation of a current signal from fire detectors or similar sensors. A voltage source is connected to the terminals in the non-explosion-hazardous area. A specific measurement current across a passive sensor can be measured in the non-explosion-hazardous area with a series resistor (min. 50 Ω). When a voltage supply is used, the measuring resistor can also provide current limitations.

Connection



Technical Data

General specifications

Signal type Analog input/analog output

Functional safety related parameters

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

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Technical Data

Safety Integrity Level (SIL)		SIL 2
Systematic capability (SC)		SC 3
Supply		
Rated voltage	U_r	4 ... 35 V DC , loop powered
Control circuit		
Connection		terminals 12-, 11+
Voltage		4 ... 35 V DC
Current		0 ... 40 mA
Power dissipation		at 40 mA and $U_{in} < 22$ V: 700 mW per channel at 40 mA and $U_{in} > 22$ V: 1.2 W per channel
Field circuit		
Connection		terminals 1+, 2-
Voltage		for $4 \text{ V} < U_{in} < 24 \text{ V}$: $\geq U_{in} - (0.37 \times \text{current in mA}) - 1.0$ for $U_{in} > 24 \text{ V}$: $\geq 21 \text{ V} - (0.36 \times \text{current in mA})$
Short-circuit current		at $U_{in} > 24 \text{ V}$: $\leq 65 \text{ mA}$
Transfer current		$\leq 40 \text{ mA}$
Transfer characteristics		
Accuracy		1 %
Deviation		
After calibration		$\leq \pm 200 \mu\text{A}$; incl. calibration, linearity, hysteresis and load fluctuations at the field side up to a load of 1 k Ω and current $\leq 20 \text{ mA}$ at 20 °C (68 °F)
Influence of ambient temperature		$\leq \pm 2 \mu\text{A/K}$ at $U_{in} \leq 20 \text{ V}$; $\leq \pm 5 \mu\text{A/K}$ at $U_{in} > 20 \text{ V}$
Rise time		$\leq 5 \text{ ms}$ at bounce from 4 ... 20 mA and $U_{in} < 24 \text{ V}$
Galvanic isolation		
Field circuit/control circuit		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Indicators/settings		
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
Protection against electrical shock		UL 61010-1:2012
Ambient conditions		
Ambient temperature		-20 ... 70 °C (-4 ... 158 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 100 g
Dimensions		20 x 107 x 115 mm (0.8 x 4.2 x 4.5 inch) (W x H x D) , housing type B1
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		BAS 98 ATEX 7343 X
Marking		Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I
Voltage	U_o	25.2 V
Current	I_o	93 mA
Power	P_o	585 mW
Control circuit		
Maximum safe voltage	U_m	250 V _{eff} (Attention! The rated voltage can be lower.)
Field circuit		
Maximum safe voltage	U_m	250 V _{eff} (Attention! The rated voltage can be lower.)

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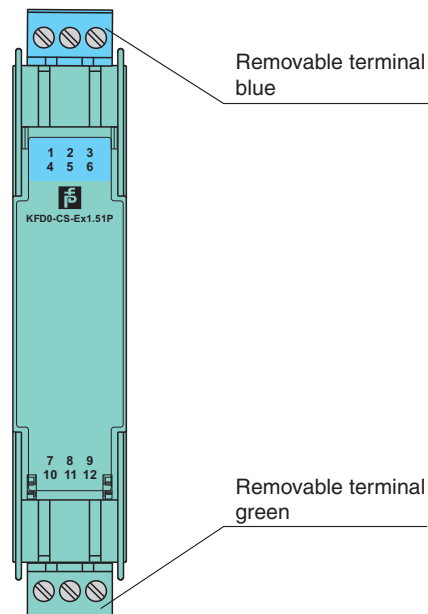
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Technical Data


Certificate	FIDI 22 ATEX 0001X
Marking	Ⓜ II 3G Ex ec IIC T4 Gc
Galvanic isolation	
Field circuit/control circuit	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 , EN 60079-11:2012 , EN IEC 60079-7:2015+A1:2018
International approvals	
FM approval	
Control drawing	116-0437
UL approval	E106378
Control drawing	116-0438 (cULus)
IECEX approval	
IECEX certificate	IECEX BAS 05.0004X IECEX CML 19.0040X
IECEX marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

Assembly


Front view





Matching System Components

	K-DUCT-BU	Profile rail, wiring comb field side, blue
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Accessories

	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
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Accessories

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

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