

## Current Driver/Repeater KFD0-CS-Ex2.51P

- 2-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.

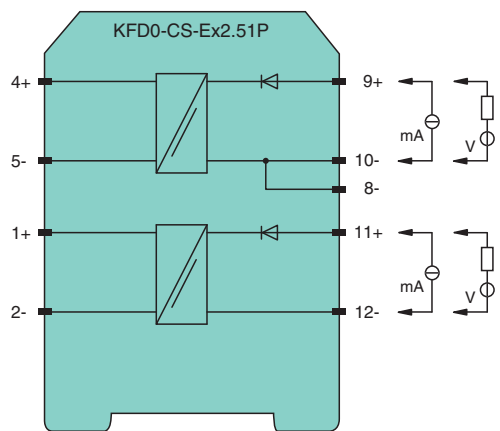
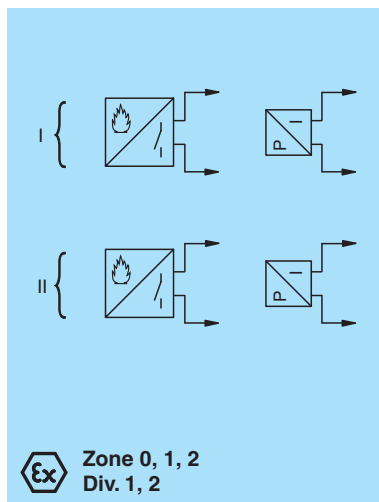
The device transfers DC signals of fire alarms and smoke alarms from the hazardous area to the non-hazardous area. The device can also be used to control I/P converters, valves, indicators, and audible alarms.

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.

### Connection



Zone 2  
Div. 2

### Technical Data

#### General specifications

Signal type	Analog input/analog output
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#### Functional safety related parameters

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

#### Supply

Rated voltage	$U_r$	4 ... 35 V DC, loop powered
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#### Control circuit

Connection	terminals 12-, 11+; 8-, 10-, 9+
Voltage	4 ... 35 V DC
Current	0 ... 40 mA

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

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## Technical Data

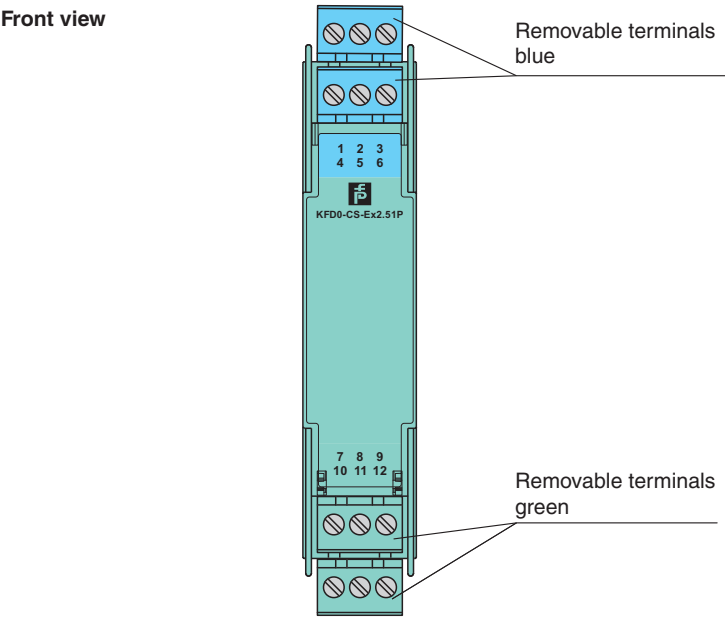
Power dissipation		at 40 mA and U <sub>in</sub> < 22 V: 700 mW per channel at 40 mA and U <sub>in</sub> > 22 V: 1.2 W per channel	
Field circuit			
Connection		terminals 1+, 2-; 4+, 5-	
Voltage			for 4 V < U <sub>in</sub> < 24 V: ≥ U <sub>in</sub> - (0.37 x current in mA) - 1.0 for U <sub>in</sub> > 24 V: ≥ 21 V - (0.36 x current in mA)
Short-circuit current		at U <sub>in</sub> > 24 V: ≤ 65 mA	
Transfer current			≤ 40 mA
Transfer characteristics			
Accuracy			1 %
Deviation			
After calibration			≤ ± 200 µA; incl. calibration, linearity, hysteresis and load fluctuations at the field side up to a load of 1 kΩ and current ≤ 20 mA at 20 °C (68 °F)
Influence of ambient temperature		≤ ± 2 µA/K at U <sub>in</sub> ≤ 20 V; ≤ ± 5 µA/K at U <sub>in</sub> > 20 V	
Rise time			≤ 5 ms at bounce from 4 ... 20 mA and U <sub>in</sub> < 24 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 <sub>o</sub>	25.2 V
Current		I <sub>o</sub>	93 mA
Power		P <sub>o</sub>	585 mW
Control circuit			
Maximum safe voltage		U <sub>m</sub>	250 V <sub>eff</sub> (Attention! The rated voltage can be lower.)
Field circuit			
Maximum safe voltage		U <sub>m</sub>	250 V <sub>eff</sub> (Attention! The rated voltage can be lower.)
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			

Release date: 2023-03-13 Date of issue: 2023-03-13 Filename: 294987\_eng.pdf

Technical Data

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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

Assembly



Matching System Components

	<b>K-DUCT-BU</b>	Profile rail, wiring comb field side, blue
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Accessories

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

## Application

The device is used for isolation of power loops for the control of positioner, I/P converters etc. A current source is connected to the safe area terminals.

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