

# 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
- SIL 2 (SC 3) acc. to IEC/EN 61508



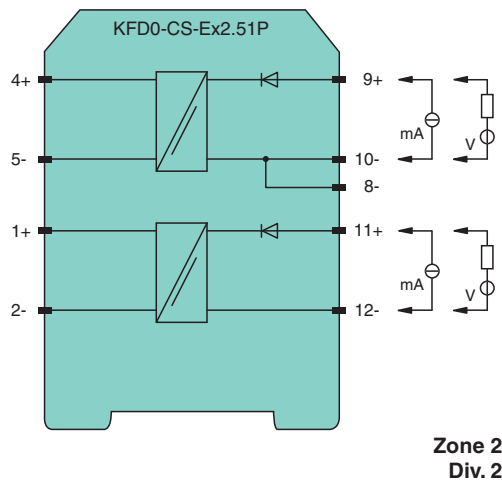
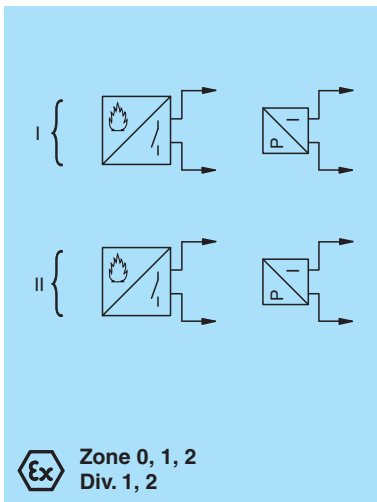
SIL 2



## 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



## Technical Data

General specifications	
Signal type	Analog input/analog output
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Systematic capability (SC)	SC 3
Supply	
Rated voltage	$U_r$ loop powered
Control circuit	
Connection	terminals 12-, 11+; 8-, 10-, 9+
Voltage	4 ... 35 V DC

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

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## Technical Data

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
<b>Field circuit</b>		
Connection		terminals 1+, 2-; 4+, 5-
Voltage		for $4$ V $< U_{in} < 24$ V: $\geq U_{in} - (0.37 \times \text{current in mA}) - 1.0$ for $U_{in} > 24$ V: $\geq 21$ V - (0.36 x current in mA)
Short-circuit current		at $U_{in} > 24$ V: $\leq 65$ mA
Transfer current		$\leq 40$ mA
<b>Transfer characteristics</b>		
Accuracy		1 %
Deviation		
After calibration		$\leq \pm 200$ $\mu$ A; incl. calibration, linearity, hysteresis and load fluctuations at the field side up to a load of 1 k $\Omega$ and current $\leq 20$ mA at 20 °C (68 °F)
Influence of ambient temperature		$\leq \pm 2$ $\mu$ A/K at $U_{in} \leq 20$ V; $\leq \pm 5$ $\mu$ A/K at $U_{in} > 20$ V
Rise time		$\leq 5$ ms at bounce from 4 ... 20 mA and $U_{in} < 24$ V
<b>Galvanic isolation</b>		
Field circuit/control circuit		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
<b>Indicators/settings</b>		
Labeling		space for labeling at the front
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
<b>Conformity</b>		
Electromagnetic compatibility		NE 21:2012 EN 61326-3-2:2008
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1:2012
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F) extended ambient temperature range up to 70 °C (158 °F), refer to manual for necessary mounting conditions
<b>Mechanical specifications</b>		
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) , housing type B1
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
<b>Data for application in connection with hazardous areas</b>		
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 (-20 °C $\leq T_{amb} \leq 60$ °C)
Voltage	$U_o$	25.2 V
Current	$I_o$	93 mA
Power	$P_o$	585 mW
<b>Control circuit</b>		
Maximum safe voltage	$U_m$	250 V <sub>eff</sub> (Attention! The rated voltage can be lower.)
<b>Field circuit</b>		
Maximum safe voltage	$U_m$	250 V <sub>eff</sub> (Attention! The rated voltage can be lower.)
Certificate		TÜV 99 ATEX 1499 X
Marking		Ⓔ II 3G Ex nA II T4 [device in zone 2]
<b>Galvanic isolation</b>		
Field circuit/control circuit		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
<b>Directive conformity</b>		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
<b>International approvals</b>		

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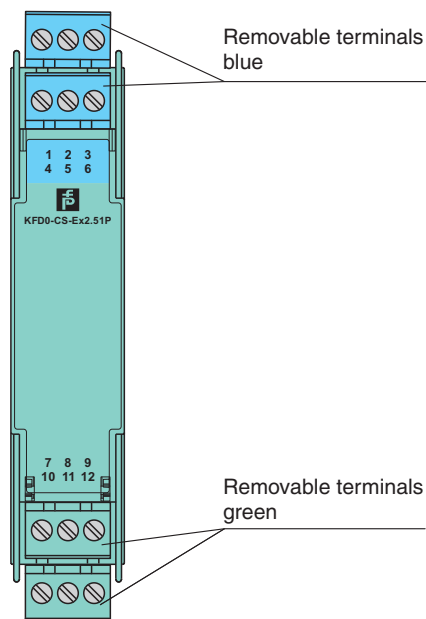
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## Technical Data


FM approval	
Control drawing	116-0437
UL approval	
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
<b>General information</b>	
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




Front view



## 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

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## 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.