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

Features

- 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 %
- Up to SIL 2 acc. to IEC 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.

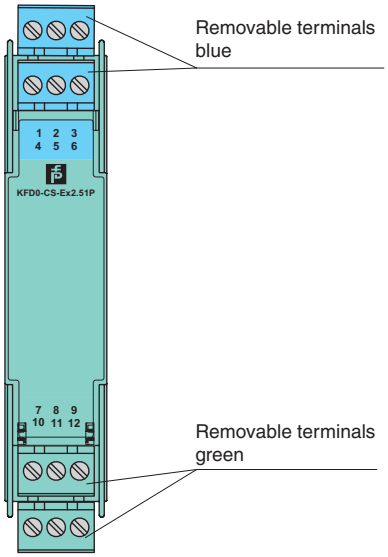
A reverse polarity protection prevents damage to the device caused by faulty wiring.

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.

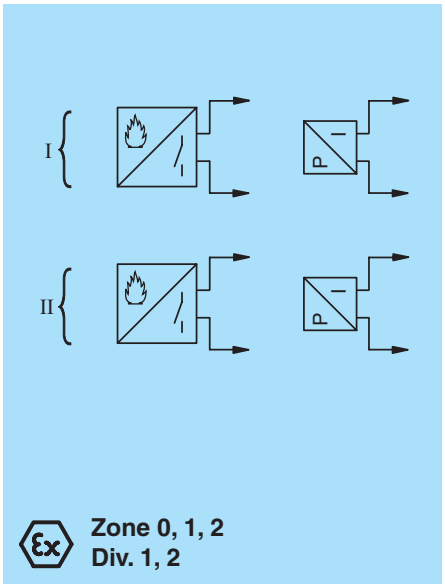
Assembly

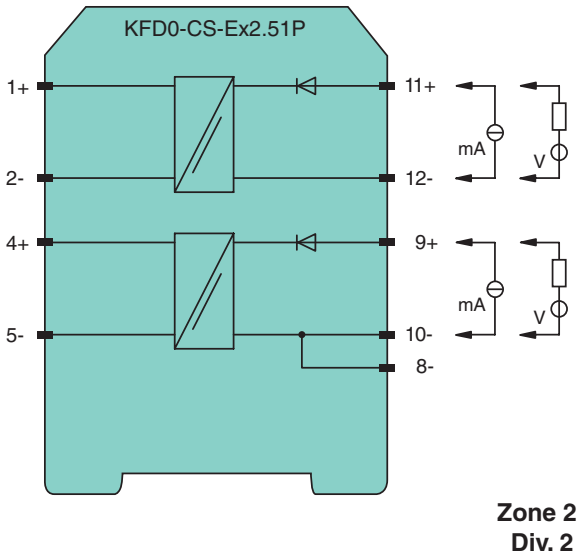
Front view



CE (Ex) SIL 2

Connection





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Technical data

General specifications		
Signal type		Analog input/analog output
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Supply		
Rated voltage	U_r	loop powered
Control circuit		
Connection		terminals 12-, 11+; 8-, 10-, 9+
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-; 4+, 5-
Voltage		for 4 V < U_{in} < 24 V: ≥ U_{in} - (0.37 x current in mA) - 1.0 for U_{in} > 24 V: ≥ 21 V - (0.36 x current in mA)
Short-circuit current		at U_{in} > 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_{in} ≤ 20 V; ≤ ± 5 µA/K at U_{in} > 20 V
Rise time		≤ 5 ms at bounce from 4 ... 20 mA and U_{in} < 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 21:2006
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °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) , 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
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC, II (1)D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I (-20 °C ≤ T_{amb} ≤ 60 °C)
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.)
Certificate		TÜV 99 ATEX 1499 X
Marking		⟨Ex⟩ II 3G Ex nA II T4 [device in zone 2]
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 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
FM approval		
Control drawing		116-0129
UL approval		

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Technical data cont

Control drawing	116-0173 (cULus)
IECEx approval	IECEx BAS 05.0004
Approved for	[Ex ia Ga] IIC, [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.

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 Ω). When a voltage supply is used, the measuring resistor can also provide current limitations.

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