

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.

Application

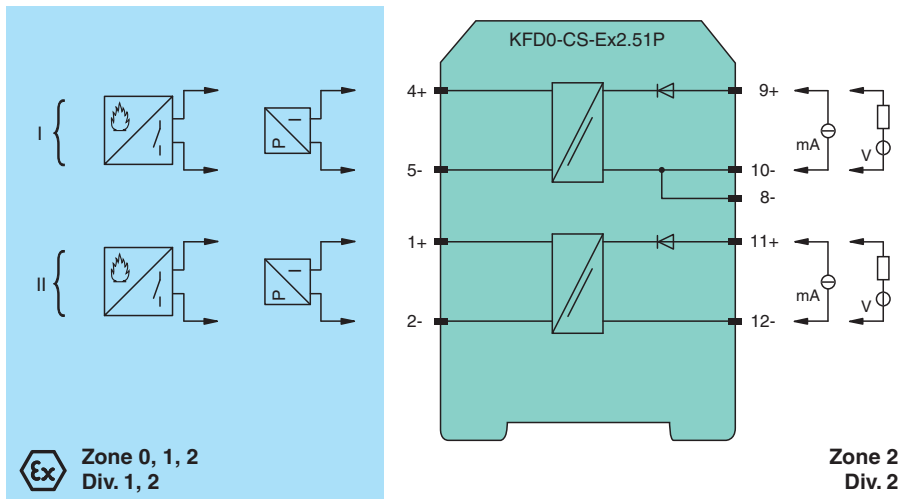
Using the device for isolation of circuits

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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Technical Data

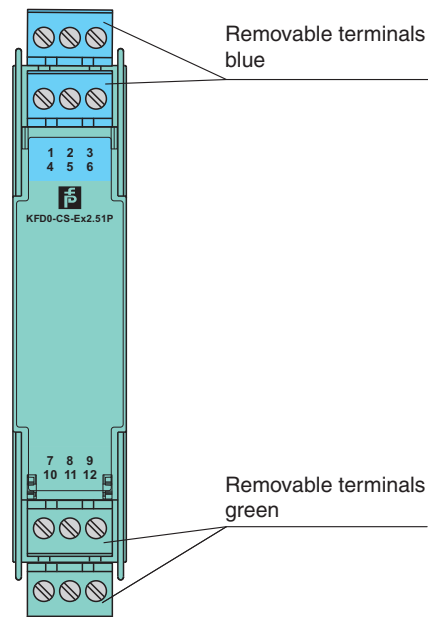
| | | |
|----------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Integrity Level (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+; 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 $4 \text{ V} < U_{in} < 24 \text{ V}$: $\geq U_{in} - (0.37 \times \text{current in mA}) - 1.0$ 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.) |

Technical Data


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|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |
|-------------------------------------------------------------------------------------|------------------|--------------------------------------------|

Accessories

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

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