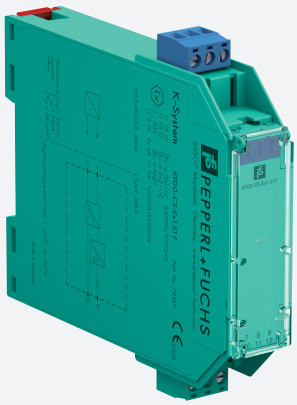


# Current Driver/Repeater

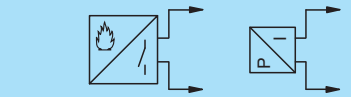
## KFD0-CS-Ex1.51P

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

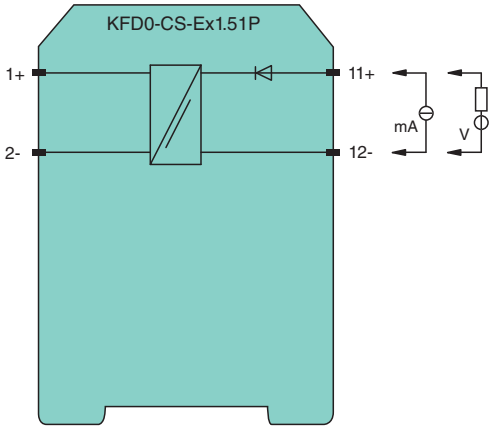
## Function

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 0, 1, 2**
**Div. 1, 2**




**Zone 2**
**Div. 2**

## 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+ |
| Voltage | | 4 ... 35 V DC |

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## Technical Data

| | | |
|---|---|---|
| Current | | 0 ... 40 mA |
| Power dissipation | | at 40 mA and $U_{in}$ < 22 V: 700 mW per channel<br>at 40 mA and $U_{in}$ > 22 V: 1.2 W per channel |
| **Field circuit** | | |
| Connection | | terminals 1+, 2- |
| Voltage | | for 4 V < $U_{in}$ < 24 V: ≥ $U_{in}$ - (0.37 x current in mA) - 1.0<br>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 21:2012<br>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 | | ⟨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 | | FIDI 22 ATEX 0001X |
| Marking | | ⟨Ex⟩ II 3G Ex ec IIC T4 Gc [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 IEC 60079-0:2018 , EN 60079-11:2012 , EN IEC 60079-7:2015+A1:2018 |
| **International approvals** | | |
| FM approval | | |

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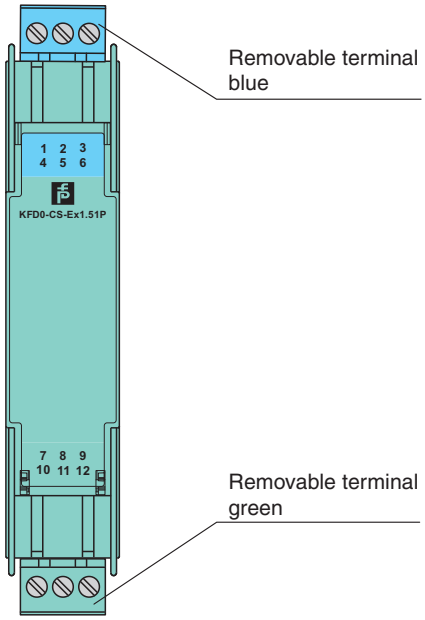
## Technical Data

| | |
|---|---|
| Control drawing | 116-0437 |
| UL approval | |
| Control drawing | 116-0438 (cULus) |
| IECEx approval | |
| IECEx certificate | IECEx BAS 05.0004X<br>IECEx CML 19.0040X |
| IECEx marking | [Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I<br>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 |
|  | **KF-ST-5BU** | Terminal block for KF modules, 3-pin screw terminal, blue |
|  | **KF-CP** | 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 Ω). When a voltage supply is used, the measuring resistor can also provide current limitations.

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