

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Potentiometer input
- Voltage output 0 V ... 10 V
- Lead resistance compensation adjustment
- Accuracy 0.05 %
- Up to SIL2 acc. to IEC 61508

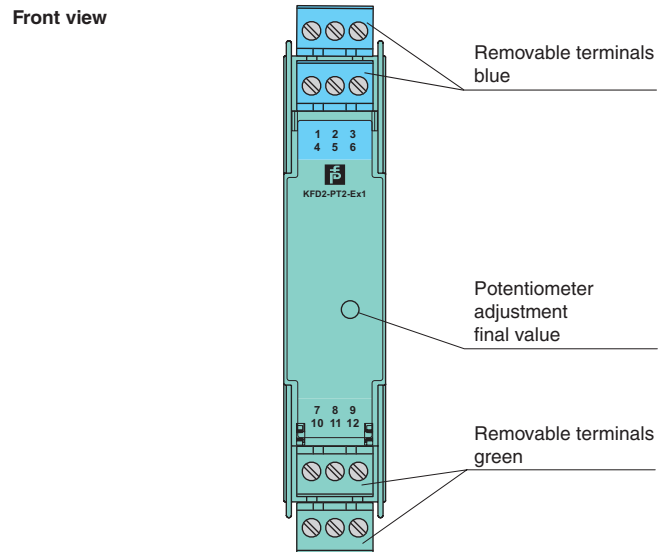
Function

This isolated barrier is used for intrinsic safety applications. It provides the source voltage to a potentiometer and transfers its wiper position from hazardous areas to safe areas. It then converts the signal to a 0 V ... 10 V voltage output (consistent with 0 mA ... 20 mA current output, see for example KFD2-PT2-Ex1-4).

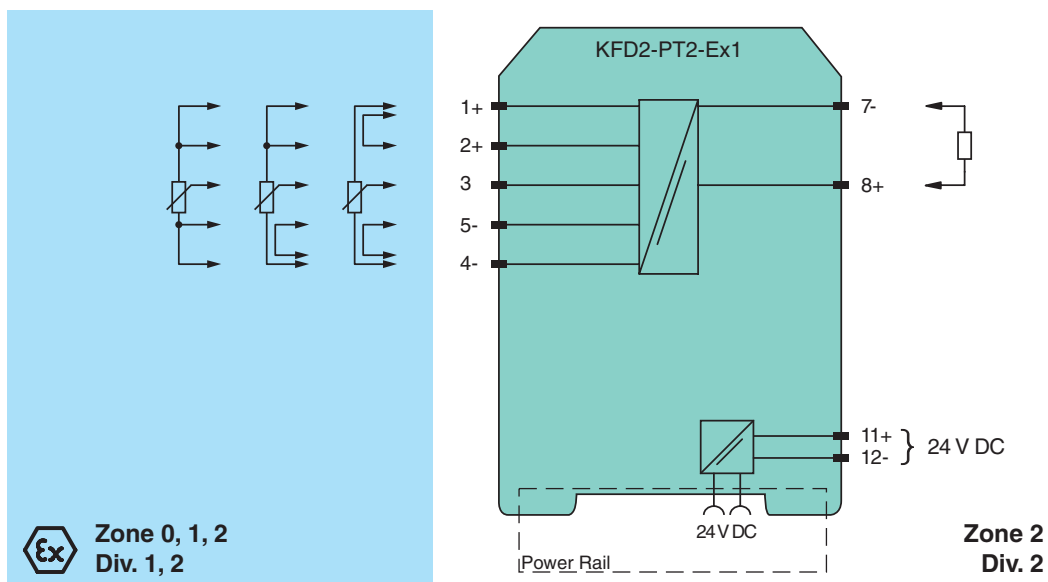
The unit can be used in a 3-, 4-, or 5-wire configuration depending on the required measurement accuracy. Terminals 2 and 5 are used as the sense line for the potentiometer lead resistance compensation in a 5-wire configuration.

The barrier's potentiometer can be used to compensate for lead resistance up to 5 % of the hazardous area potentiometer value.

Assembly



Connection



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

| | | |
|---|-------|--|
| General specifications | | |
| Signal type | | Analog input |
| Supply | | |
| Connection | | Power Rail or terminals 11+, 12- |
| Rated voltage | U_n | 20 ... 35 V DC |
| Ripple | | within the supply tolerance |
| Power loss | | 0.5 W |
| Power consumption | | 0.6 W |
| Input | | |
| Connection | | terminals 4-, 5-, 3+, 2+, 1+ |
| Potentiometer | | |
| Types of measuring | | 3-, 4-, 5-wire technology |
| Nominal resistance | | $\geq 800 \Omega$ |
| Supply voltage | | approx. 4.7 V |
| Lead resistance | | 5 % of the potentiometer resistance (adjustable) |
| Output | | |
| Voltage output | | 0 ... 10 V |
| Connection | | terminals 7-, 8+ |
| Output resistance | | $\leq 30 \Omega$ |
| Transfer characteristics | | |
| Deviation | | |
| Linearity | | $\leq \pm 5 \text{ mV}$ |
| Influence of ambient temperature | | $\leq 0.5 \text{ mV/K}$ |
| Rise time | | 10 to 90 % $\leq 8 \text{ ms}$; 10 to 90 % within 1 % of span $\leq 25 \text{ ms}$ |
| Electrical isolation | | |
| Output/power supply | | functional insulation, rated insulation voltage 50 V AC |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2004/108/EC | | EN 61326-1:2006 |
| Conformity | | |
| Electromagnetic compatibility | | |
| Degree of protection | | NE 21:2006 |
| Protection against electrical shock | | IEC 60529:2001 UL 61010-1 |
| Ambient conditions | | |
| Ambient temperature | | -20 ... 60 °C (-4 ... 140 °F) |
| Mechanical specifications | | |
| Degree of protection | | IP20 |
| Mass | | approx. 120 g |
| Dimensions | | 20 x 107 x 115 mm (0.8 x 4.2 x 4.5 in) , housing type B1 |
| Mounting | | on 35 mm DIN mounting rail acc. to EN 60715:2001 |
| Data for application in connection with Ex-areas | | |
| EC-Type Examination Certificate | | BAS 00 ATEX 7171 , for additional certificates see www.pepperl-fuchs.com |
| Group, category, type of protection | | $\text{Ex} \text{ II (1)G [Ex ia Ga] IIC}$, $\text{Ex} \text{ II (1)D [Ex ia Da] IIIC}$, $\text{Ex} \text{ I (M1) [Ex ia Ma] I}$ (-20 °C $\leq T_{\text{amb}} \leq 60$ °C) |
| Voltage | U_o | 10.4 V |
| Current | I_o | 31.4 mA |
| Power | P_o | 82 mW |
| Supply | | |
| Maximum safe voltage | U_m | 250 V (Attention! The rated voltage can be lower.) |
| Output | | |
| Maximum safe voltage | U_m | 250 V (Attention! The rated voltage can be lower.) |
| Statement of conformity | | |
| Group, category, type of protection, temperature class | | $\text{Ex} \text{ II 3G Ex nA II T4}$ |
| Electrical isolation | | |
| Input/Output | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Input/power supply | | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |
| Directive conformity | | |
| Directive 94/9/EC | | EN 60079-0:2009, EN 60079-11:2012 , EN 60079-15:2010 |
| International approvals | | |
| FM approval | | |
| Control drawing | | 116-0129 |
| UL approval | | |
| Control drawing | | 116-0173 (cULus) |
| CSA approval | | |

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

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| | |
|----------------------------|--|
| Control drawing | 116-0132 |
| IECEX approval | IECEX BAS 10.0060 IECEX BAS 10.0061X |
| Approved for | [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I Ex nA II T4 Gc |
| General information | |
| Supplementary information | EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com . |

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Additional information

Jumpers must be used on terminals 1, 2 and 4, 5 in 3-wire configurations. A jumper must be used between terminals 4 and 5 in 4-wire connections. In the 5-wire mode of operation, the potentiometer voltage is measured at terminals 2 and 5 and automatically readjusted.

The front side potentiometer can be used to compensate for lead resistances up to 5 % of the potentiometer value. During adjustment, the potentiometer is set to 100 % of its value and the output signal is adjusted to 100 % of the required value. This adjustment can be repeated setting the potentiometer to 0 %.

Accessories

Power feed module KFD2-EB2

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 150 individual devices depending on the power consumption of the devices. Collective error messages received from the Power Rail activate a galvanically-isolated mechanical contact.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical insert and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

Profile Rail K-DUCT with Power Rail

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.



Power Rail and Profile Rail must not be fed via the device terminals of the individual devices!