

# Potentiometer Converter

## KFD2-PT2-Ex1-6-Y112844

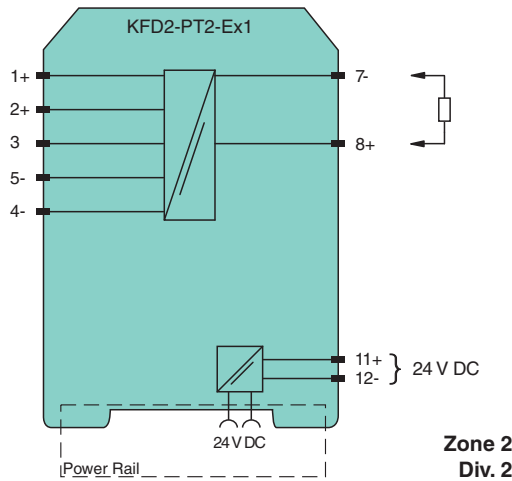
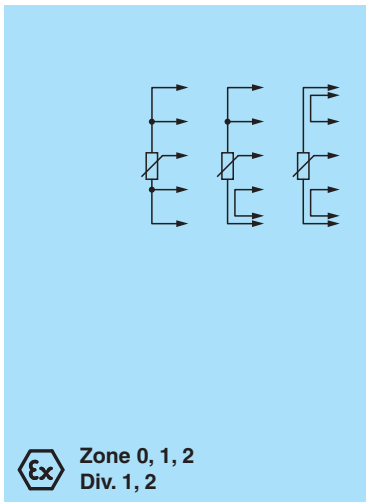
- 1-channel
- 24 V DC supply (Power Rail)
- Potentiometer input
- Current output 0 mA ... 24 mA
- Accuracy 0.05 %
- Up to SIL 2 acc. to IEC/EN 61508



### Function

The transformer isolated barrier supplies power to the potentiometers in the hazardous area. The loop voltages are transmitted. The transformer isolated barrier is available with current and voltage outputs (terminals 7 and 8). It can be operated in the 3-, 4- or 5-wire mode with the potentiometer. In the 5-wire mode of operation, the potentiometer voltage is measured at terminals 2 and 5 and automatically readjusted. For a 4-wire connection on the transformer isolated barrier, terminals 4- and 5- are bridged. With the resistance adjustment on the front housing panel, it is possible to adjust the final value. For potentiometer resistances greater than 500 Ω, the 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 %. Terminals 4 and 5 as well as 1 and 2 must be bridged for a 3-wire connection to the potentiometer.

### Connection



### Technical Data

|   |                                  |
|---|----------------------------------|
| <b>General specifications</b>               |                                  |
| Signal type                                 | Analog input                     |
| <b>Functional safety related parameters</b> |                                  |
| Safety Integrity Level (SIL)                | SIL 2                            |
| <b>Supply</b>                               |                                  |
| Connection                                  | Power Rail or terminals 11+, 12- |
| Rated voltage                               | $U_r$ 20 ... 35 V DC             |
| Ripple                                      | within the supply tolerance      |

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

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## Technical Data

|  |                |   |
|--|----------------|---|
| Power dissipation  |                | 1 W   |
| Power consumption  |                | 1.3 W   |
| <b>Input</b>   |                |   |
| Connection side  |                | field side  |
| Connection   |                | terminals 4-, 5-, 3+, 2+, 1+  |
| Potentiometer  |                |   |
| Nominal resistance   |                | 500 Ω to 100 kΩ   |
| Supply voltage   |                | approx. 4.7 V   |
| Lead resistance  |                | ≤ 5 % of the potentiometer resistance at ≥ 500 Ω (can be equalized by user) |
| <b>Output</b>  |                |   |
| Connection side  |                | control side  |
| Connection   |                | terminals 7-, 8+  |
| Current output   |                | 0 ... 20 mA, load ≤ 1 kΩ  |
| <b>Transfer characteristics</b>                                |                |   |
| Accuracy   |                | 0.05 %  |
| Deviation  |                |   |
| Linearity  |                | ≤ ± 10 μA   |
| Influence of ambient temperature                               |                | ≤ 1 μA/K  |
| Rise time  |                | 10 to 90 % ≤ 8 ms; 10 to 90 % within 1 % of span ≤ 25 ms                    |
| <b>Galvanic isolation</b>                                      |                |   |
| Output/power supply  |                | functional insulation, rated insulation voltage 50 V AC                     |
| <b>Indicators/settings</b>                                     |                |   |
| Control elements   |                | potentiometer   |
| Configuration  |                | via potentiometer   |
| <b>Directive conformity</b>                                    |                |   |
| Electromagnetic compatibility                                  |                |   |
| Directive 2014/30/EU   |                | EN 61326-1:2013 (industrial locations)                                      |
| <b>Conformity</b>  |                |   |
| Electromagnetic compatibility                                  |                |   |
| Degree of protection   |                | NE 21:2006  |
| Protection against electrical shock                            |                | IEC 60529:2001  |
|  |                | UL 61010-1  |
| <b>Ambient conditions</b>                                      |                |   |
| Ambient temperature  |                | -20 ... 60 °C (-4 ... 140 °F)   |
| <b>Mechanical specifications</b>                               |                |   |
| Degree of protection   |                | IP20  |
| Connection   |                | screw terminals   |
| Mass   |                | approx. 120 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                            |
| <b>Data for application in connection with hazardous areas</b> |                |   |
| EU-type examination certificate                                |                |   |
| Marking  |                | BAS 00 ATEX 7171  |
| Voltage  | U <sub>o</sub> | 10.4 V DC   |
| Current  | I <sub>o</sub> | 46 mA   |
| Power  | P <sub>o</sub> | 120 mW  |
| Supply   |                |   |
| Maximum safe voltage   | U <sub>m</sub> | 250 V (Attention! The rated voltage can be lower.)                          |
| Output   |                |   |
| Maximum safe voltage   | U <sub>m</sub> | 250 V (Attention! The rated voltage can be lower.)                          |
| Certificate  |                |   |
| Marking  |                | TÜV 02 ATEX 1797 X  |
| Galvanic isolation   |                | ⊕ II 3G Ex nA II T4   |
| Input/Output   |                | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V |

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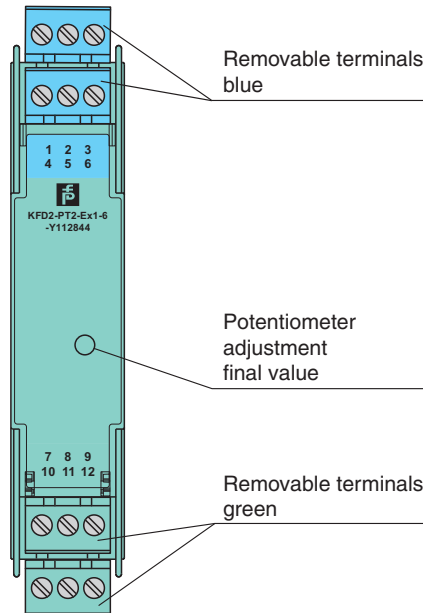
**PEPPERL+FUCHS**

**Technical Data**

|                                |   |
|--------------------------------|---|
| Input/power supply             | 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+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010   |
| <b>International approvals</b> |   |
| FM approval                    |   |
| Control drawing                | 116-0129  |
| UL approval                    |   |
| Control drawing                | 116-0173 (cULus)  |
| IECEX approval                 |   |
| IECEX certificate              | IECEX BAS 10.0060<br>IECEX BAS 10.0061X   |
| IECEX marking                  | [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I<br>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>KFD2-EB2</b> | Power Feed Module   |
|  | <b>UPR-03</b>   | Universal Power Rail with end caps and cover, 3 conductors, length: 2 m   |
|  | <b>UPR-03-M</b> | Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m |
|  | <b>UPR-03-S</b> | Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m |






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### Matching System Components

|   |                         |  |
|---|-------------------------|--|
|  | <b>K-DUCT-BU</b>        | Profile rail, wiring comb field side, blue                                     |
|  | <b>K-DUCT-BU-UPR-03</b> | Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue |

### Accessories

|   |                  |  |
|---|------------------|--|
|  | <b>K-250R</b>    | Measuring resistor   |
|  | <b>K-500R0%1</b> | Measuring resistor   |
|  | <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

Because of the high transfer accuracy, the unit is well suited for precise path or positioning requirements per potentiometer, reference element, etc.