

**Features**

- 2-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Output 0/4 mA ... 20 mA current sink/current source
- Terminals with test points
- Up to SIL 2 acc. to IEC 61508

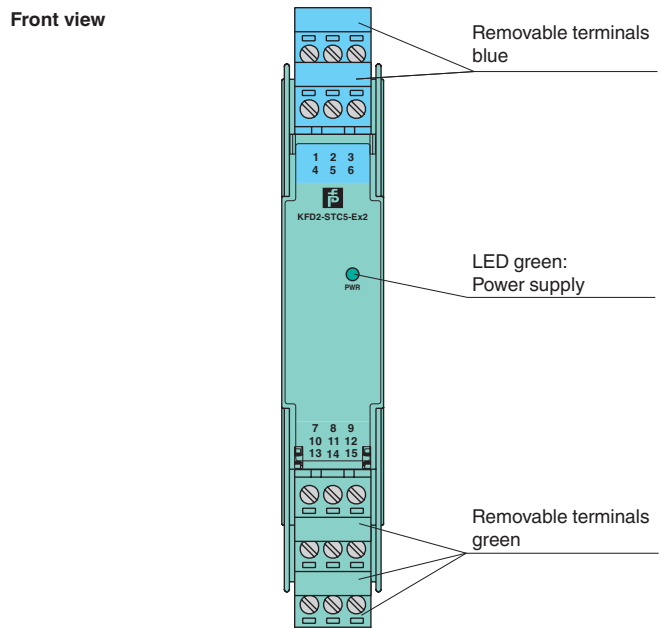
**Function**

This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire and 3-wire SMART transmitters, and can also be used with 2-wire SMART current sources. It transfers the analog input signal to the safe area as an isolated current value. Digital signals may be superimposed on the input signal in the hazardous or non-hazardous area and are transferred bi-directionally. The device provides a sink mode or a source mode output on the safe area terminals. The device has an internal resistor. Use this resistor if the HART communication resistance in the control circuit is too low. Test sockets for the connection of HART communicators are integrated into the terminals of the device.

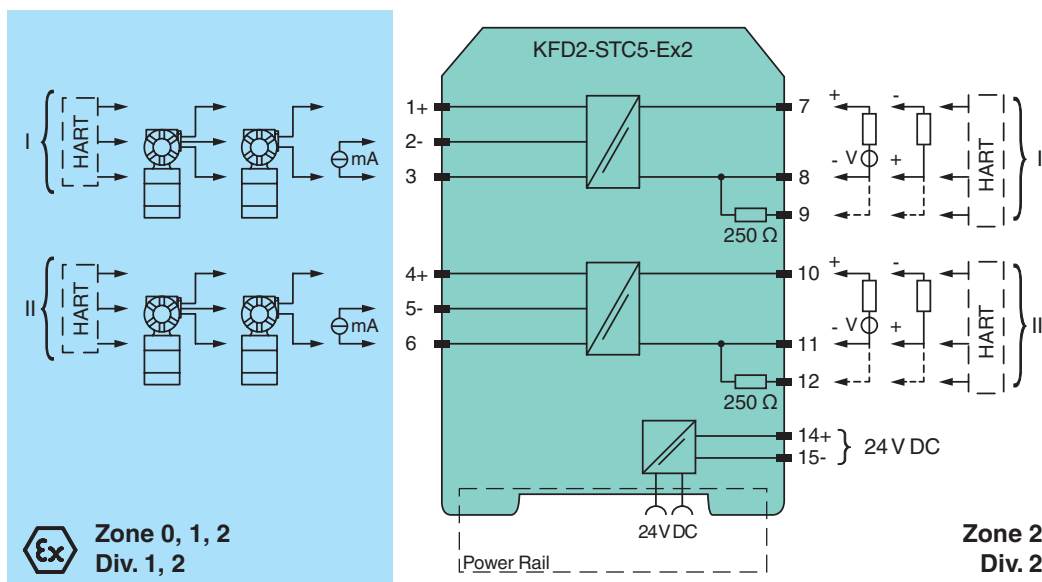
**Application**

- The device supports the following SMART protocols:
- HART
  - BRAIN
  - Foxboro

**Assembly**



**Connection**



Release date 2019-04-04 17:37 Date of issue 2019-04-04 203645\_eng.xml




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

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|  |       |  |
|--|-------|--|
| <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 14+, 15-   |
| Rated voltage  | $U_r$ | 18 ... 30 V DC   |
| Ripple   |       | within the supply tolerance  |
| Power dissipation  |       | ≤ 1.4 W at maximum load  |
| Power consumption  |       | ≤ 2.6 W at maximum load  |
| <b>Input</b>   |       |  |
| Connection side  |       | field side   |
| Connection   |       | terminals 1+, 2-, 3; 4+, 5-, 6   |
| Input signal   |       | 0/4 ... 20 mA  |
| Input resistance   |       | ≤ 265 Ω terminals 2-, 3; 5-, 6, ≤ 330 Ω terminals 1+, 3; 4+, 6   |
| Available voltage  |       | ≥ 16 V at 20 mA, terminals 1+, 3; 4+, 6  |
| <b>Output</b>  |       |  |
| Connection side  |       | control side   |
| Connection   |       | terminals 7+, 8-, 9-; 10+, 11-, 12- (sink)<br>terminals 7-, 8+, 9+; 10-, 11+, 12+ (source)<br>see additional information   |
| Load   |       | 0 ... 600 Ω  |
| Output signal  |       | 0/4 ... 20 mA (overload > 25 mA)   |
| Ripple   |       | ≤ 50 μA <sub>rms</sub>   |
| External supply (loop)   |       | 2 ... 30 V DC  |
| <b>Transfer characteristics</b>                                |       |  |
| Deviation  |       | at 20 °C (68 °F), 0/4 ... 20 mA<br>≤ 10 μA incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage  |
| Influence of ambient temperature                               |       | ≤ 0.25 μA/K  |
| Frequency range  |       | field side into the control side: band width with 1 V <sub>pp</sub> signal 0 ... 7.5 kHz (-3 dB)<br>safe area to hazardous area: band width with 1 V <sub>SS</sub> signal 0.3 ... 7.5 kHz (-3 dB)  |
| Settling time  |       | 200 μs   |
| Rise time/fall time  |       | 100 μs   |
| <b>Galvanic isolation</b>                                      |       |  |
| Output/power supply  |       | functional insulation, rated insulation voltage 50 V AC  |
| Output/Output  |       | functional insulation, rated insulation voltage 50 V AC  |
| <b>Indicators/settings</b>                                     |       |  |
| Display elements   |       | LED  |
| Labeling   |       | space for labeling at the front  |
| <b>Directive conformity</b>                                    |       |  |
| Electromagnetic compatibility                                  |       |  |
| Directive 2014/30/EU   |       | EN 61326-1:2013 (industrial locations)   |
| <b>Conformity</b>  |       |  |
| 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  |
| <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. 200 g  |
| Dimensions   |       | 20 x 124 x 115 mm (0.8 x 4.9 x 4.5 inch), housing type B2  |
| 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                                |       | CML 17 ATEX 2031X  |
| Marking  |       |  II (1)G [Ex ia Ga] IIC<br> II (1)D [Ex ia Da] IIIC<br> I (M1) [Ex ia Ma] I |
| Input  |       | [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I  |
| <b>Supply</b>  |       |  |
| Maximum safe voltage   | $U_m$ | 250 V (Attention! The rated voltage can be lower.)   |
| <b>Equipment</b>   |       |  |
| Voltage  | $U_o$ | 26.2 V   |

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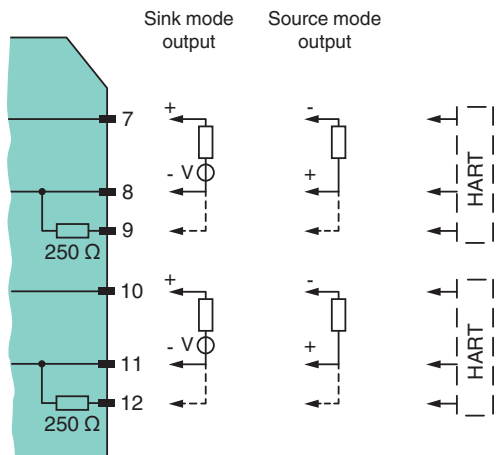
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|  |   |         |
|--|---|---------|
| Voltage                                | $U_q$   | 27.25 V |
| Current                                | $I_o$   | 93 mA   |
| Power                                  | $P_o$   | 634 mW  |
| Permissible connection values [EEx ia] |   |         |
| Equipment terminals 2-, 3+; 5-, 6+     |   |         |
| Voltage                                | $U_i$   | 30 V    |
| Current                                | $I_i$   | 115 mA  |
| Power                                  | $P_i$   | max 1 W |
| Voltage                                | $U_o$   | 2 V     |
| Current                                | $I_o$   | 8.5 mA  |
| Power                                  | $P_o$   | 4.3 mW  |
| Permissible connection values [EEx ia] |   |         |
| Equipment terminals 1+, 2/3-; 4+, 5/6- |   |         |
| Voltage                                | $U_o$   | 26.2 V  |
| Voltage                                | $U_q$   | 27.25 V |
| Current                                | $I_o$   | 115 mA  |
| Power                                  | $P_o$   | 784 mW  |
| Certificate                            | CML 17 ATEX 3030X   |         |
| Marking                                | ⊕ II 3G Ex ec IIC T4 Gc   |         |
| Galvanic isolation                     |   |         |
| Input/Output                           | safe electrical isolation acc. to IEC/EN 60079-11:2012, voltage peak value 375 V  |         |
| Input/power supply                     | safe electrical isolation acc. to IEC/EN 60079-11:2012, voltage peak value 375 V  |         |
| Directive conformity                   |   |         |
| Directive 2014/34/EU                   | EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-7:2015   |         |
| <b>International approvals</b>         |   |         |
| UL approval                            |   |         |
| Control drawing                        | 116-0439 (cULus)  |         |
| IECEX approval                         | IECEX CML 17.0016X  |         |
| Approved for                           | [Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I , 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> . |         |
| <b>Accessories</b>                     |   |         |
| Optional accessories                   | <ul style="list-style-type: none"> <li>- power feed module KFD2-EB2(.R4A.B)(.SP)</li> <li>- universal power rail UPR-03(-M)(-S)</li> <li>- profile rail K-DUCT-BU(-UPR-03)</li> </ul>           |         |



**Additional Information**

The device provides 2 outputs on the control side terminals. These outputs can be operated in any combination of the current sink operating mode and current source operating mode. Please refer to the following diagram for connection.



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