

## Repeater KFD0-CS-Ex1.50P

- 1-channel isolated barrier
- 24 V DC supply (loop powered)
- Current input/output 4 mA ... 20 mA
- transmitter power supply
- Accuracy 0.1 %
- Reverse polarity protection
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



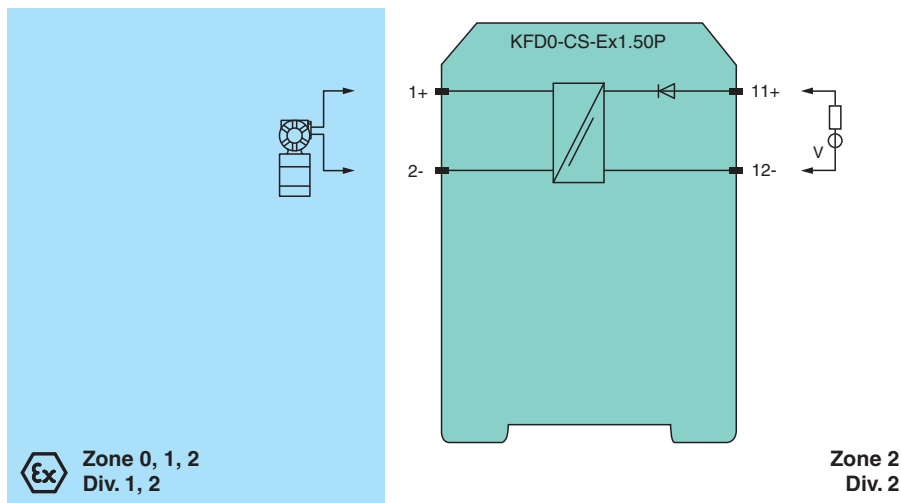
**SIL 2**



### Function

This isolated barrier is used for intrinsic safety applications.  
The device can be used as a repeater or transmitter power supply for 2-wire transmitters.  
This device is loop powered. No additional power supply has to be connected.  
Use the technical data to verify that proper voltage is available to the field devices.

### Connection



### 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  $U_r$  5 ... 35 V DC , loop powered

#### Control circuit

Connection terminals 12-, 11+

Voltage 5 ... 35 V DC

Current 4 ... 20 mA

## Technical Data

|                                                                |       |                                                                                                                                                                                                               |
|----------------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power dissipation                                              |       | at 20 mA and $U_{in} < 24.3 \text{ V}$ : < 250 mW per channel<br>at 20 mA and $U_{in} > 24.3 \text{ V}$ : < 500 mW per channel                                                                                |
| <b>Field circuit</b>                                           |       |                                                                                                                                                                                                               |
| Connection                                                     |       | terminals 1+, 2-                                                                                                                                                                                              |
| Voltage                                                        |       | for $5 \text{ V} < U_{in} < 24.3 \text{ V}$ : $\geq 0.9 \times U_{in} - (0.37 \times \text{current in mA}) - 1.0$<br>for $U_{in} > 24.3 \text{ V}$ : $\geq 21 \text{ V} - (0.36 \times \text{current in mA})$ |
| Short-circuit current                                          |       | at $U_{in} > 24.3 \text{ V}$ : $\leq 65 \text{ mA}$                                                                                                                                                           |
| Transfer current                                               |       | $\leq 40 \text{ mA}$                                                                                                                                                                                          |
| <b>Transfer characteristics</b>                                |       |                                                                                                                                                                                                               |
| Accuracy                                                       |       | 0.1 %                                                                                                                                                                                                         |
| Deviation                                                      |       |                                                                                                                                                                                                               |
| After calibration                                              |       | $\leq \pm 20 \mu\text{A}$ ; incl. calibration, linearity, hysteresis and load fluctuations at the field side up to a load of $1 \text{ k}\Omega$ at $20^\circ\text{C}$ ( $68^\circ\text{F}$ )                 |
| 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 $4 \dots 20 \text{ mA}$ and $U_{in} < 24 \text{ V}$                                                                                                                        |
| <b>Galvanic isolation</b>                                      |       |                                                                                                                                                                                                               |
| Field circuit/control circuit                                  |       | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V                                                                                                                                   |
| <b>Indicators/settings</b>                                     |       |                                                                                                                                                                                                               |
| 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                                            |       | $-20 \dots 70^\circ\text{C}$ ( $-4 \dots 158^\circ\text{F}$ )                                                                                                                                                 |
| <b>Mechanical specifications</b>                               |       |                                                                                                                                                                                                               |
| Degree of protection                                           |       | IP20                                                                                                                                                                                                          |
| Connection                                                     |       | screw terminals                                                                                                                                                                                               |
| Mass                                                           |       | approx. 100 g                                                                                                                                                                                                 |
| Dimensions                                                     |       | $20 \times 107 \times 115 \text{ mm}$ ( $0.8 \times 4.2 \times 4.5 \text{ inch}$ ) (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                                |       | BAS 98 ATEX 7343 X                                                                                                                                                                                            |
| Marking                                                        |       | ⊕ II (1)G [Ex ia Ga] IIC<br>⊕ II (1)D [Ex ia Da] IIIC<br>⊕ 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 <sub>eff</sub> (Attention! The rated voltage can be lower.)                                                                                                                                       |
| Field circuit                                                  |       |                                                                                                                                                                                                               |
| Maximum safe voltage                                           |       | $U_m$ 250 V <sub>eff</sub> (Attention! The rated voltage can be lower.)                                                                                                                                       |
| 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                                                                                                                                            |
| <b>International approvals</b>                                 |       |                                                                                                                                                                                                               |
| FM approval                                                    |       |                                                                                                                                                                                                               |

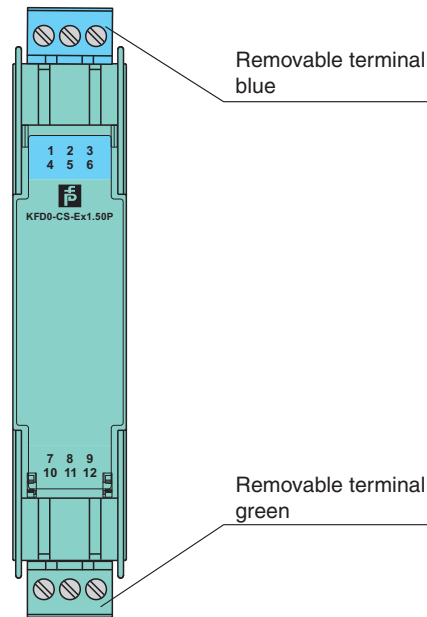
Release date: 2023-03-13 Date of issue: 2023-03-13 Filename: 294964\_eng.pdf

Technical Data

|                           |                                                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control drawing           | 116-0437                                                                                                                                                                                        |
| UL approval               | E106378                                                                                                                                                                                         |
| 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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> . |

Assembly

Front view



Matching System Components

|                                                                                     |                  |                                            |
|-------------------------------------------------------------------------------------|------------------|--------------------------------------------|
|  | <b>K-DUCT-BU</b> | Profile rail, wiring comb field side, blue |
|-------------------------------------------------------------------------------------|------------------|--------------------------------------------|

Accessories

|                                                                                     |                  |                                                            |
|-------------------------------------------------------------------------------------|------------------|------------------------------------------------------------|
|  | <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                    |