

# Repeater KFD0-CS-Ex2.54

**SIL 3**

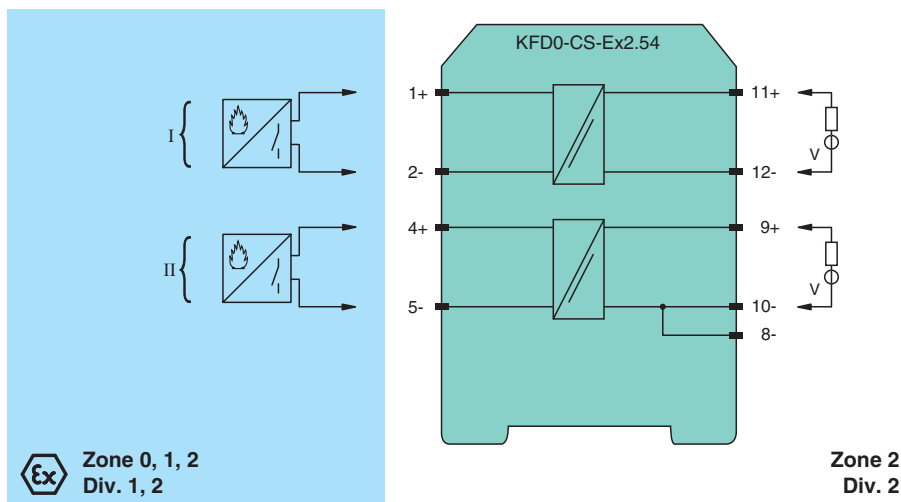
- 2-channel isolated barrier
- 24 V DC supply (loop powered)
- SMART fire alarm input
- Current input 1 mA ... 20 mA
- Up to SIL 3 acc. to IEC 61508



## Function

This isolated barrier is used for intrinsic safety applications. It provides control and signal transfer for SMART compatible fire and smoke alarm transmitters inside hazardous areas. Digital signals may be superimposed on the analog values in the hazardous or safe area and are transferred bidirectionally. The fall time of the digital signal must be less than 50 µs, the current in the hazardous area must be bigger than 1 mA. Since this isolator is loop-powered, use the technical data to verify that proper voltage is available to the field devices.

## Connection



## Technical Data

|                                      |                |                                                                                                   |
|--------------------------------------|----------------|---------------------------------------------------------------------------------------------------|
| General specifications               |                |                                                                                                   |
| Signal type                          | Analog input   |                                                                                                   |
| Functional safety related parameters |                |                                                                                                   |
| Safety Integrity Level (SIL)         | SIL 3          |                                                                                                   |
| Supply                               |                |                                                                                                   |
| Rated voltage                        | U <sub>r</sub> | loop powered                                                                                      |
| Power dissipation                    |                | < 0.2 W for U <sub>in</sub> = 24 V, I <sub>o</sub> = 20 mA                                        |
| Control circuit                      |                |                                                                                                   |
| Connection                           |                | terminals 11+, 12-; 9+, 10-, 8-                                                                   |
| Voltage                              |                | 0 ... 24 V for 4 V ≤ U <sub>e</sub> ≤ 24 V: ≥ U <sub>e</sub> - (0.41 x input current in mA) - 0.5 |
| Current                              |                | 0 ... 20 mA                                                                                       |

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

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**PEPPERL+FUCHS**

## Technical Data

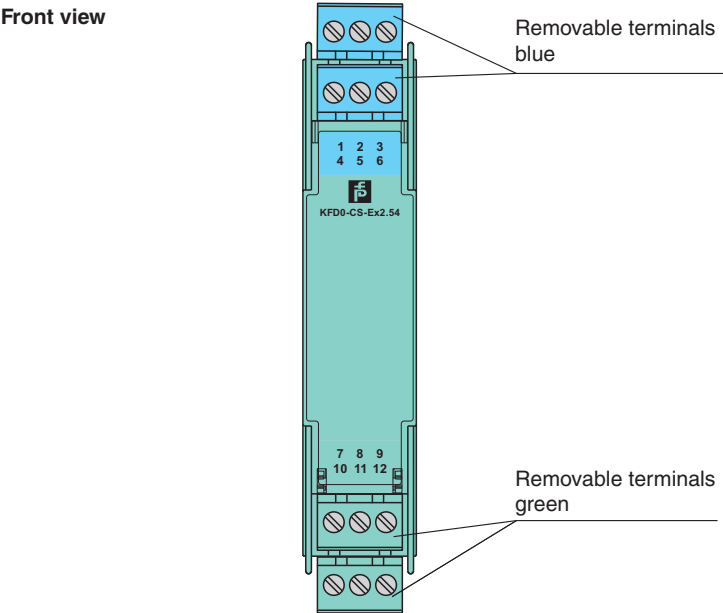
|                                                                |                |                                                                                                                                   |
|----------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Field circuit</b>                                           |                |                                                                                                                                   |
| Connection                                                     |                | terminals 1+, 2-; 4+, 5-                                                                                                          |
| Short-circuit current                                          |                | ≤ 65 mA                                                                                                                           |
| Transmission range                                             |                | current: 1 ... 20 mA<br>voltage: 4 ... 20 V DC / 0 ... 6 V <sub>ss</sub> AC                                                       |
| <b>Transfer characteristics</b>                                |                |                                                                                                                                   |
| Deviation                                                      |                |                                                                                                                                   |
| After calibration                                              |                | ≤ 3.5 mA current loss at 20 mA load current                                                                                       |
| Influence of ambient temperature                               |                | ± 20 µA / K                                                                                                                       |
| Rise time/fall time                                            |                | ≤ 50 µs (load current ≥ 1 mA)                                                                                                     |
| <b>Galvanic isolation</b>                                      |                |                                                                                                                                   |
| Input/Output                                                   |                | 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 21:2006                                                                                                                        |
| Degree of protection                                           |                | IEC 60529:2001                                                                                                                    |
| Protection against electrical shock                            |                | 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. 100 g                                                                                                                     |
| Dimensions                                                     |                | 20 x 107 x 115 mm (0.8 x 4.2 x 4.5 inch) , 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 00 ATEX 7087                                                                                                                  |
| Marking                                                        |                | Ⓔ II (1)GD, I (M1) [Ex ia Ga] IIC, [Ex ia Da] IIC, [Ex ia Ma] I (-20 °C ≤ T <sub>amb</sub> ≤ 60 °C)<br>[circuit(s) in zone 0/1/2] |
| Voltage                                                        | U <sub>o</sub> | 28 V                                                                                                                              |
| Current                                                        | I <sub>o</sub> | 93 mA                                                                                                                             |
| Power                                                          | P <sub>o</sub> | 653 mW                                                                                                                            |
| <b>Supply</b>                                                  |                |                                                                                                                                   |
| Maximum safe voltage                                           | U <sub>m</sub> | 253 V (Attention! The rated voltage can be lower.)                                                                                |
| Certificate                                                    |                | TÜV 99 ATEX 1499 X                                                                                                                |
| Marking                                                        |                | Ⓔ II 3G Ex nA II T4 Gc [device in zone 2]                                                                                         |
| <b>Galvanic isolation</b>                                      |                |                                                                                                                                   |
| Input/Output                                                   |                | safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V                                                       |
| <b>Directive conformity</b>                                    |                |                                                                                                                                   |
| Directive 2014/34/EU                                           |                | EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010                                                                    |
| <b>International approvals</b>                                 |                |                                                                                                                                   |
| FM approval                                                    |                |                                                                                                                                   |
| Control drawing                                                |                | 116-0129 (cFMus)                                                                                                                  |
| UL approval                                                    |                |                                                                                                                                   |
| Control drawing                                                |                | 116-0348 (cULus)                                                                                                                  |
| IECEx approval                                                 |                |                                                                                                                                   |
| IECEx certificate                                              |                | IECEx BAS 08.0079<br>IECEx BAS 10.0007X                                                                                           |
| IECEx marking                                                  |                | [Ex ia Ga] IIC , [Ex ia Da] IIC , [Ex ia Ma] I<br>Ex nA II T4 Gc                                                                  |

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Technical Data

| 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



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