

# Current/Voltage Driver

## KFD2-CD-Ex1.32-Ex\*\*

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current and voltage input
- Current or voltage output
- Factory configured input/output
- Accuracy 0.1 %
- Up to SIL 2 acc. to IEC 61508

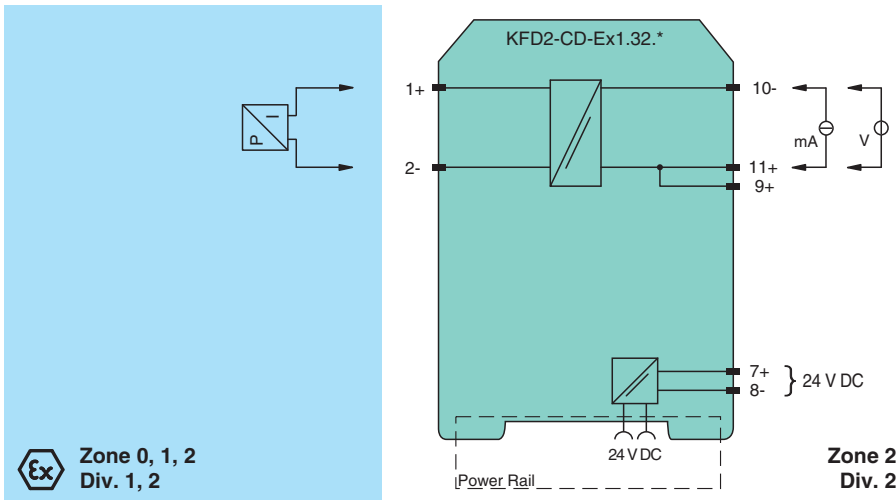


SIL 2

### Function

This isolated barrier is used for intrinsic safety applications. It drives a voltage or current signal from the safe area to I/P converters, electrical valves and positioners located in the hazardous areas. This barrier is designed to provide various inputs and outputs of voltage and current.

### Connection



### Technical Data

#### General specifications

Signal type Analog output

#### Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

#### Supply

Connection Power Rail or terminals 7+, 8-

Rated voltage  $U_r$  20 ... 35 V DC

Ripple within the supply tolerance

Rated current  $I_r$  current output:  $\leq 50$  mA ; voltage output:  $\leq 20$  mA

Power dissipation 1.2 W

#### Input

Connection side control side

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

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## Technical Data

Connection		terminals 9+, 10-, 11+
Voltage drop		optional current input: approx. 4 V at 20 mA
Input current		≤ 100 µA up to 50 °C (122 °F) at 10 V
Limit		optional current input: Input current: approx. ≤40 mA optional voltage input: input voltage: 12 V DC
Transmission range		optional current input: 0 ... 20 mA/optional voltage input: 0 ... 10 V
<b>Output</b>		
Connection side		field side
Connection		terminals 1+, 2-
Voltage		optional current output: 17 V at 20 mA/optional voltage output: 0 ... 10 V
Current		optional current output: 0 ... 20 mA/optional voltage output: ≤ 20 mA
Load		optional current output: max. 850 Ω optional voltage output: output resistance max. 3 Ω
<b>Transfer characteristics</b>		
Accuracy		0.1 %
Deviation		
After calibration		≤ ± 0.1 % incl. non-linearity and hysteresis at 20 °C (68 °F)
Influence of ambient temperature		≤ ± 0.01 %/K
Rise time		< 10 ms
<b>Galvanic isolation</b>		
Input/power supply		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>		
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1:2004
<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 02 ATEX 7203 X
Marking		⊕ II (1)G [Ex ia Ga] IIC , ⊕ II (1)D [Ex ia Da] IIIC , ⊕ I (M1) [Ex ia Ma] I
Voltage	U <sub>o</sub>	25.2 V DC
Current	I <sub>o</sub>	optional current output: 93 mA optional voltage output: 95 mA
Power	P <sub>o</sub>	optional current output: 0.586 W optional voltage output: 0.59 W
<b>Supply</b>		
Maximum safe voltage	U <sub>m</sub>	250 V (Attention! The rated voltage can be lower.)
<b>Input</b>		
Maximum safe voltage	U <sub>m</sub>	250 V (Attention! The rated voltage can be lower.)
<b>Certificate</b>		
Marking		TÜV 99 ATEX 1499 X
Galvanic isolation		
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V

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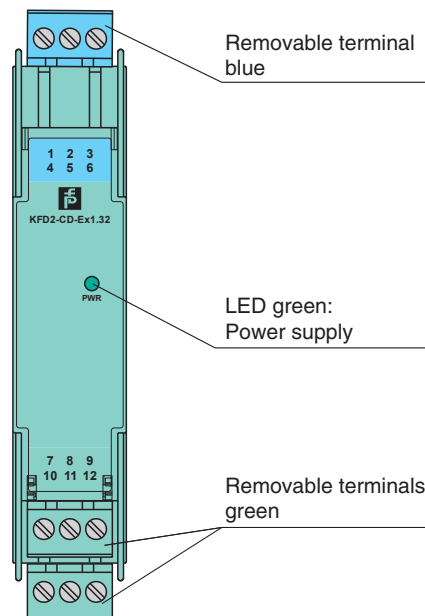
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### Technical Data

Output/power supply	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity	
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
UL approval	
Control drawing	116-0173 (cULus)
IECEX approval	IECEX BAS 05.0041
Approved for	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
<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
	<b>K-DUCT-BU</b>	

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## Matching system components



**K-DUCT-BU-UPR-03**

Profile rail with UPR-03- \* insert, 3 conductors, wiring comb field side blue

## Accessories



**KF-ST-5GN**



**KF-ST-5BU**

## Product Versions

### Input/output options, model number

This barrier is designed to provide various inputs and outputs of voltage and current:

- **Current input option**  
A current limit circuit in series to terminal 9 protects the device from damage. The max. voltage drop at the input is DC 4 V, allowing for the connection of several KFD2-CD-Ex1.32 repeaters due to the low voltage drop in order to maintain multiple galvanically isolated outputs (signal duplication).
- **Voltage input option**  
The signal is transmitted to terminals 9 and 10 across an amplifier and the DC/DC converter within the allowable voltage range. A voltage limiter circuit protects the amplifier from incorrect input switching and overvoltage, but will draw current through a 50 mA fuse during operation. The fuse can be changed only by the manufacturer.
- **Current output option**  
The open circuit voltage is DC 24 V within the allowable supply voltage range at terminals 1 and 2. The max. load that can be applied is 850  $\Omega$ .
- **Voltage output option**  
At least 20 mA is available within the allowable supply voltage range at terminals 1 and 2 which means that with 10 V output voltage, a load of at least 500  $\Omega$  must be connected.

Input	Output						Ordering example
	0 mA ... 20 mA	4 mA ... 20 mA	0 V ... 5 V	1 V ... 5 V	0 V ... 10 V	2 V ... 10 V	
0 mA ... 20 mA	0	2	–	9	12	–	Input 0 V ... 10 V, Output 4 mA ... 20 mA: is code number 8 <b>Type code:</b> KFD2-CD-Ex1.32.8
4 mA ... 20 mA	1	(0)	10	–	13	(12)	
0 V ... 5 V	3	5	(15)	–	–	–	
1 V ... 5 V	–	(3)	–	(15)	–	–	
0 V ... 10 V	6	8	21	–	15	–	
2 V ... 10 V	–	(6)	–	–	–	(15)	

For options enclosed in parentheses, the transfer range for a base type is only partially used, i. e. 4 mA ... 20 mA from the base type 0 mA ... 20 mA.