

Voltage Repeater

KFD2-VR2-Ex1.50M

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Voltage input 0 mV ... ± 50 mV
- Voltage output 0 mV ... ± 50 mV
- Selectable up/downscale sensor breakage detection

Transmission range 0 mV ... ± 50 mV



Function

This isolated barrier is used for intrinsic safety applications.

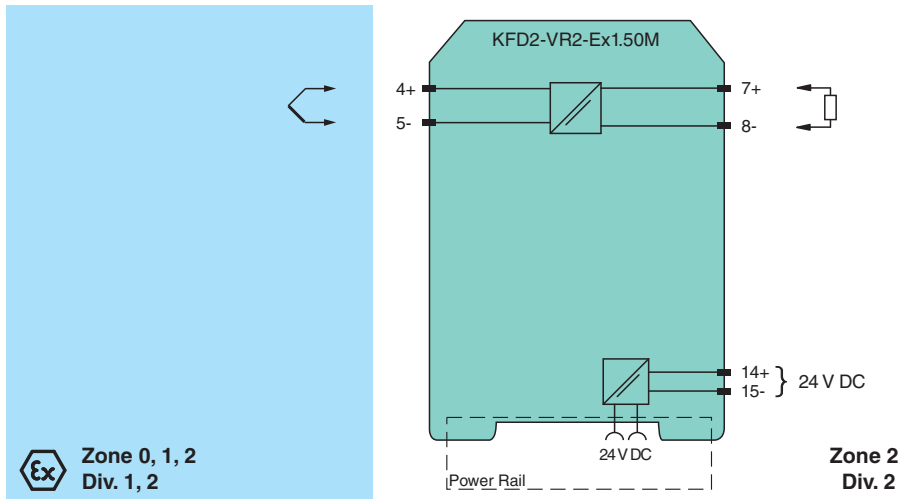
It transfers low voltage signals from load cells, strain gauges, operational amplifiers, and inductive oscillation sensors located in hazardous areas to safe areas.

The input voltage of the terminals 4 and 5 is transferred to the terminals 7 and 8.

The input, output, and power supply are galvanically isolated from each other. Upscale or downscale lead breakage monitoring is selectable via switches located on the front panel of the device.

Note: This unit requires three minutes after power-up to reach the accuracy cited in the technical data.

Connection



Technical Data

General specifications			
Signal type	Analog input		
Supply			
Connection	Power Rail or terminals 14+, 15-		
Rated voltage	U_r	19 ... 30 V DC	
Ripple	within the supply tolerance		
Rated current	I_r	≤ 11 mA	
Power dissipation/power consumption	0.3 W max.		
Input			

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

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Technical Data

Connection side	field side	
Connection	terminals 4+, 5-	
Input resistance	min. 20 M Ω	
Transmission range	-50 ... 50 mV	
Offset voltage/current	$\leq 5 \mu\text{V} / \leq 5 \text{nA}$	
Line fault detection	100 nA	
Output		
Connection side	control side	
Connection	terminals 7+, 8-	
Load	Accuracy figures for infinite load impedance. Additional 0.03 % of span for a load resistance of 10 k Ω	
Voltage	-50 ... 50 mV	
Fault signal	sensor breakage: > +100 mV (upscale), < -100 mV (downscale)	
Output resistance	max. 3 Ω	
Transfer characteristics		
Cut-off frequency	350 Hz (-3 dB)	
Deviation		
After calibration	at 20 °C (68 °F): $\pm 3 \mu\text{V}$ up to $\pm 10 \text{mV} \pm 0.03 \%$ of the span up to +50 mV/ $\pm 0.05 \%$ of the span up to -50 mV	
Influence of ambient temperature	$\pm 1 \mu\text{V/K}$ (typical $\pm 0.25 \mu\text{V/K}$)	
Absolute	< 0.25 K at 30 V voltage supply	
Rise time	$\leq 1 \text{ms}$	
Galvanic isolation		
Output/power supply	functional insulation, rated insulation voltage 50 V AC	
Indicators/settings		
Display elements	LED	
Control elements	DIP-switch	
Configuration	via DIP switches	
Labeling	space for labeling at the front	
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)	
Conformity		
Electromagnetic compatibility	NE 21	
Degree of protection	IEC 60529	
Protection against electrical shock	UL 61010-1	
Ambient conditions		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
Mechanical specifications		
Degree of protection	IP20	
Connection	screw terminals	
Mass	approx. 125 g	
Dimensions	20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) , housing type B2	
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001	
Data for application in connection with hazardous areas		
EU-Type Examination Certificate	BASEEFA 06 ATEX 0040	
Marking	Ⓔ II (1)GD, I (M1) [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I (-20 °C $\leq T_{\text{amb}} \leq 60$ °C) , [circuit(s) in zone 0/1/2]	
Voltage	U _o	5.5 V DC
Current	I _o	2.4 mA
Power	P _o	3.3 mW
Supply		
Maximum safe voltage	U _m	250 V (Attention! The rated voltage can be lower.)
Certificate	BASEEFA 09 ATEX 0219X	

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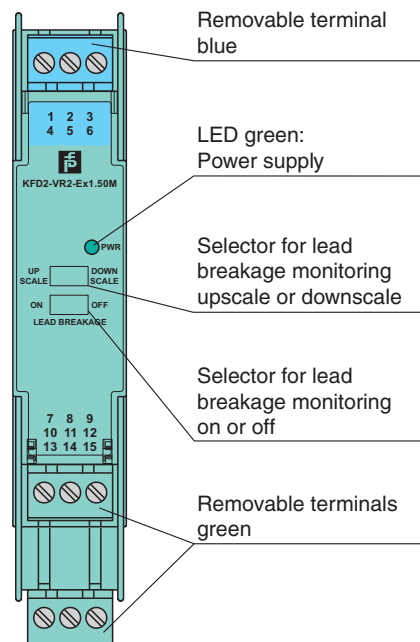
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Technical Data



Marking	Ⓔ II 3G Ex ec IIC T4 Gc
Galvanic isolation	
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/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 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals	
UL approval	
Control drawing	116-0334 (cULus)
IECEX approval	
IECEX certificate	IECEX BAS 06.0011 IECEX BAS 09.0103X
IECEX marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .
Accessories	
Optional accessories	- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03)

Assembly








Front view



Accessories

	KFD2-EB2	Power Feed Module
	KFD2-EB2.R4A.B	Power feed module, redundant supply

Accessories

	KFD2-EB2.R4A.B.SP	Power feed module with spring terminals, redundant supply
	KFD2-EB2.SP	Power feed module with spring terminals
	UPR-03	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	UPR-03-M	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	UPR-03-S	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	K-DUCT-BU	
	K-DUCT-BU-UPR-03	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue