

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



Function

This isolated barrier is used for intrinsic safety applications.

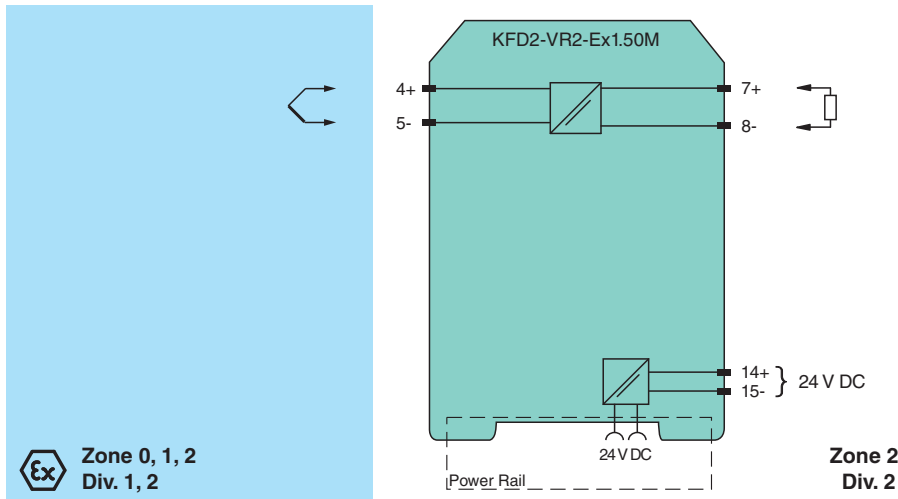
It transfers low voltage signals from load cells, strain gauges, operational amplifiers, and inductive oscillation sensors located in hazardous areas to safe areas.

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



Release date: 2021-11-25 Date of issue: 2021-11-25 Filename: 181951_eng.pdf

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

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-	
Voltage		-50 ... 50 mV	
Load		Accuracy figures for infinite load impedance. Additional 0.03 % of span for a load resistance of 10 k Ω	
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			
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			
Connection		screw terminals	
Mass		approx. 125 g	
Dimensions		20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , 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			
Marking		BASEEFA 06 ATEX 0040	
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			

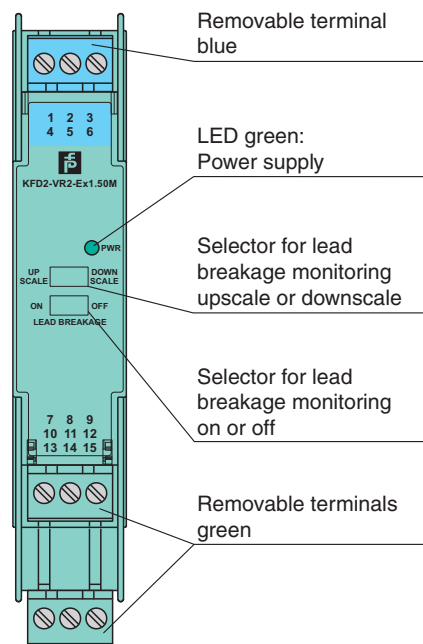
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Technical Data





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 .

Assembly



Front view






Matching System Components

	KFD2-EB2	Power Feed Module
	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

Matching System Components

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

Accessories

	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-ST-5BU	Terminal block for KF modules, 3-pin screw terminal, blue
	KF-CP	Red coding pins, packaging unit: 20 x 6