



Transmission range 0 mV ... ± 50 mV

- 1-channel
- Input EEx ia IIC
- Device installation permissible in zone 2
- 24 V DC nominal supply voltage
- EMC acc. to NAMUR NE 21

Function

The voltage repeater transfers analogue voltage signals from the hazardous area to the safe area. Input, output and power supply are galvanically isolated from each other. The input voltage at terminals 4 and 5 is transferred to the output (terminals 7 and 8). Terminal 7 has the same polarity as terminal 4.

The KFD2-VR-Ex1.50m is available with lead breakage monitoring (LB) (versions KFD2-VR-Ex1.50m.L and KFD2-VR-Ex1.50m.R.**

KFD2-VR-Ex1.50*m

without lead breakage monitoring

KFD2-VR-Ex1.50m.L

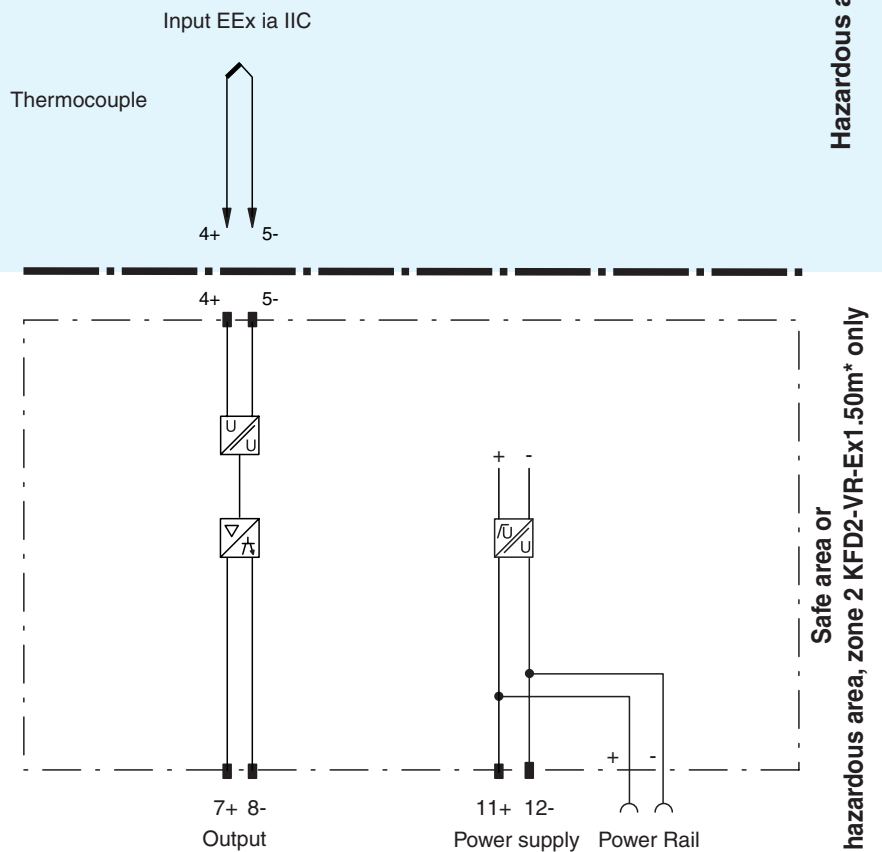
These devices are designed so that the lead breakage in the input circuit will be signaled by an output voltage of -80 mV between terminals 7 and 8.

KFD2-VR-Ex1.50m.L

These devices are designed so that the lead breakage in the input circuit will be signaled by an output voltage of +80 mV between terminals 7 and 8.

Application

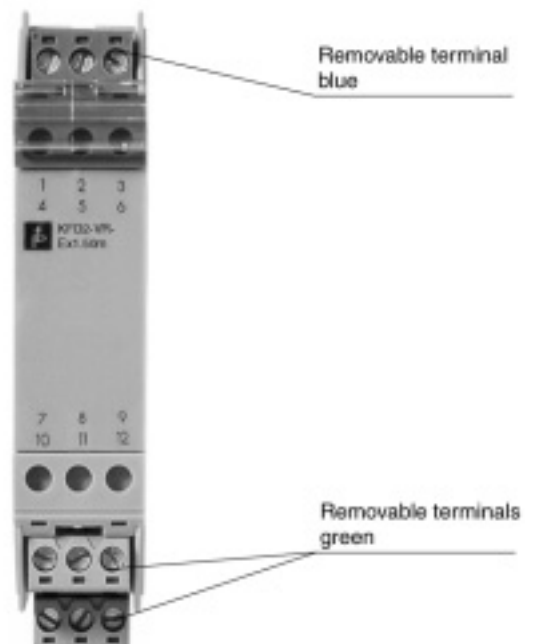
The transfer of voltage signals from thermocouples, test bridges, operations amplifiers, inductive oscillation sensors etc.



Composition

Front View

Housing type A2
(see system description)



Supply	
Connection	Power Rail or terminals 11+, 12-
Rated voltage	20 ... 35 V DC
Ripple	within the supply tolerance
Rated current	≤ 7 mA
Power loss	0,15 W
Input	
Connection	terminals 4+, 5-
Input resistance	≤ 20 MΩ (10 MΩ for .L- and .R version)
Transmission range	0 ... ± 50 mV
Offset voltage/Current	≤ 5 μV / ≤ 5 nA
Lead monitoring	Versions .L and .R
Output	
Connection	terminals 7+, 8-
Voltage	0 ... ± 50 mV
Load	accuracy figures for infinite load impedance, additional 0.03 % of span for a load resistance of 10 kOhm
Output resistance	≤ 3 Ω
Lead monitoring	+80 mV (version.L) -80 mV (version.R)
Transfer characteristics	
Deviation	
After calibration	at 293 K (20 °C), ± 3 μV up to ± 10 mV/± 0.03 % of the span up to ± 50 mV
Temperature	± 2 μV / K (typical ± 0.5 μV / K)
Cutoff frequency	-3 db @ 350 Hz
Absolute	< 0,25 K
Rise time	≤ 3,5 ms
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Input/Power supply	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Output/Power supply	basic insulation acc. to DIN EN 50178, rated insulation voltage of AC 50 V
Standard conformity	
Coordination of insulation	acc. to DIN EN 50178
Electrical isolation	acc. to DIN EN 50178
Electromagnetic compatibility	acc. to EN 50081-2 / EN 50082-2, NAMUR NE 21
Climatic conditions	acc. to DIN IEC 721
Directive conformity	
Electromagnetic compatibility	standards
Directive 89/336/EG	on request
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 125 g
Data for application in conjunction with hazardous areas	
EC-Type Examination Certificate	BASEEFA No. Ex-89.C.2120 ; for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	[Ex ia] IIC (T _{amb} = 60 °C)
Voltage U ₀	4 V DC
Current I ₀	1,8 mA
Power P ₀	1,8 mW
Type of protection [Ex ia]	
Explosion group	IIA IIB IIC
External capacitance	10000 μF 10000 μF 5000 μF
External inductance	1000 mH 1000 mH 1000 mH
Statement of conformity	TÜV 99 ATEX 1499 X (observe statement of conformity)
Group, category, type of protection, Temperature classification	⊕ II 3 G EEx nA II T4
Supply	
Safety maximum voltage U _m	250 V
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Input/Power supply	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity	
Directive 94/9 EU	standards on request
Entity parameter	
Certification number	4Z6A5.AX

FM control drawing	No. 116-0129		
Suitable for installation in division 2	yes		
Connection	terminals 4, 5		
Input I			
Voltage V_{OC}	3,9 V		
Current I_t	1,7 mA		
Explosion group	A&B	C&E	D, F&G
Max. external capacitance C_a	1000 μ F	3000 μ F	8000 μ F
Max. external inductance L_a	1 mH	1 mH	1 mH
Safety parameter			
CSA control drawing	LR 65756-13		
Control drawing	No. 116-0132		
Connection	terminals 4, 5		
Input I			
Safety parameter	3,9 V / 2280 Ohm		
Voltage V_{OC}	3,9 V		
Current I_{SC}	1,7 mA		
Explosion group	A&B	C&E	D, F&G
Max. external capacitance C_a	1000 μ F	3000 μ F	8000 μ F
Max. external inductance L_a	1000 mH	1000 mH	1000 mH

Notes

These units require about 3 minutes after power up to reach the accuracy cited in the technical data.

Accessories

PR-03 Power Rail

UPR-03 Power Rail

KFD2-EB2 power feed module

The devices are supplied with 24 V DC through the KFD2-EB2 power feed module and the PR-03 or the UPR-03 Power Rail. Each power feed module monitors and provides protection for groups of as many as 100 individual devices. The PR-03 Power Rail is an insert component for the DIN rail. The UPR-03 Power Rail is a complete unit consisting of an electrical insert and an aluminium DIN rail measuring 35 mm x 15 mm x 2000 mm. The devices are simply snapped in place to make electrical contact.

If a Power Rail is not being used, power can be supplied to the devices directly through the device terminals.