- 1-channel
- Input EEx ia IIC
- Device installation permissible in zone 2
- 24 V DC nominal supply voltage
- Lead breakage monitoring of the input circuit (L versions)
- EMC acc. to NAMUR NE 21

Transmission range 0 mV ... ± 50 mV

KFD2-VR-Ex1.50m.L

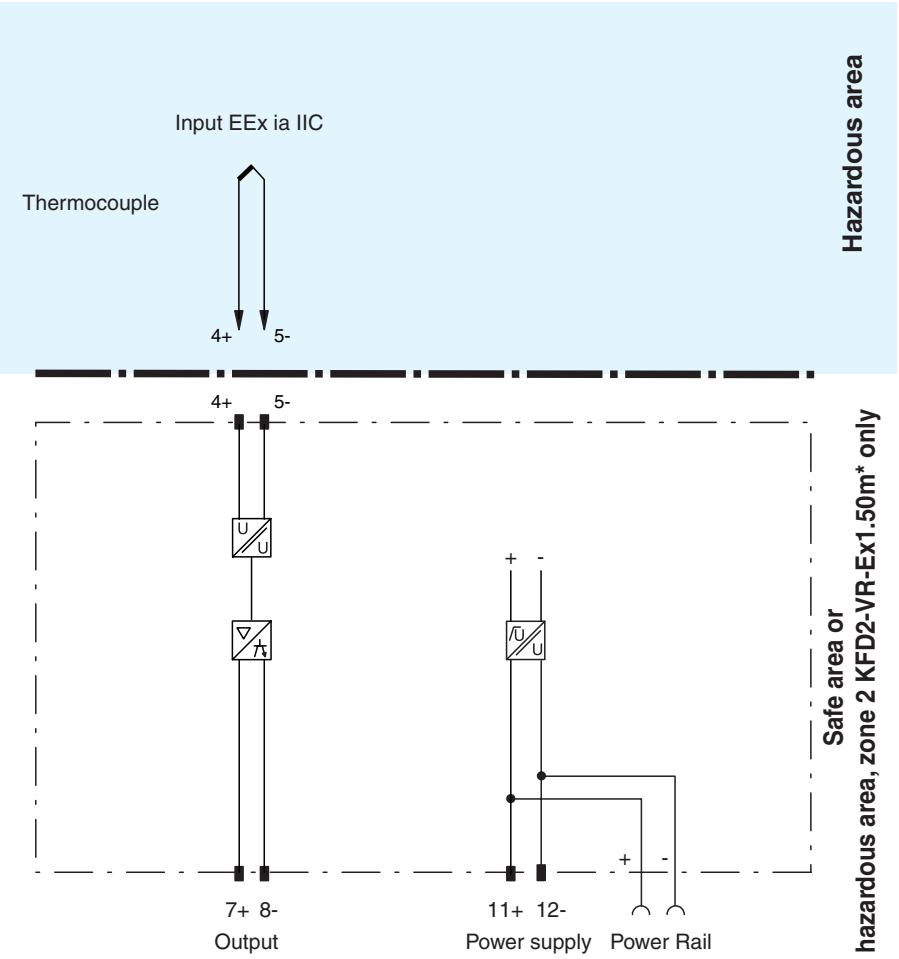
Function

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.
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.

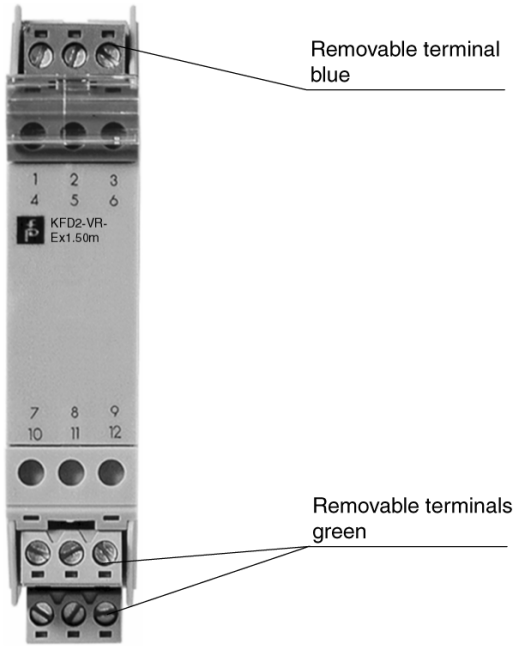
Connection



Composition

Front View

Housing type A2
(see system description)



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Supply	
Connection	Power Rail or terminals 11+, 12-
Rated voltage	10 ... 40 V DC
Ripple	within the supply tolerance
Rated current	≤ 7 mA
Power loss/Power consumption	≤ 0,28 W
Input	
Connection	terminals 4+, 5-
Input resistance	≤ 20 MΩ (10 MΩ for .L- and .R version) , see also additional information
Transmission range	0 ... ± 50 mV
Offset voltage/Current	≤ 5 µV / ≤ 5 nA
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
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/± 0.05 % of the span up to -50 mV
Temperature	± 2 µV / K (typical ± 0.5 µV / K)
Cutoff frequency	-3 db at 350 Hz
Absolute	< 0,25 K @ 40 V supply
Rise time	≤ 1 ms
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020
Input/Power supply	safe electrical isolation acc. to EN 50020
Output/Power supply	function insulation acc. to DIN EN 50178
Directive conformity	
Electromagnetic compatibility	standards
Directive 89/336/EC	on request
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
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 03 ATEX 0076 ; for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	[EEx ia] IIC (T_{amb} = 60 °C)
Voltage U_0	5,5 V DC
Current I_0	2,4 mA
Power P_0	3,3 mW
Supply	
Safety maximum voltage U_m	250 V
Type of protection [EEx ia]	
Explosion group	IIA IIB IIC
External capacitance	1000 µF 1000 µF 58 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	⟨Ex⟩ II 3 G EEx nA II T4
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020
Input/Power supply	safe electrical isolation acc. to EN 50020
Directive conformity	standards
Directive 94/9 EC	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

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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 µF	3000 µF	8000 µF
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 µF	3000 µF	8000 µF
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.

Supplementary information

EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed. For information see www.pepperl-fuchs.com.

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.

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