



- 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 (R versions)
- EMC acc. to NAMUR NE 21

Transmission range 0 mV ... ± 50 mV
KFD2-VR-Ex1.50m.R

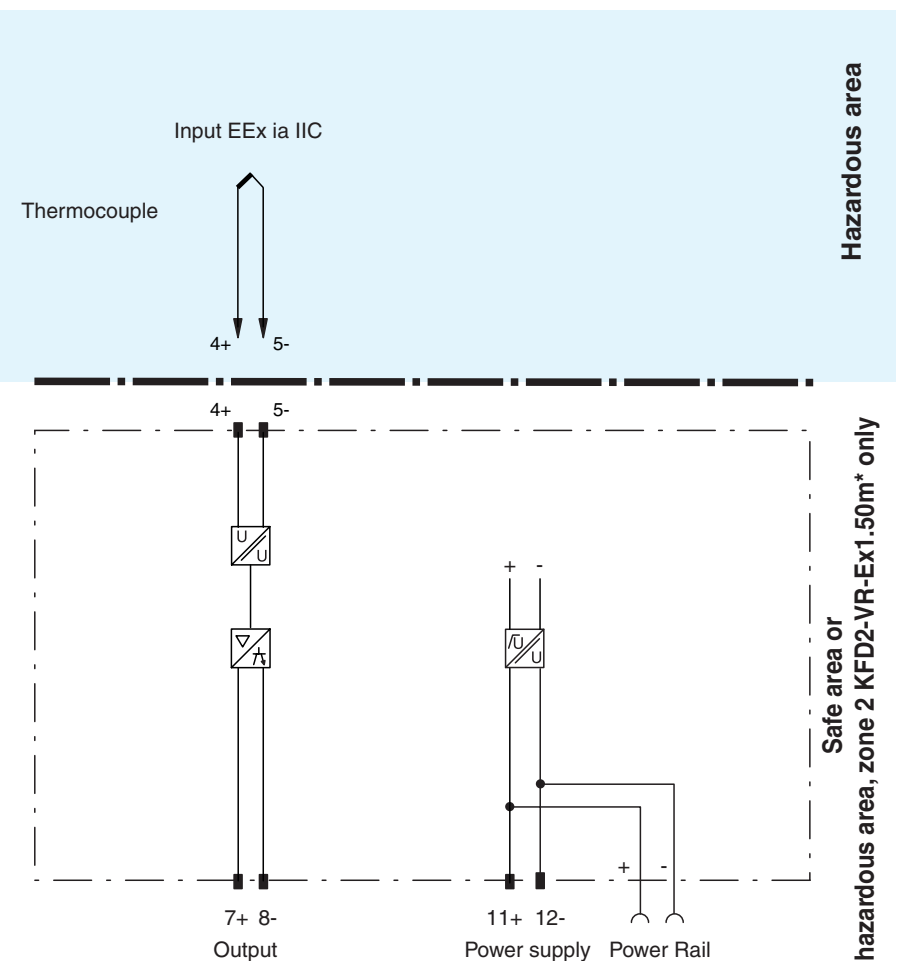
Function

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.

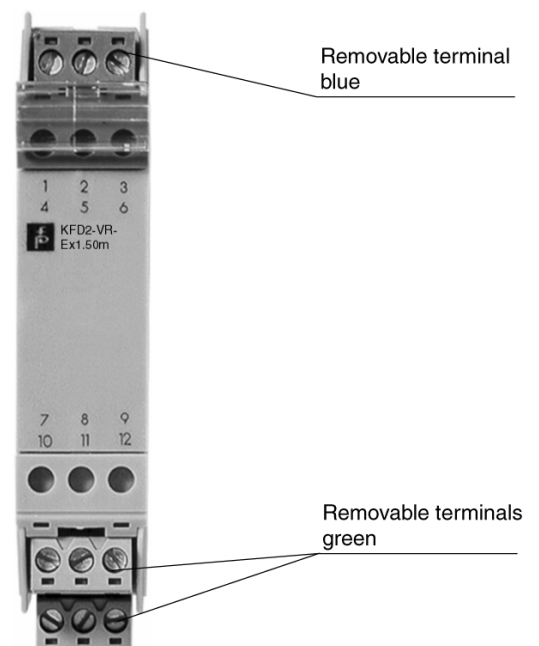
Connection



Composition

Front View

Housing type A2
 (see system description)



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)
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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
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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	⊕ II 3 G EEx nA II T4
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Electrical isolation

Input/Output	safe electrical isolation acc. to EN 50020
Input/Power supply	safe electrical isolation acc. to EN 50020

Directive conformity

Directive 94/9 EC	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

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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 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.

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.