- 1-channel
- Input EEx ia IIC
- 24 V DC nominal supply voltage
- Transmission range: 0 mV ... ±50 mV
- Lead breakage monitoring (can be deactivated)
- Device installation permissible in zone 2
- EMC acc. to NAMUR NE 21

KFD2-VR-Ex1.50m-Y127104

Function

The isolated transformer transfers analogue voltage signals from the hazardous area to the non-hazardous area.

The input, output and DC power supply are galvanically isolated from each other.

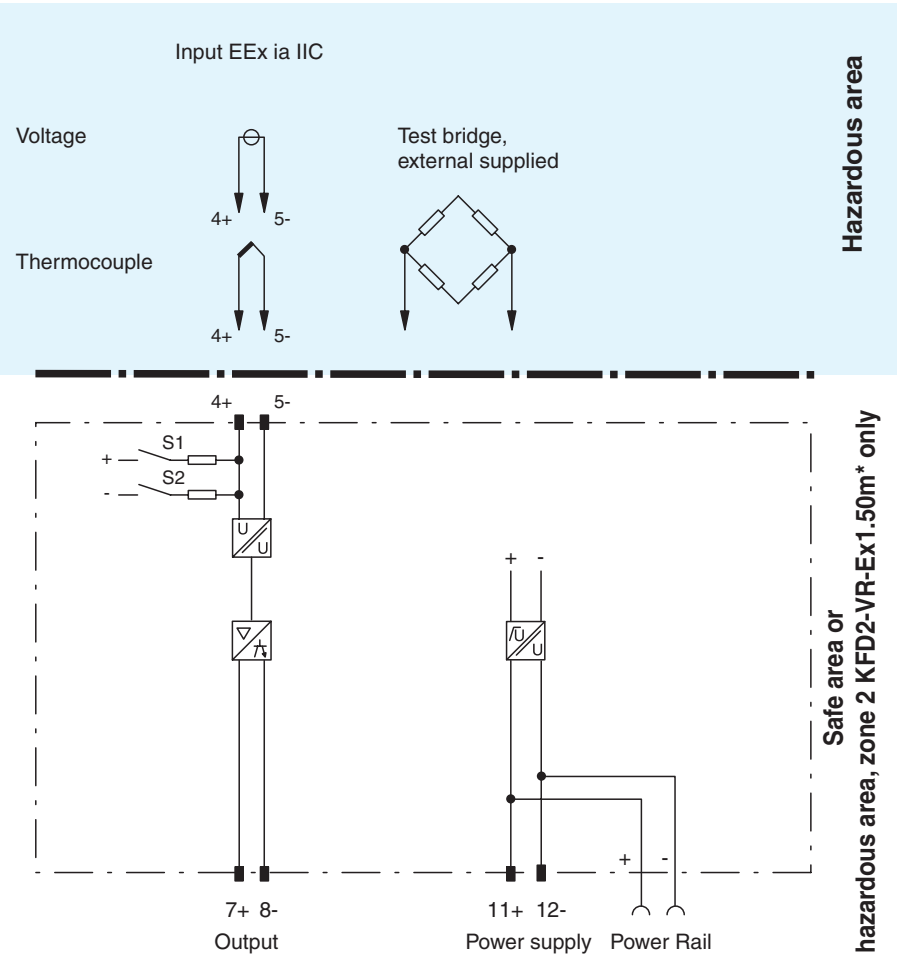
The input voltage on terminals 4 and 5 is transferred to the output (terminals 7 and 8). In this context, terminal 7 (referred to terminal 8) always has the same polarity as terminal 4 (referred to terminal 5). The polarities indicated on the unit label only serve for assigning the phase relation between the input voltage and the output voltage.

For the function of the switches, see Notes

Application

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

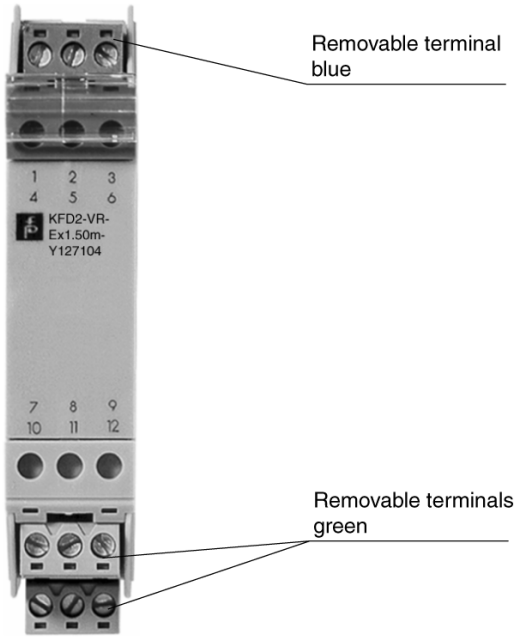
Connection



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	10 MΩ min.
Transmission range	0 ... ± 50 mV
Voltage range	
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 kΩ
Output resistance	≤ 3 Ω
Lead monitoring	+80 mV (upscale) -80 mV (downscale)
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
Influence of ambient temperature	± 2 µV/K (typical ± 0.5 µV/K)
Trip value	-3 db at 350 Hz
Absolute	< 0,25 K at 40 V voltage supply
Rise time	≤ 1 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 EN 50178, rated insulation voltage of 50 V AC
Directive conformity	
Electromagnetic compatibility	
Directive 89/336/EC	on request
Standard conformity	
Insulation coordination	EN 50178
Electrical isolation	EN 50178
Electromagnetic compatibility	EN 50081-2, EN 50082-2, NAMUR NE 21
Climatic conditions	IEC 60721
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 125 g
Dimensions	20 x 100 x 115 mm (0.8 x 3.9 x 4.5 in)
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	4 V DC
Current I_0	75 mA
Power P_0	75 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	54,39 mH 26,3 mH 6,59 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, 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 EC	on request
Entity parameter	
Input I	
Max. external inductance L_a	

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.

Notes

The user can determine the lead-break behaviour of KFD2-VR-Ex1.50m-Y127104 using two switches (S1 and S2).

Via the S1 switch, the lead-break monitoring function is set to upscale. In this way, the output voltage on terminal 7+ and terminal 8- is approx. 80 mV if the connected input circuit (terminals 4 and 5) is detected as defective.

Via the S2 switch, the lead-break monitoring function is set to downscale. In this way, the output voltage on terminal 7+ and terminal 8- is approx. -80 mV if the connected input circuit (terminals 4 and 5) is detected as defective.

If both switches are in the OFF position, the lead-break monitoring function is switched off.

Switch configuration:

no lead-break monitoring

upscale lead-break monitoring

downscale lead-break monitoring

impermissible switch position

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.