

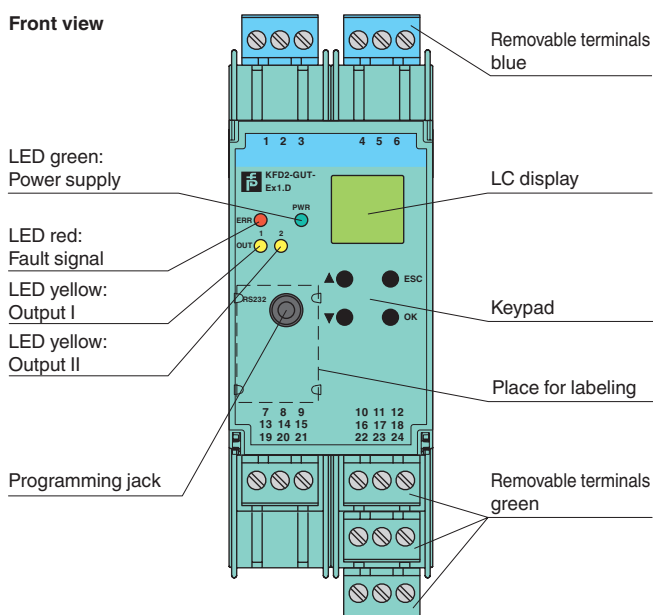
**Features**

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Thermocouple, RTD, potentiometer or voltage input
- Redundant TC input
- Current output 0/4 mA ... 20 mA
- 2 relay contact outputs
- Configurable by PACTware or keypad
- Line fault (LFD) and sensor burnout detection
- Up to SIL 2 acc. to IEC 61508/IEC 61511

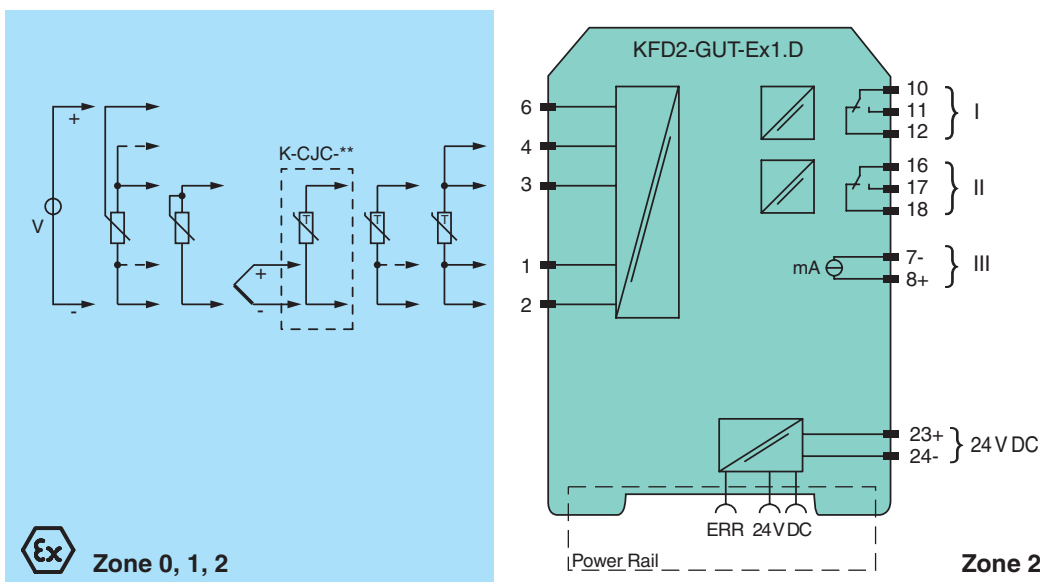
**Function**

This isolated barrier is used for intrinsic safety applications. The device converts the signal of a resistance thermometer, thermocouple, potentiometer, or voltage source to a proportional output current. It also provides a relay trip value. The removable terminal block K-CJC-\*\* is available as an accessory for internal cold junction compensation of thermocouples. A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output. The device is easily configured by the use of the PACTware configuration software. For additional information, refer to the manual and [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

**Assembly**



**Connection**



Release date 2017-08-09 14:15 Date of issue 2017-08-09 231225\_eng.xml

<b>General specifications</b>	
Signal type	Analog input
<b>Functional safety related parameters</b>	
Safety Integrity Level (SIL)	SIL 2
<b>Supply</b>	
Connection	terminals 23+, 24- or power feed module/Power Rail
Rated voltage $U_r$	20 ... 30 V DC
Rated current $I_r$	approx. 100 mA
Power dissipation/power consumption	$\leq 2 \text{ W} / 2.2 \text{ W}$
<b>Interface</b>	
Programming interface	programming socket
<b>Input</b>	
Connection side	field side
Connection	terminals 1, 2, 3, 4, 6
<b>RTD</b>	
Types of measuring	Pt100, Pt500, Pt1000, Ni100, Ni1000
Lead resistance	2-, 3-, 4-wire technology
Measurement loop monitoring	$\leq 50 \Omega$
Measurement loop monitoring	sensor breakage, sensor short-circuit
<b>Thermocouples</b>	
Cold junction compensation	type B, E, J, K, L, N, R, S, T (IEC 584-1: 1995)
Measurement loop monitoring	external and internal
<b>Potentiometer</b>	
Types of measuring	0.8 ... 20 k $\Omega$
Voltage	2-, 3-, 5-wire technology
Input resistance	0 ... 10 V, 2 ... 10 V, 0 ... 1 V, -100 ... 100 mV
Input resistance	$\geq 250 \text{ k}\Omega$ (0 ... 10 V) $\geq 1 \text{ M}\Omega$ (0 ... 1 V, -100 ... 100 mV)
Measuring current	approx. 400 $\mu\text{A}$ with resistance measuring sensor
<b>Output</b>	
Connection side	control side
Connection	output I: terminals 10, 11, 12 output II: terminals 16, 17, 18 output III: terminals 8+, 7-
Output I, II	relay
Contact loading	250 V AC / 2 A / $\cos \phi \geq 0.7$ ; 40 DC / 2 A
Mechanical life	$5 \times 10^7$ switching cycles
Energized/De-energized delay	approx. 20 ms / approx. 20 ms
Output III	Analog current output
Current range	0 ... 20 mA or 4 ... 20 mA
Open loop voltage	$\leq 24 \text{ V DC}$
Load	$\leq 650 \Omega$
Fault signal	downscale I $\leq 3.6 \text{ mA}$ , upscale I $\geq 21 \text{ mA}$ (acc. NAMUR NE43)
Collective error message	Power Rail
<b>Transfer characteristics</b>	
<b>Deviation</b>	
Temperature effect	Input: 0.005 %/K (50 ppm) of span ; current output: 0.005 %/K (50 ppm) of span
RTD	$\leq 0.2 \%$ of span
Thermocouples	max. 10 $\mu\text{V}$ deviation of CJC: $\pm 0.8 \text{ K}$
Voltage	0.1 % of span
Potentiometer	0.1 % of span when $< 5 \text{ k}\Omega$ 0.5 % of span when $> 5 \text{ k}\Omega$
Current output	$\leq 20 \mu\text{A}$
Sampling rate	approx. 700 ms
<b>Galvanic isolation</b>	
Input/Other circuits	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output I, II against each other	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output I, II/other circuits	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output III/power supply and collective error	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Interface/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
<b>Indicators/settings</b>	
Display elements	LEDs , display
Control elements	Control panel
Configuration	via operating buttons via PACTware

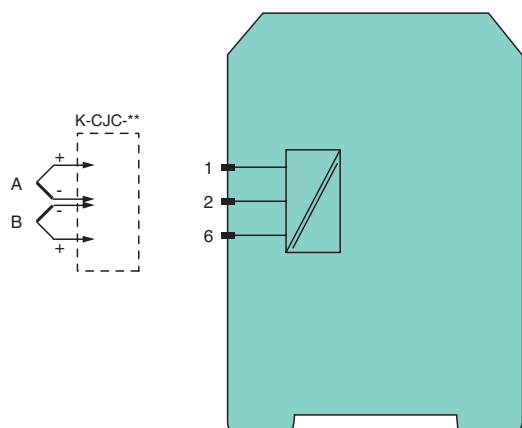
Release date 2017-08-09 14:15 Date of issue 2017-08-09 231225\_eng.xml

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Labeling	space for labeling at the front	
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)	
Low voltage		
Directive 2014/35/EU	EN 61010-1:2010	
<b>Conformity</b>		
Electromagnetic compatibility	NE 21:2007	
Degree of protection	IEC 60529:2001	
<b>Ambient conditions</b>		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
<b>Mechanical specifications</b>		
Degree of protection	IP20	
Connection	screw terminals	
Mass	300 g	
Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3	
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001	
<b>Data for application in connection with hazardous areas</b>		
EU-Type Examination Certificate	TÜV 03 ATEX 2140	
Marking	$\text{Ex}$ II (1) G [Ex ia] IIC $\text{Ex}$ II (1) D [Ex iaD]	
Input	Ex ia IIC, Ex iaD	
Supply		
Maximum safe voltage	$U_m$	40 V DC (Attention! The rated voltage can be lower.)
Input	terminals 2, 6 (for active equipment)	
Voltage	$U_o$	13.1 V
Current	$I_o$	8 mA
Power	$P_o$	67 mW
Voltage	$U_i$	29 V
Current	$I_i$	11 mA
Power	$P_i$	200 mW
Inputs	terminals 1, 2, 3, 4, 6 (for passive equipment)	
Voltage	$U_o$	13.1 V
Current	$I_o$	21 mA
Power	$P_o$	67 mW
Output		
Contact loading	253 V AC/2 A/cos $\phi$ > 0.7; 40 V DC/2 A resistive load (TÜV 03 ATEX 2140)	
Analog output		
Maximum safe voltage	$U_m$	40 V (Attention! The rated voltage can be lower.)
Interface		
Maximum safe voltage	$U_m$	40 V (Attention! The rated voltage can be lower.) , RS 232
Certificate	PF 08 CERT 1213 X	
Marking	$\text{Ex}$ II 3G Ex nA nC IIC T4 Gc	
Output I, II		
Contact loading	50 V AC/2 A/cos $\phi$ > 0.7; 40 V DC/1 A resistive load	
Galvanic isolation		
Input/Other circuits	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 60079-11:2012 , EN 60079-15:2010	
<b>General information</b>		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .	

Release date 2017-08-09 14:15 Date of issue 2017-08-09 231225\_eng.xml

**Application**



**Redundant thermocouple**

For higher availability it is possible to connect a second redundant thermocouple (B) of the same type to the temperature converter. The cold junction temperature is taken from the connected terminal block.

If the deviation of the both thermocouples (A and B) exceed the selected tolerance, an error will occur. If a lead breakage of one thermocouple (e. g. A) has been detected, an error message occurs and the value of the second thermocouple (B) will be taken for further calculation.

**Accessories**

**Power feed module KFD2-EB2**

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 150 individual devices depending on the power consumption of the devices. A galvanically isolated mechanical contact uses the Power Rail to transmit collective error messages.

**Power Rail UPR-03**

The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm. To make electrical contact, the devices are simply engaged.

**Profile Rail K-DUCT with Power Rail**

The profile rail K-DUCT is an aluminum profile rail with Power Rail insert and two integral cable ducts for system and field cables. Due to this assembly no additional cable guides are necessary.



*Power Rail and Profile Rail must not be fed via the device terminals of the individual devices!*

**K-CJC-\*\***

This removable terminal block with integrated temperature measurement sensor is needed for internal cold junction compensation for thermocouples. One K-CJC-\*\* is needed for each channel.

**PACTware™**

Device-specific drivers (DTM)

**Adapter K-ADP-USB**

Programming adapter for parameterisation via the serial USB interface of a PC/Notebook

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