

**Features**

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Thermocouple, RTD, potentiometer or voltage input
- Voltage output 0/1 V ... 5 V
- Configurable by PACTware
- 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, or potentiometer to a proportional output voltage.

The device can also be configured as a signal splitter.

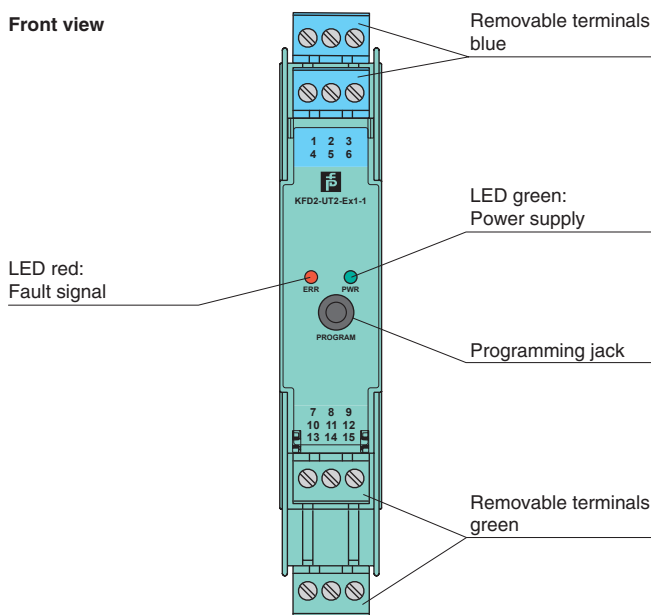
The removable terminal block K-CJC-\*\* is available as an accessory for internal cold junction compensation of thermocouples.

A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output.

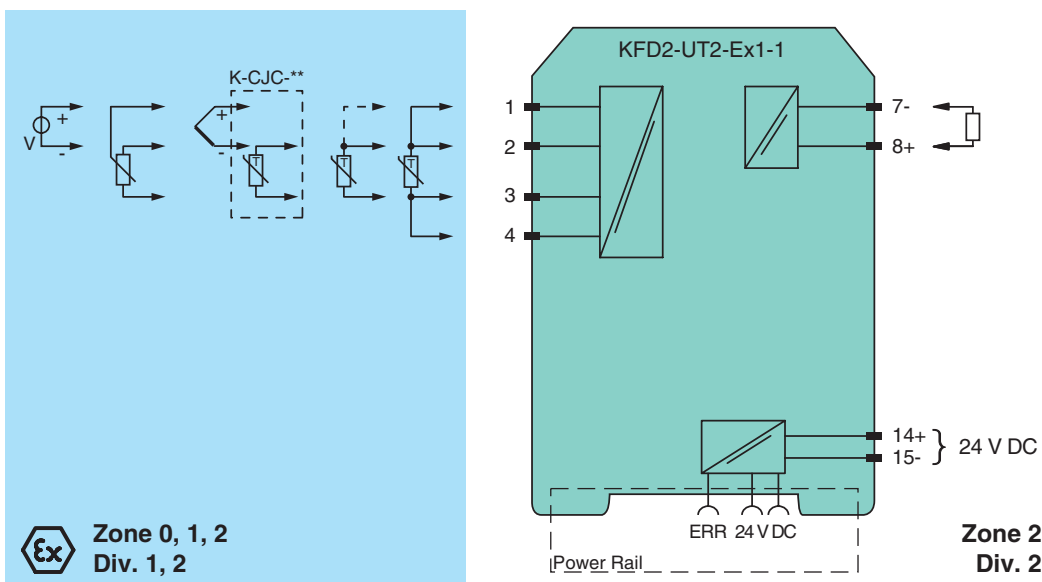
The device is easily configured by the use of the PACTware configuration software.

For additional information, refer to the manual and [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

**Assembly**



**Connection**



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

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**PEPPERL+FUCHS**

<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 14+, 15- or power feed module/Power Rail
Rated voltage $U_r$	20 ... 30 V DC
Ripple	within the supply tolerance
Power dissipation/power consumption	$\leq 0.64 \text{ W} / 0.64 \text{ W}$
<b>Interface</b>	
Programming interface	programming socket
<b>Input</b>	
Connection side	field side
Connection	terminals 1, 2, 3, 4
RTD	type Pt10, Pt50, Pt100, Pt500, Pt1000 (EN 60751: 1995) type Pt10GOST, Pt50GOST, Pt100GOST, Pt500GOST, Pt1000GOST (6651-94) type Cu10, Cu50, Cu100 (P50353-92) type Ni100 (DIN 43760)
Measuring current	approx. 200 $\mu\text{A}$ with RTD
Types of measuring	2-, 3-, 4-wire connection
Lead resistance	$\leq 50 \Omega$ per line
Measurement loop monitoring	sensor breakage, sensor short-circuit
Thermocouples	type B, E, J, K, N, R, S, T (IEC 584-1: 1995) type L (DIN 43710: 1985) type TXK, TXKH, TXA (P8.585-2001)
Cold junction compensation	external and internal
Measurement loop monitoring	sensor breakage
Potentiometer	0 ... 20 k $\Omega$ (2-wire connection), 0.8 ... 20 k $\Omega$ (3-wire connection)
Voltage	selectable within the range -100 ... 100 mV
Input resistance	$\geq 1 \text{ M}\Omega$ (-100 ... 100 mV)
<b>Output</b>	
Connection side	control side
Voltage output	0 ... 5 V or 1 ... 5 V ; output resistance: $\leq 5 \Omega$ ; load: $\geq 10 \text{ k}\Omega$
Connection	terminals 7-, 8+
Fault signal	downscale 0 V or 0.5 V, upscale 5.375 V
<b>Transfer characteristics</b>	
Deviation	
After calibration	<u>Pt100</u> : $\pm (0.06 \text{ \% of measurement value in K} + 0.1 \text{ K (4-wire connection)})$ <u>thermocouple</u> : $\pm (0.05 \text{ \% of measurement value in } ^\circ\text{C} + 1 \text{ K (1.2 K for types R and S)})$ this includes $\pm 0.8 \text{ K}$ error of the cold junction compensation <u>mV</u> : $\pm 50 \mu\text{V}$ <u>potentiometer</u> : $\pm 0.05 \text{ \% of full scale, (excludes errors due to lead resistance)}$ <u>output</u> : 1 to 5 V output: $\pm 4 \text{ mV}$ from 0 to 103.1 % of span; 0 to 5 V output: $\pm 4 \text{ mV}$ from 0.3 to 102.5 % of span
Influence of ambient temperature	deviation of CJC included: <u>Pt100</u> : $\pm (0.0015 \text{ \% of measurement value in K} + 0.0075 \text{ \% of span})/\text{K } \Delta T_{\text{amb}}^{*)}$ <u>thermocouple</u> : $\pm (0.02 \text{ K} + 0.005 \text{ \% of measurement value in } ^\circ\text{C} + 0.0075 \text{ \% of span})/\text{K } \Delta T_{\text{amb}}^{*)}$ <u>mV</u> : $\pm (0.01 \text{ \% of measurement value} + 0.0075 \text{ \% of span})/\text{K } \Delta T_{\text{amb}}^{*)}$ <u>potentiometer</u> : $\pm 0.0075 \text{ \% of span}/\text{K } \Delta T_{\text{amb}}^{*)}$ $^{*)} \Delta T_{\text{amb}}$ = ambient temperature change referenced to 23 $^\circ\text{C}$ (296 K)
Influence of supply voltage	$< 0.01 \text{ \% of span}$
Reaction time	worst case value (sensor breakage and/or sensor short circuit detection enabled) mV: 1 s, thermocouples with CJC: 1.1 s, thermocouples with fixed reference temperature: 1.1 s, 3- or 4-wire RTD: 920 ms, 2-wire RTD: 800 ms, Potentiometer: 2.05 s
<b>Galvanic isolation</b>	
Output/supply, programming input	functional insulation, rated insulation voltage 50 V AC There is no electrical isolation between the programming input and the supply. The programming cable provides galvanic isolation so that ground loops are avoided.
<b>Indicators/settings</b>	
Display elements	LEDs
Configuration	via PACTware
Labeling	space for labeling at the front
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
<b>Conformity</b>	
Electromagnetic compatibility	NE 21:2006
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2004

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<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 130 g
Dimensions		20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) , housing type B2
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		CESI 04 ATEX 143
Marking		ⓧ II (1)G [Ex ia Ga] IIC ⓧ II (1)D [Ex ia Da] IIIC ⓧ I (M1) [Ex ia Ma] I
Input		Ex ia
Inputs		terminals 1, 2, 3, 4
Voltage	U <sub>o</sub>	9 V
Current	I <sub>o</sub>	22 mA
Power	P <sub>o</sub>	50 mW
Analog outputs, power supply, collective error		
Maximum safe voltage	U <sub>m</sub>	250 V (Attention! This is not the rated voltage.)
Interface		
Maximum safe voltage	U <sub>m</sub>	250 V (Attention! The rated voltage is lower.), RS 232
Certificate		TÜV 02 ATEX 1797 X
Marking		ⓧ II 3G Ex nA II T4
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 , EN 50303:2000
<b>International approvals</b>		
UL approval		
Control drawing		116-0410
CSA approval		
Control drawing		116-0314 (cCSAus) 116-0347
IECEX approval		
IECEX certificate		IECEX TUN 07.0003 IECEX CML 16.0126X
IECEX marking		[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex nA IIC T4 Gc
<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> .
<b>Accessories</b>		
Optional accessories		- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03) - FDT framework PACTware 4.1 - device type manager DTM Interface Technology - adapter K-ADP-USB-AB

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