

**Features**

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Thermocouple, RTD, potentiometer or voltage input
- Current output 0/4 mA ... 20 mA
- Sink or source mode
- Configurable by **PACTware**
- Line fault (LFD) and sensor burnout detection

**Function**

This isolated barrier is used for intrinsic safety applications. The device converts RTD input signals or thermocouple input signals in the hazardous area to 0/4 mA ... 20mA signals in the safe area.

The removable terminal block KC-CJC-\*\* is available for thermocouples when internal cold junction compensation is desired.

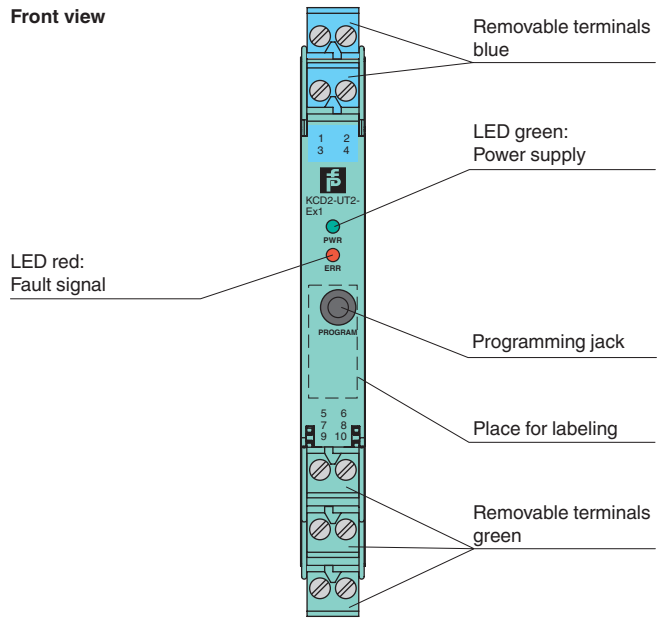
A fault is indicated by LEDs acc. to NAMUR NE44 and by user-configured fault indication outputs.

If used the device with Power Rail, a collective error messaging feature is available.

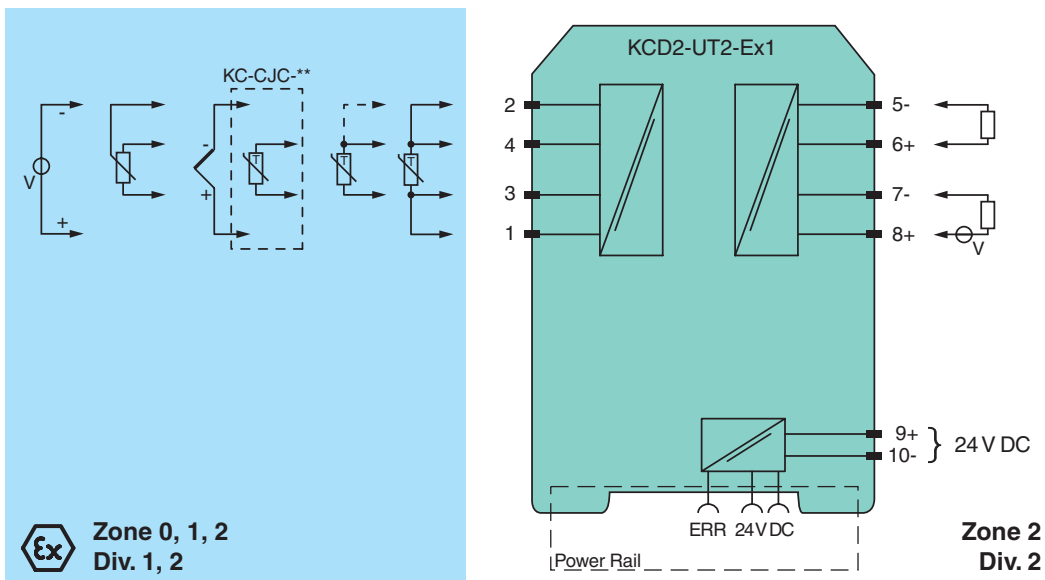
The device is easily configured by the use of the PACTware configuration software.

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".

<b>General specifications</b>	
Signal type	Analog input
<b>Supply</b>	
Connection	terminals 9+, 10- or power feed module/Power Rail
Rated voltage $U_n$	19 ... 30 V DC
Ripple	within the supply tolerance
Power loss/power consumption	$\leq 0.98 \text{ W} / 0.98 \text{ W}$
<b>Input</b>	
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 lead
Measuring circuit 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
Measuring circuit monitoring	sensor breakage
Voltage	selectable within the range -100 ... 100 mV
Potentiometer	0 ... 20 k $\Omega$ (2-wire connection), 0.8 ... 20 k $\Omega$ (3-wire connection)
Input resistance	$\geq 1 \text{ M}\Omega$ (-100 ... 100 mV)
<b>Output</b>	
Connection	terminal 5: source (-), terminal 6: source (+), terminal 7: sink(-), terminal 8: sink (+)
Output	Analog current output
Current range	0 ... 20 mA or 4 ... 20 mA
Fault signal	downscale 0 or 2 mA, upscale 21.5 mA (acc. NAMUR NE43)
Source	load 0 ... 550 $\Omega$ open-circuit voltage $\leq 18 \text{ V}$
Sink	Voltage across terminals 5 ... 30 V. If the current is supplied from a source $> 16.5 \text{ V}$ , series resistance of $\geq (V - 16.5)/0.0215 \Omega$ is needed, where V is the source voltage. The maximum value of the resistance is $(V - 5)/0.0215 \Omega$ .
<b>Transfer characteristics</b>	
<b>Deviation</b>	
After calibration	<u>Pt100</u> : $\pm (0.06 \%$ of measurement value in K + 0.1 % of span + 0.1 K (4-wire connection)) <u>thermocouple</u> : $\pm (0.05 \%$ of measurement value in $^{\circ}\text{C}$ + 0.1 % of span + 1.5 K (1.7 K for types R and S)) this includes $\pm 1.3 \text{ K}$ error of the cold junction compensation <u>mV</u> : $\pm (50 \mu\text{V} + 0.1 \%$ of span) <u>potentiometer</u> : $\pm (0.05 \%$ of full scale + 0.1 % of span, (excludes errors due to lead resistance))
Influence of ambient temperature	deviation of CJC included: <u>Pt100</u> : $\pm (0.0015 \%$ of measurement value in K + 0.006 % of span)/K $\Delta T_{\text{amb}}^{*)}$ <u>thermocouple</u> : $\pm (0.02 \text{ K} + 0.005 \%$ of measurement value in $^{\circ}\text{C}$ + 0.006 % of span)/K $\Delta T_{\text{amb}}^{*)}$ <u>mV</u> : $\pm (0.01 \%$ of measurement value + 0.006 % of span)/K $\Delta T_{\text{amb}}^{*)}$ <u>potentiometer</u> : $\pm 0.006 \%$ of span/K $\Delta T_{\text{amb}}^{*)}$ $^{*)} \Delta T_{\text{amb}}$ = ambient temperature change referenced to 23 $^{\circ}\text{C}$ (296 K)
Influence of supply voltage	$< 0.01 \%$ of span
Influence of load	$\leq 0.001 \%$ of output value per 100 $\Omega$
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>Electrical 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>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
<b>Conformity</b>	
Electromagnetic compatibility	NE 21:2011
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2004
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 $^{\circ}\text{C}$ (-4 ... 140 $^{\circ}\text{F}$ )
<b>Mechanical specifications</b>	
Degree of protection	IP20

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Mass	approx. 100 g	
Dimensions	12.5 x 114 x 124 mm (0.5 x 4.5 x 4.9 in) , housing type A2	
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001	
<b>Data for application in connection with Ex-areas</b>		
EC-Type Examination Certificate	BASEEFA 13 ATEX 0102 X , for additional certificates see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a>	
Group, category, type of protection	⊕ II (1)G [Ex ia Ga] IIC , ⊕ II (1)D [Ex ia Da] IIIC , ⊕ I (M1) [Ex ia Ma] I	
Input	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	
Inputs	terminals 1, 2, 3, 4	
Voltage	U <sub>o</sub>	9 V
Current	I <sub>o</sub>	13.1 mA
Power	P <sub>o</sub>	30 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
Statement of conformity		
Group, category, type of protection, temperature class	⊕ II 3G Ex nA II T4 Gc [device in zone 2]	
Electrical isolation		
Input/Other circuits	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
Directive conformity		
Directive 94/9/EC	EN 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010	
<b>International approvals</b>		
UL approval		
Control drawing	116-0379 (cULus)	
IECEX approval		
Approved for	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	
<b>General information</b>		
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .	

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## 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!*

### KC-CJC-\*\*

This removable terminal block with integrated temperature measurement sensor is needed for internal cold junction compensation for thermocouples.

### PACT<sup>ware</sup><sup>TM</sup>

Device-specific drivers (DTM)

### Adapter K-ADP1

Programming adapter for parameterisation via the serial RS 232 interface of a PC/Notebook

For programming, please use the new version of adapter K-ADP1 (part no. 181953, connector length 14mm). When using the previous version K-ADP1 (connector length 18 mm) the plug is exposed by approx. 3 mm. The function is not affected.

### Adapter K-ADP-USB

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