

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.

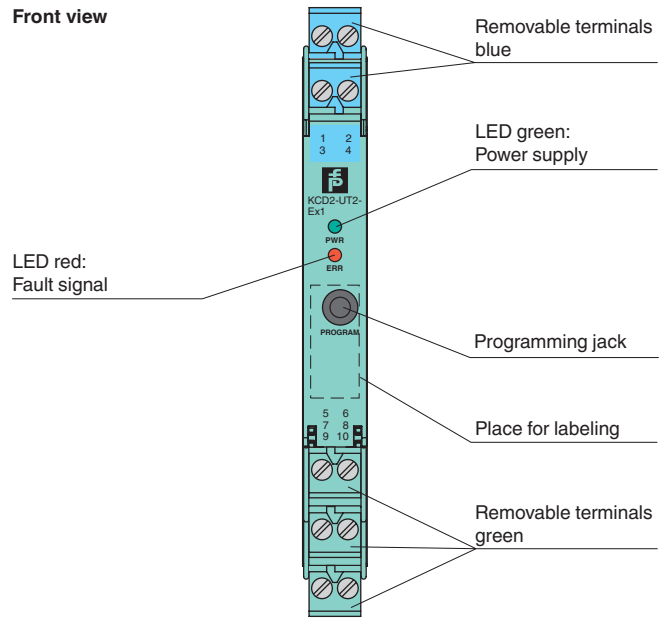
A fault is indicated by LEDs acc. to NAMUR NE44 and by user-configured fault indication outputs.

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

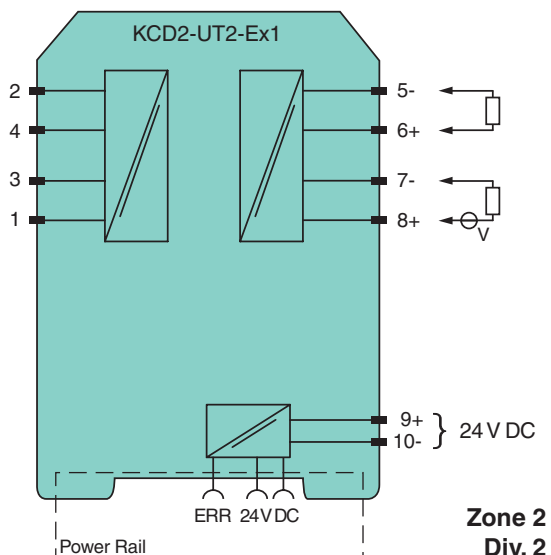
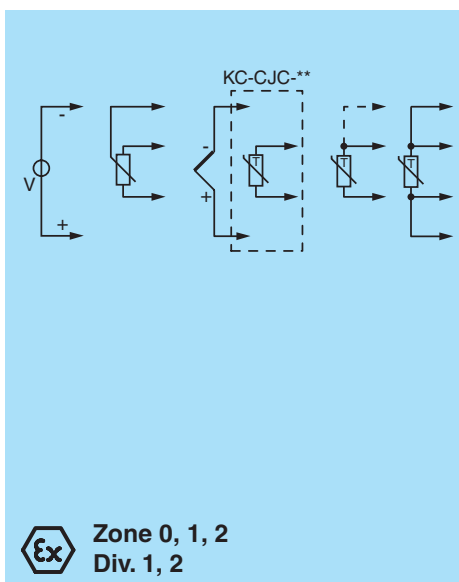
The device is easily configured by the use of the PACTware configuration software.

For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



Connection



Release date 2014-03-18 17:08 Date of issue 2015-02-27 225696_eng.xml

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

General specifications	
Signal type	Analog input
Supply	
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	≤ 0.98 W / 0.98 W
Input	
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 µA with RTD
Types of measuring	2-, 3-, 4-wire connection
Lead resistance	≤ 50 Ω 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 kΩ (2-wire connection), 0.8 ... 20 kΩ (3-wire connection)
Input resistance	≥ 1 MΩ (-100 ... 100 mV)
Output	
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 Ω open-circuit voltage ≤ 18 V
Sink	Voltage across terminals 5 ... 30 V. If the current is supplied from a source > 16.5 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 $(V - 5)/0.0215 \Omega$.
Transfer characteristics	
Deviation	
After calibration	<u>Pt100</u> : ± (0.06 % of measurement value in K + 0.1 % of span + 0.1 K (4-wire connection)) <u>thermocouple</u> : ± (0.05 % of measurement value in °C + 0.1 % of span + 1.5 K (1.7 K for types R and S)) this includes ± 1.3 K error of the cold junction compensation <u>mV</u> : ± (50 µV + 0.1 % of span) <u>potentiometer</u> : ± (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> : ± (0.0015 % of measurement value in K + 0.006 % of span)/K $\Delta T_{amb}^{*)}$ <u>thermocouple</u> : ± (0.02 K + 0.005 % of measurement value in °C + 0.006 % of span)/K $\Delta T_{amb}^{*)}$ <u>mV</u> : ± (0.01 % of measurement value + 0.006 % of span)/K $\Delta T_{amb}^{*)}$ <u>potentiometer</u> : ± 0.006 % of span/K $\Delta T_{amb}^{*)}$ $\Delta T_{amb}^{*)}$ = ambient temperature change referenced to 23 °C (296 K)
Influence of supply voltage	< 0.01 % of span
Influence of load	≤ 0.001 % of output value per 100 Ω
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
Electrical isolation	
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.
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Conformity	
Electromagnetic compatibility	NE 21:2011
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2004
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Degree of protection	IP20

Release date 2014-03-18 17:08 Date of issue 2015-02-27 225696_eng.xml

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

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	
Data for application in connection with Ex-areas		
EC-Type Examination Certificate	BASEEFA 13 ATEX 0102 X , for additional certificates see www.pepperl-fuchs.com	
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 _o	9 V
Current	I _o	13.1 mA
Power	P _o	30 mW
Analog outputs, power supply, collective error		
Maximum safe voltage	U _m	250 V (Attention! This is not the rated voltage.)
Interface		
Maximum safe voltage	U _m	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	
International approvals		
UL approval		
Control drawing	116-0379 (cULus)	
IECEX approval		
Approved for	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	
General information		
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 www.pepperl-fuchs.com .	

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^{ware}TM

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