

Features

- 1-channel signal conditioner
- 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 SIL2 acc. to IEC 61508/IEC 61511

Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits.

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.

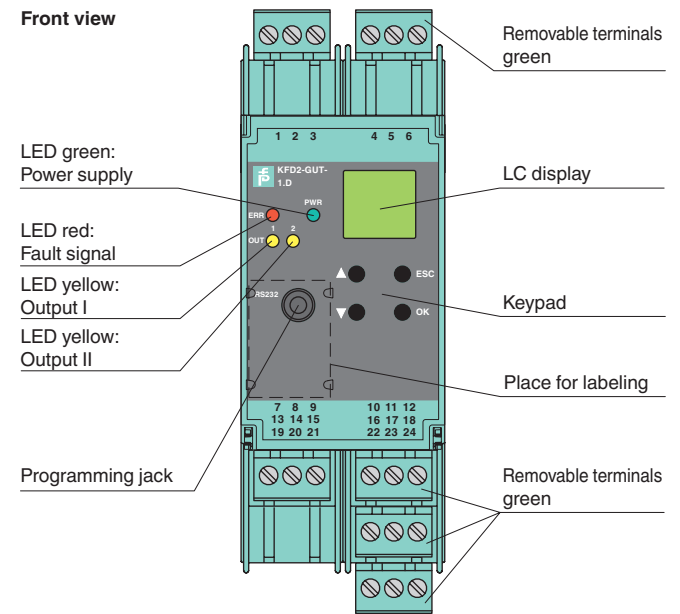
The removable terminal block K-CJC-** is available as an accessory for internal cold junction compensation of thermocouples.

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.

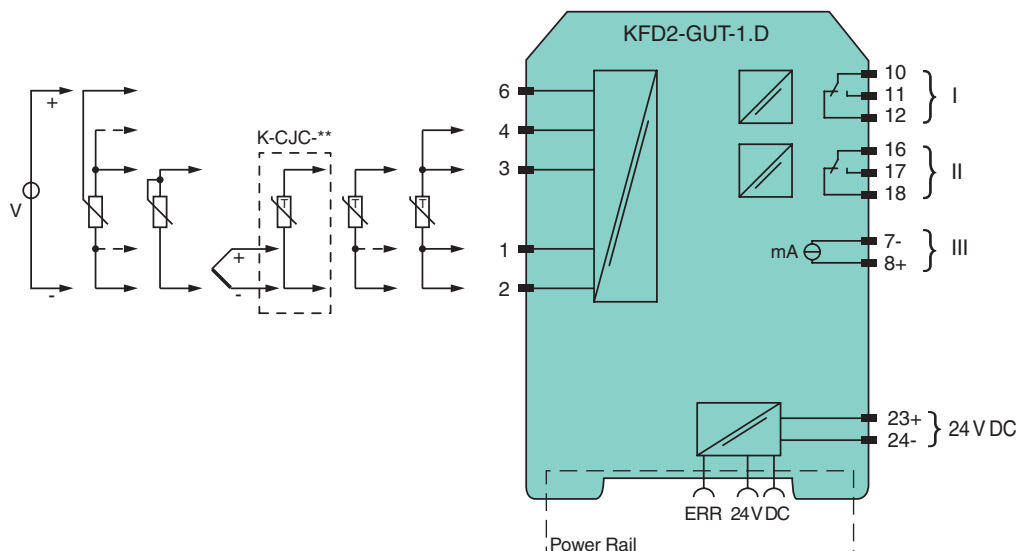
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



SIL2

Connection



Release date 2015-03-16 13:58 Date of issue 2015-03-16 231224_eng.xml

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

General specifications		
Signal type		Analog input
Supply		
Connection		terminals 23+, 24- or power feed module/Power Rail
Rated voltage	U_n	20 ... 30 V DC
Rated current	I_n	approx. 100 mA
Power loss/power consumption		$\leq 2 \text{ W} / 2.2 \text{ W}$
Input		
Connection		terminals 1, 2, 3, 4, 6
RTD		Pt100, Pt500, Pt1000, Ni100, Ni1000
Measuring current		approx. 400 μA
Types of measuring		2-, 3-, 4-wire technology
Lead resistance		$\leq 50 \Omega$
Measuring circuit monitoring		sensor breakage, sensor short-circuit
Thermocouples		type B, E, J, K, L, N, R, S, T (IEC 584-1: 1995)
Cold junction compensation		external and internal
Measuring circuit monitoring		sensor breakage
Voltage		0 ... 10 V, 2 ... 10 V, 0 ... 1 V, -100 ... 100 mV
Potentiometer		0.8 ... 20 k Ω
Types of measuring		2-, 3-, 5-wire technology
Open loop voltage		max. 5 V with resistance measuring sensor
Input resistance		$\geq 250 \text{ k}\Omega$ (0 ... 10 V) $\geq 1 \text{ M}\Omega$ (0 ... 1 V, -100 ... 100 mV)
Output		
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		5×10^7 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
Transfer characteristics		
Deviation		
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 μV 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
Electrical isolation		
Input/Other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output I, II against each other		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output I, II/other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output III/power supply and collective error		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Interface/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2013 (industrial locations)
Low voltage		
Directive 2006/95/EC		EN 61010-1:2010
Conformity		
Electromagnetic compatibility		NE 21:2007
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)

Release date 2015-03-16 13:58 Date of issue 2015-03-16 231224_eng.xml

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

Mechanical specifications	
Degree of protection	IP20
Mass	300 g
Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 in) , housing type C3
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
General information	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .

Release date 2015-03-16 13:58 Date of issue 2015-03-16 231224_eng.xml

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

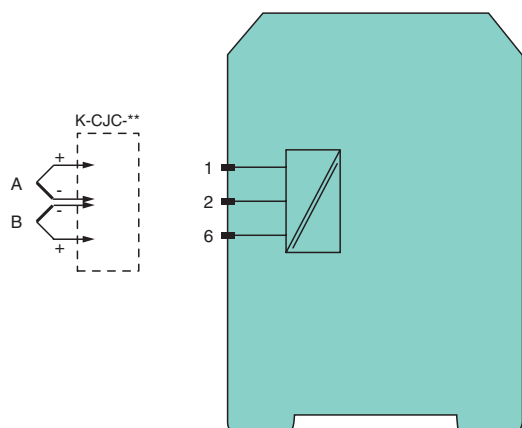
Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

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.

PACT^{ware}™

Device-specific drivers (DTM)

Adapter K-ADP-USB

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