

Features

- 1-channel signal conditioner
- Universal usage at different power supplies
- 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 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.

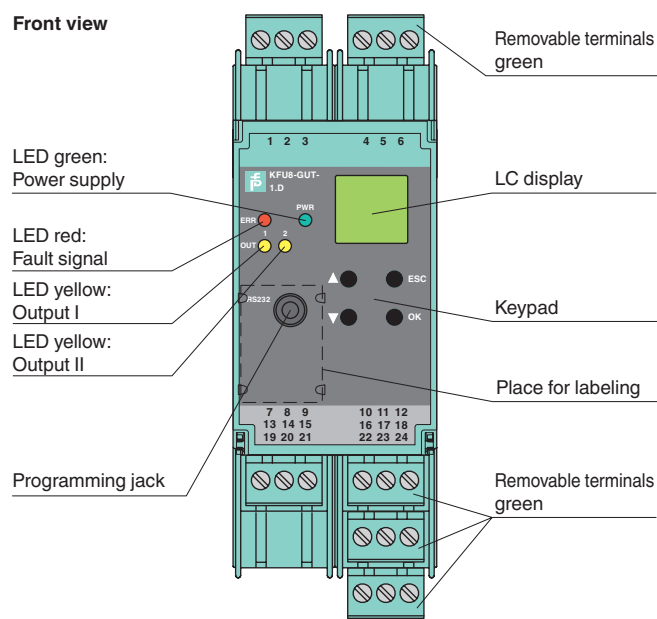
The removable terminal block K-CJC-** is available as an accessory for internal cold junction compensation of thermocouples.

A fault is signaled by LEDs acc. to NAMUR NE44.

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.

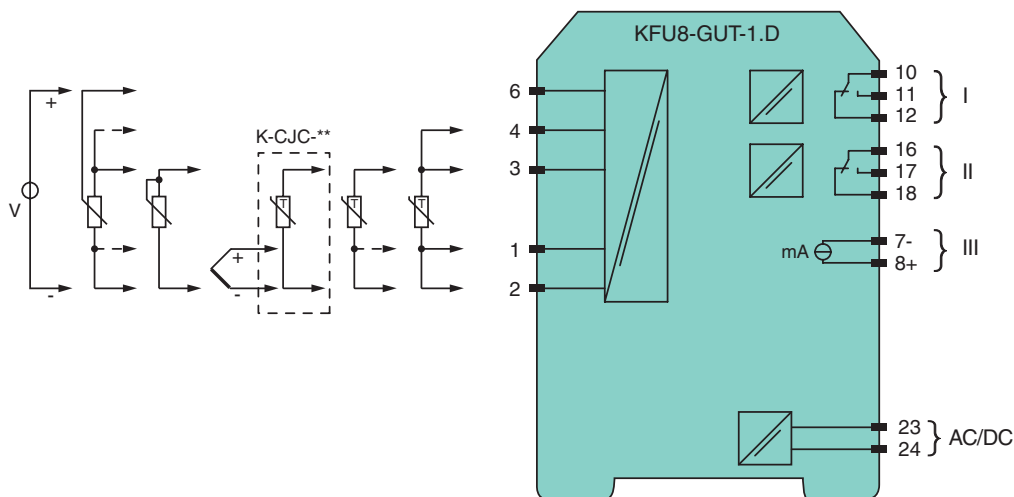
Assembly



CE

SIL 2

Connection



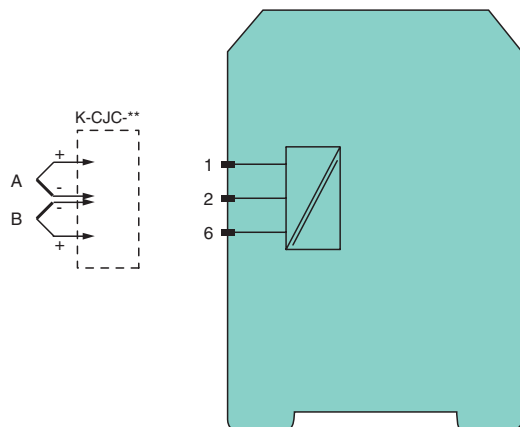
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| General specifications | |
| Signal type | Analog input |
| Functional safety related parameters | |
| Safety Integrity Level (SIL) | SIL 2 |
| Supply | |
| Connection | terminals 23, 24 |
| Rated voltage U_r | 20 ... 90 V DC / 48 ... 253 V AC |
| Power dissipation/power consumption | ≤ 2 W ; 2.5 VA / 2.2 W ; 3 VA |
| Interface | |
| Programming interface | programming socket |
| Input | |
| Connection side | field side |
| Connection | terminals 1, 2, 3, 4, 6 |
| RTD | Pt100, Pt500, Pt1000, Ni100, Ni1000 |
| Measuring current | approx. 400 μ A |
| Types of measuring | 2-, 3-, 4-wire technology |
| Lead resistance | ≤ 50 Ω |
| Measurement loop 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 |
| Measurement loop monitoring | sensor breakage |
| Potentiometer | 0.8 ... 20 k Ω |
| Types of measuring | 2-, 3-, 5-wire technology |
| Voltage | 0 ... 10 V , 2 ... 10 V , 0 ... 1 V , -100 ... 100 mV |
| Open loop voltage | max. 5 V with resistance measuring sensor |
| Input resistance | ≥ 250 k Ω (0 ... 10 V) ≥ 1 M Ω (0 ... 1 V, -100 ... 100 mV) |
| Output | |
| 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 x 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 | ≤ 24 V DC |
| Load | ≤ 650 Ω |
| Fault signal | downscale I ≤ 3.6 mA, upscale I ≥ 21 mA (acc. NAMUR NE43) |
| Transfer characteristics | |
| Deviation | |
| Temperature effect | Input: 0.005 %/K (50 ppm) of span ; current output: 0.005 %/K (50 ppm) of span |
| RTD | ≤ 0.2 % of span |
| Thermocouples | max. 10 μ V deviation of CJC: ±0.8 K |
| Voltage | 0.1 % of span |
| Potentiometer | 0.1 % of span when < 5 k Ω 0.5 % of span when > 5 k Ω |
| Current output | ≤ 20 μ A |
| Sampling rate | approx. 700 ms |
| Galvanic 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 | 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} |
| Indicators/settings | |
| Display elements | LEDs , display |
| Control elements | Control panel |
| Configuration | via operating buttons via PACTware |
| Labeling | space for labeling at the front |
| Directive conformity | |

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| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 (industrial locations) |
| Low voltage | |
| Directive 2014/35/EU | 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) |
| Mechanical specifications | |
| 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 |
| General information | |
| Supplementary information | Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.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

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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