



Universal Temperature Converter KFD2-UT2-2

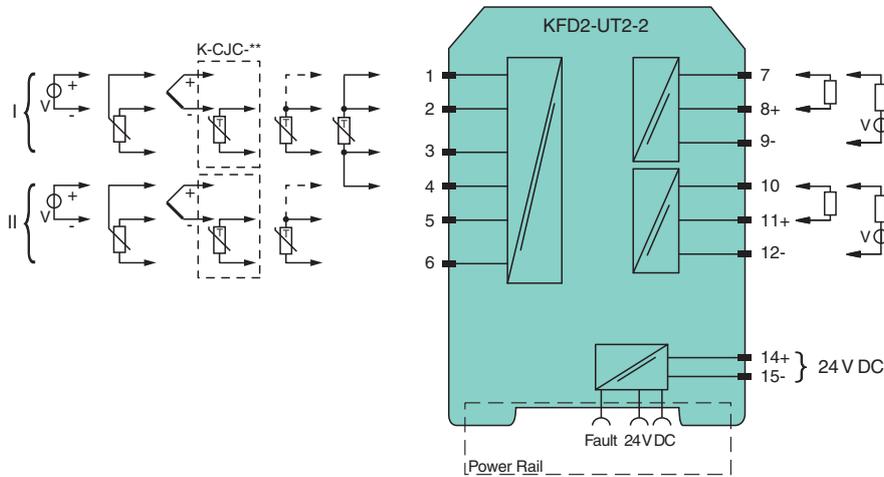
- 2-channel signal conditioner
- 24 V DC supply (Power Rail)
- Thermocouple, RTD, potentiometer or voltage input
- Usable as signal splitter (1 input and 2 outputs)
- Current output 0/4 mA ... 20 mA
- Sink or source mode
- Configurable by PACTware
- Line fault (LFD) and sensor burnout detection
- Up to SIL 2 acc. to IEC/EN 61508 / IEC/EN 61511

CE SIL2

Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits. The device converts the signal of a resistance thermometer, thermocouple, or potentiometer to a proportional output current. 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.

Connection



Technical Data

| | |
|---|--|
| General specifications | |
| Signal type | Analog input |
| Functional safety related parameters | |
| Safety Integrity Level (SIL) | SIL 2 |
| Supply | |
| 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 | ≤ 1.53 W |
| Power consumption | max. 1.53 W |

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

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Technical Data

| | |
|----------------------------------|---|
| Interface | |
| Programming interface | programming socket |
| Input | |
| Connection side | field side |
| Connection | terminals 1, 2, 3; 4, 5, 6 |
| 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-wire connection |
| Lead resistance | max. 50 Ω 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 kΩ (2-wire connection), 0.8 ... 20 kΩ (3-wire connection) |
| Voltage | selectable within the range -100 ... 100 mV |
| Input resistance | ≥ 1 MΩ (-100 ... 100 mV) |
| Output | |
| Connection side | control side |
| Connection | output I: terminal 7: source (-), sink (+), terminal 8: source (+), terminal 9: sink(-) output II: terminal 10: source (-), sink (+), terminal 11: source (+), terminal 12: sink(-) |
| Output I, II | 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 | Pt100: ± (0.06 % of measurement value in K + 0.1 % of span + 0.1 K (4-wire connection)) thermocouple: ± (0.05 % of measurement value in °C + 0.1 % of span + 1 K (1.2 K for types R and S)), includes ± 0.8 K fault of the cold junction compensation (CJC) mV: ± (50 µV + 0.1 % of span) potentiometer: ± (0.05 % of full scale + 0.1 % of span, (excludes faults due to lead resistance)) |
| Influence of ambient temperature | Pt100: ± (0.0015 % of measurement value in K + 0.006 % of span)/K $\Delta T_{amb}^{1)}$ thermocouple: ± (0.02 K + 0.005 % of measurement value in °C + 0.006 % of span)/K $\Delta T_{amb}^{1)}$, influence of cold junction compensation (CJC) included mV: ± (0.01 % of measurement value + 0.006 % of span)/K $\Delta T_{amb}^{1)}$ potentiometer: ± 0.006 % of span/K $\Delta T_{amb}^{1)}$ ¹⁾ ΔT_{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: 1.2 s, thermocouples with CJC: 1.4 s, thermocouples with fixed ref. temp: 1.4 s, 3- or 4-wire RTD: 1.1 s, 2-wire RTD: 920 ms, Potentiometer: 3-wire connection 2.8 s, 2-wire connection 2.25 s |
| Galvanic isolation | |
| Input/Other circuits | basic insulation according to IEC 61010-1, rated insulation voltage 300 V _{eff} |
| 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. |
| Indicators/settings | |
| Display elements | LEDs |
| Configuration | via PACTware |
| Labeling | space for labeling at the front |

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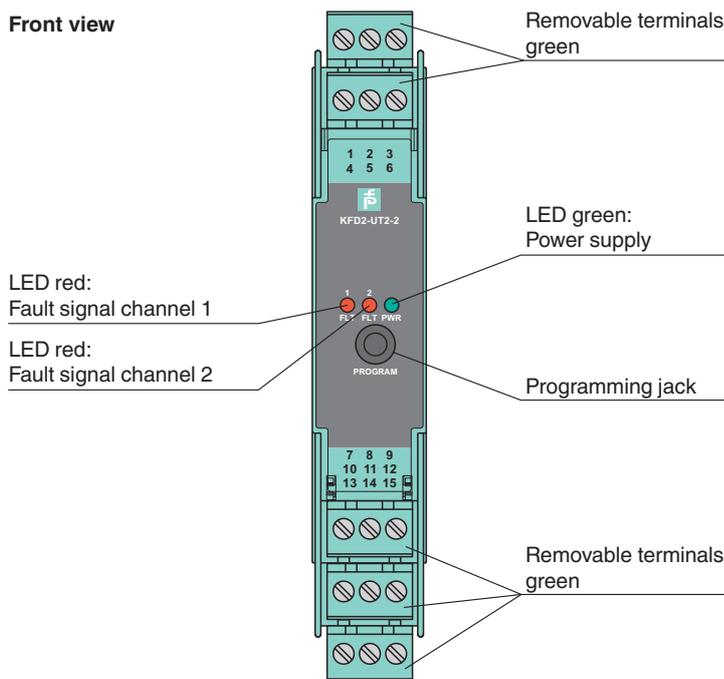
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Technical Data

| | |
|----------------------------------|---|
| Directive conformity | |
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 (industrial locations) |
| Conformity | |
| Electromagnetic compatibility | |
| 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 | |
| | approx. 130 g |
| Dimensions | |
| | 20 x 119 x 115 mm (0.8 x 4.7 x 4.5 inch) (W x H x D) , housing type B2 |
| 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 . |

Assembly

Front view



Matching System Components

| | | |
|---|---------------------------------|--|
|  | DTM Interface Technology | Device type manager (DTM) for interface technology |
|  | PACTware 5.0 | FDT Framework |
|  | K-ADP-USB | Programming adapter with USB interface |

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Matching System Components

| | | |
|---|-------------------------|---|
|  | KFD2-EB2 | Power Feed Module |
|  | UPR-03 | Universal Power Rail with end caps and cover, 3 conductors, length: 2 m |
|  | UPR-03-M | Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m |
|  | UPR-03-S | Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m |
|  | K-DUCT-GY | Profile rail, wiring comb field side, gray |
|  | K-DUCT-GY-UPR-03 | Profile rail with UPR-03-* insert, 3 conductors, wiring comb field side, gray |

Accessories

| | | |
|---|------------------|--|
|  | K-250R | Measuring resistor |
|  | K-500R0%1 | Measuring resistor |
|  | K-CJC-BK | Terminal block for cold junction compensation, 3-pin screw terminal, black |
|  | KF-ST-5GN | Terminal block for KF modules, 3-pin screw terminal, green |
|  | KF-CP | Red coding pins, packaging unit: 20 x 6 |