

Features

- 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)
- Voltage output 0/1 V ... 5 V
- Configurable by PACTware
- 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, or potentiometer to a proportional output voltage.

The device can also be configured as a signal splitter.

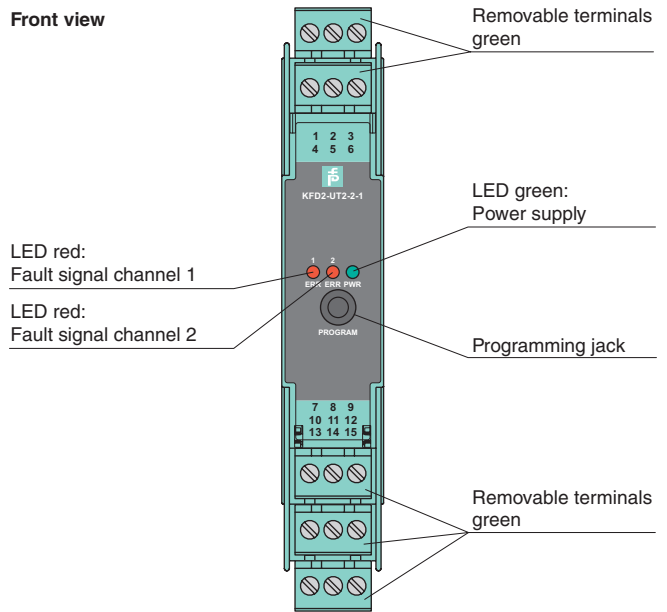
The removable terminal block K-CJC-** is available as an accessory for internal cold junction compensation of thermocouples.

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.

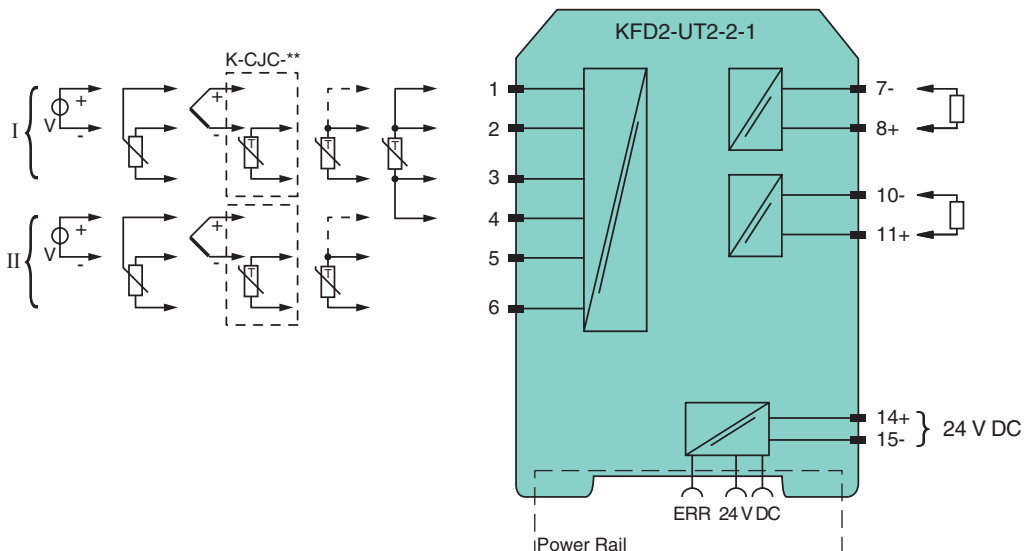
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



SIL 2

Connection



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

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/power consumption	$\leq 0.8 \text{ W} / 0.8 \text{ W}$
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	$\leq 50 \Omega$ 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 k Ω (2-wire connection), 0.8 ... 20 k Ω (3-wire connection)
Voltage	selectable within the range -100 ... 100 mV
Input resistance	$\geq 1 \text{ M}\Omega$ (-100 ... 100 mV)
Output	
Connection side	control side
Voltage output	0 ... 5 V or 1 ... 5 V ; output resistance: $\leq 5 \Omega$; load: $\geq 10 \text{ k}\Omega$
Connection	output I: terminals 7-, 8+ output II: terminals 10-, 11+
Fault signal	downscale 0 V or 0.5 V, upscale 5.375 V
Transfer characteristics	
Deviation	
After calibration	Pt100: $\pm (0.06 \%$ of measurement value in K + 0.1 K (4-wire connection)) thermocouple: $\pm (0.05 \%$ of measurement value in $^{\circ}\text{C}$ + 1 K (1.2 K for types R and S)) this includes $\pm 0.8 \text{ K}$ error of the cold junction compensation mV: $\pm 50 \mu\text{V}$ potentiometer: $\pm 0.05 \%$ of full scale, (excludes errors due to lead resistance) output: 1 to 5 V output: $\pm 4 \text{ mV}$ from 0 to 103.1 % of span; 0 to 5 V output: $\pm 4 \text{ mV}$ from 0.3 to 102.5 % of span
Influence of ambient temperature	deviation of CJC included: Pt100: $\pm (0.0015 \%$ of measurement value in K + 0.006 % of span)/K $\Delta T_{\text{amb}}^{\wedge 1}$ thermocouple: $\pm (0.02 \text{ K} + 0.005 \%$ of measurement value in $^{\circ}\text{C}$ + 0.006 % of span)/K $\Delta T_{\text{amb}}^{\wedge 1}$ mV: $\pm (0.01 \%$ of measurement value + 0.006 % of span)/K $\Delta T_{\text{amb}}^{\wedge 1}$ potentiometer: $\pm 0.006 \%$ of span/K $\Delta T_{\text{amb}}^{\wedge 1}$ $\wedge 1) \Delta T_{\text{amb}}$ = ambient temperature change referenced to 23 $^{\circ}\text{C}$ (296 K)
Influence of supply voltage	$< 0.01 \%$ of span
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
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
Conformity	
Electromagnetic compatibility	NE 21:2006

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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) , 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 .

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}TM

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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