

Features

- 1-channel signal conditioner
- 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
- 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 current.

The device can also be configured as a signal splitter.

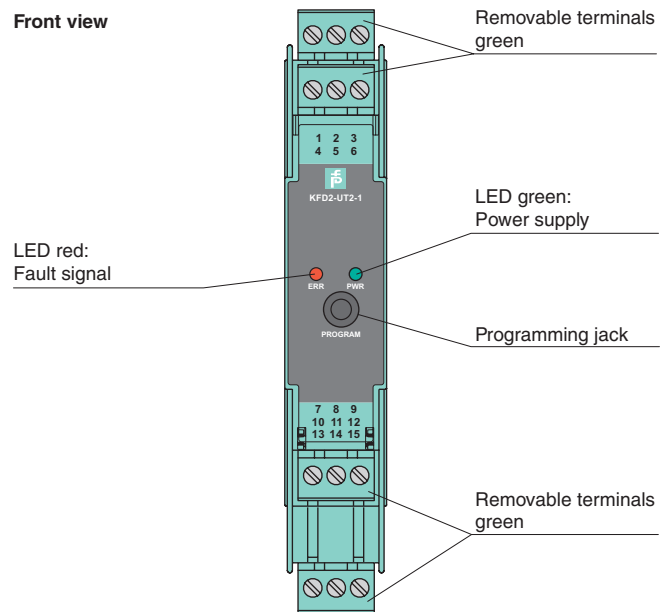
The removable terminal block K-CJC-** is available as an accessory for internal cold junction compensation of thermocouples.

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.

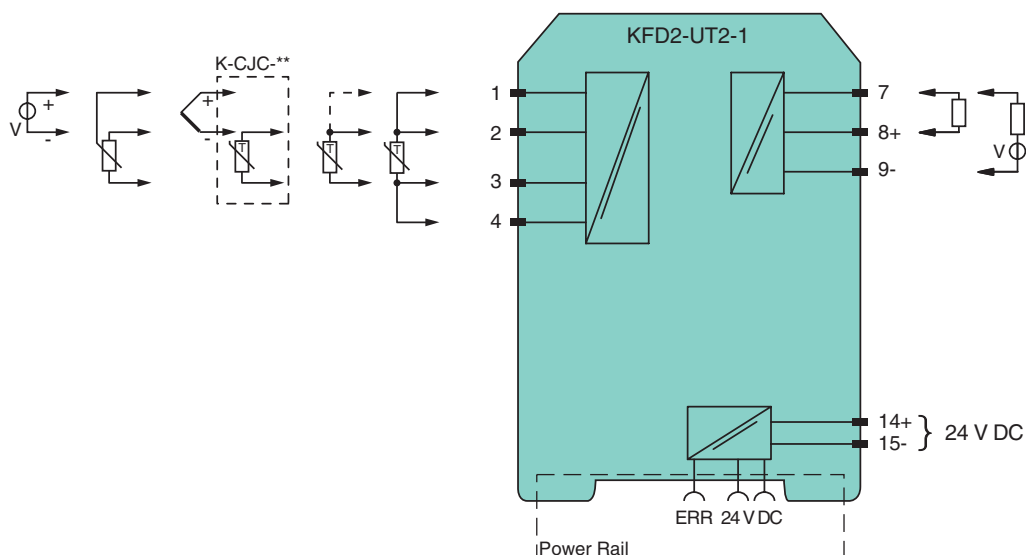
Assembly



CE

SIL 2

Connection



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	$\leq 0.98 \text{ W} / 0.98 \text{ W}$
Interface	
Programming interface	programming socket
Input	
Connection side	field side
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	$\leq 50 \Omega$ 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
Connection	output I: terminal 7: source (-), sink (+), terminal 8: source (+), terminal 9: 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 $\leq 18 \text{ V}$
Sink	Voltage across terminals 5 ... 30 V. If the current is supplied from a source $> 16.5 \text{ V}$, 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: $\pm (0.06 \%$ of measurement value in K $+ 0.1 \%$ of span $+ 0.1 \text{ K}$ (4-wire connection)) thermocouple: $\pm (0.05 \%$ of measurement value in $^{\circ}\text{C} + 0.1 \%$ of span $+ 1 \text{ K}$ (1.2 K for types R and S)) this includes $\pm 0.8 \text{ K}$ error of the cold junction compensation mV: $\pm (50 \mu\text{V} + 0.1 \%$ of span) potentiometer: $\pm (0.05 \%$ of full scale $+ 0.1 \%$ of span, (excludes errors due to lead resistance))
Influence of ambient temperature	deviation of CJC included: Pt100: $\pm (0.0015 \%$ of measurement value in K $+ 0.006 \%$ of span)/K $\Delta T_{\text{amb}}^{\text{*)}$ thermocouple: $\pm (0.02 \text{ K} + 0.005 \%$ of measurement value in $^{\circ}\text{C} + 0.006 \%$ of span)/K $\Delta T_{\text{amb}}^{\text{*)}$ mV: $\pm (0.01 \%$ of measurement value $+ 0.006 \%$ of span)/K $\Delta T_{\text{amb}}^{\text{*)}$ potentiometer: $\pm 0.006 \%$ of span/K $\Delta T_{\text{amb}}^{\text{*)}$ $\text{*) } \Delta T_{\text{amb}}$ = ambient temperature change referenced to 23 $^{\circ}\text{C}$ (296 K)
Influence of supply voltage	$< 0.01 \%$ of span
Influence of load	$\leq 0.001 \%$ 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
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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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
Conformity	
Electromagnetic compatibility	NE 21:2006
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	
Optional accessories	<ul style="list-style-type: none"> - power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-GY(-UPR-03) - FDT framework PACTware 5.X - device type manager DTM Interface Technology - adapter K-ADP-USB



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