Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Thermocouple, RTD, voltage or current input
- 2 relay contact outputs
- Programmable high/low alarm
- Configurable by PACTware
- Sensor breakage detection

Function

This isolated barrier is used for intrinsic safety applications.

The device accepts a variety of inputs including RTDs or thermocouples. The device provides a relay trip whenever it reaches a userprogrammed set point.

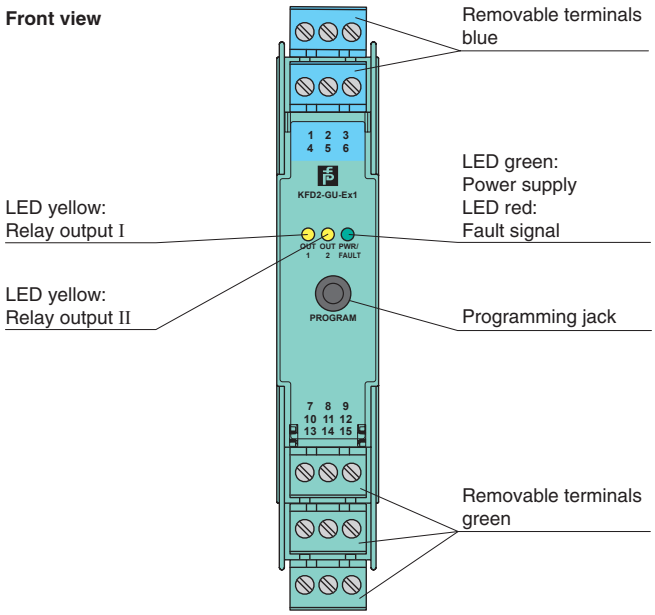
The removable terminal block K-CJC-** is available as an accessory for internal cold junction compensation of thermocouples.

A fault is indicated by LEDs acc. to NAMUR NE44 and by user-configured fault indication outputs.

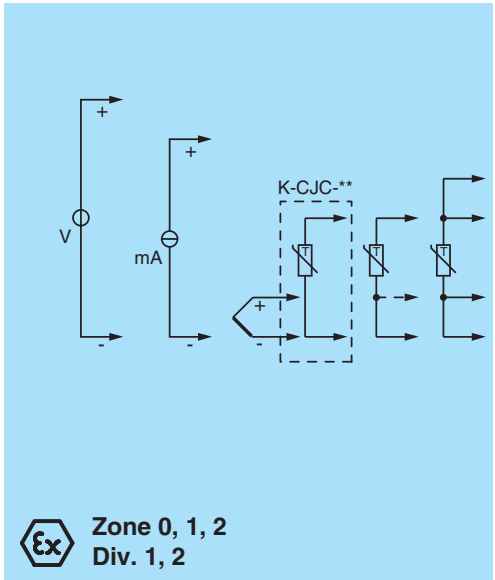
The device is easily configured by the use of the PACTware configuration software.

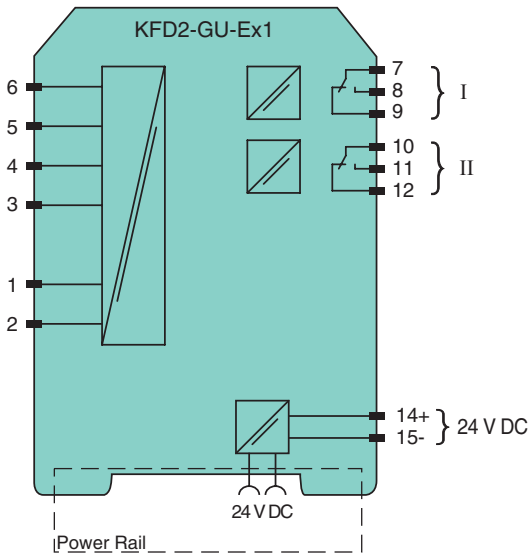
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



Connection





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General specifications	
Signal type	Analog input
Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage U_r	19 ... 35 V DC
Ripple	within the supply tolerance
Power dissipation	0.8 W
Power consumption	0.8 W
Interface	
Programming interface	programming socket
Input	
Connection side	field side
Connection	terminals 1, 2, 3, 4, 5, 6
RTD or resistance	type Pt100 (EN 60751: 1995) type Ni100 (DIN 43760) 0 ... 500 Ω (including lead resistance)
Measuring current	approx. 400 µA with RTD
Lead resistance	≤ 50 Ω per line
Thermocouples	type B, E, J, K, N, R, S, T (IEC 584-1: 1995) type L (DIN 43710: 1985)
Voltage	0 ... 10 V , 2 ... 10 V
Current	0 ... 20 mA , 4 ... 20 mA
Load	20 Ω for 20 mA; 200 kΩ for 10 V
Output	
Connection side	control side
Connection	output I: terminals 7, 8, 9; output II: terminals 10, 11, 12
Output I, II	relay
Contact loading	253 V AC/2 A/500 VA/cos ϕ min. 0.7; 40 V DC/2 A resistive load
Mechanical life	2 x 10^7 switching cycles
Transfer characteristics	
Resolution	temperature: 0.0625 °C, resistance: 62.5 mΩ, voltage: 62.5 µV, current: 625 nA
Deviation	
Voltage input	± 0.02 % of 10 V measuring range
Resistance input	± 0.025 % of measuring range (4-wire connection)
Current input	± 0.02 % of 20 mA measuring range
Pt100	± 0.01 % of abs. temperature value of switching point in K + 0.2 K (4-wire connection)
Thermocouple	± 0.05 % of abs. temperature value of switching point in K + 1.1 K (1.2 K for thermocouple types R and S) this includes ± 0.8 K error of the cold junction compensation (+0.9 K for thermocouple types R and S). Note! Because the sensitivity of thermocouples is, in general, lower at low temperatures than at high temperatures, the specified accuracy figures cannot be guaranteed when measuring temperatures below those listed here. -50 °C (type E and K thermocouples) -100 °C (type J, L and T thermocouples) +500 °C (type B thermocouple)
Influence of ambient temperature	
Pt100	± (0.0015 % of abs. temperature value of switching point in K + 0.01 K)/K ΔT_{amb}*)
Thermocouple	± (0.004 % of abs. temperature value of switching point in K + 0.01 K) / KΔT_{amb}*)
Voltage input	± (0.007 % of the switching point voltage) / KΔT_{amb}*)
Current input	± (0.004 % of the switching point current)/KΔT_{amb}*) *) ΔT_{amb} = ambient temperature change referenced to 23 °C (296 K)
Influence of supply voltage	< 0.001 % of sensor input range
Input delay	≤ 370 ms (rise time and energizing delay of relay)
Galvanic isolation	
Output/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Output I/II	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Power supply/programming input	no electrical isolation
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)
Low voltage	
Directive 2014/35/EU	EN 61010-1:2010

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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. 150 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
Data for application in connection with hazardous areas		
EU-Type Examination Certificate		BAS 98 ATEX 7152
Marking		⟨Ex⟩ II (1)GD, I (M1) [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I (-20 °C ≤ T_{amb} ≤ 60 °C) , [circuit(s) in zone 0/1/2]
Input		Ex ia Ga, Ex ia Da, Ex ia Ma
Voltage	U_o	10.5 V
Current	I_o	27 mA
Power	P_o	70 mW
Supply		
Maximum safe voltage	U_m	40 V DC (Attention! The rated voltage can be lower.)
Certificate		TÜV 99 ATEX 1493 X
Marking		⟨Ex⟩ II 3G Ex nA nC IIC T4
Galvanic isolation		
Input/Other circuits		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
UL approval		
Control drawing		116-0173 (cULus)
IECEx approval		IECEx BAS 06.0022
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
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*™

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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