Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Strain gauge input (full or half bridge)
- Output 0 mA ... ± 20 mA or 0 V ... ± 10 V
- Relay contact output
- Programmable high/low alarm
- Configurable by PACTware or keypad
- RS 485 interface
- Line fault detection (LFD)

Function

This isolated barrier is used for intrinsic safety applications.

The device is used with strain gauges, load cells and resistance measuring bridges.

Designed to provide 5 V excitation voltage, this barrier's high quality A/D converter allows it to be used with those devices requiring 10 V.

Up to four 350 Ω strain gauges connected in parallel may be powered and evaluated.

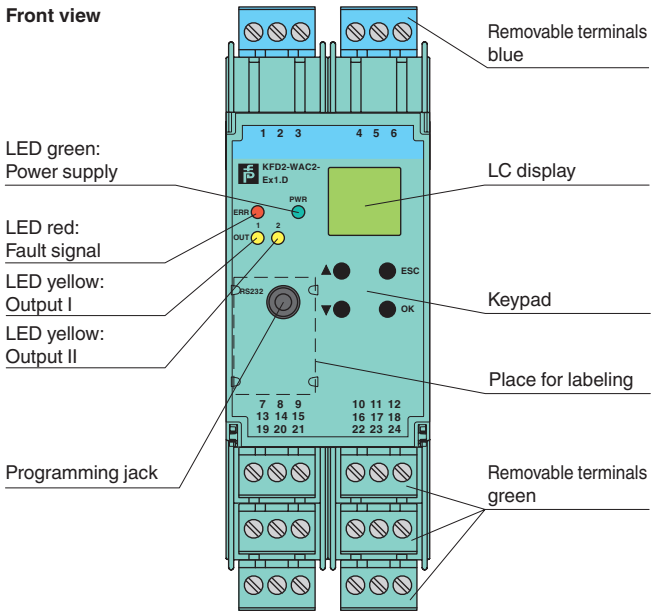
The device is easily configured by the use of keypad or with the PACTware configuration software.

The current measurement for tare, zero point, and final value can be entered in this manner.

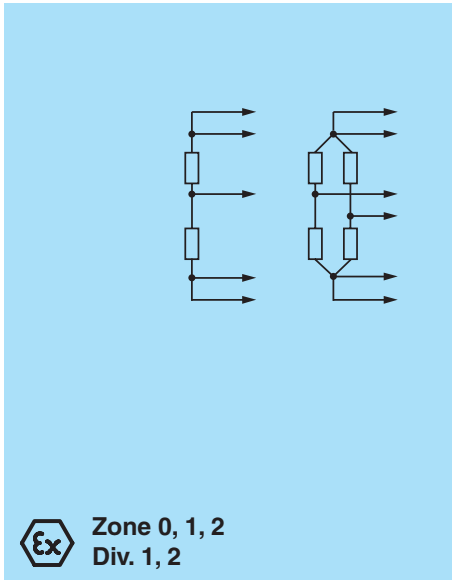
A fault is signalized by LEDs acc. to NAMUR NE44 and a separate collective error message output.

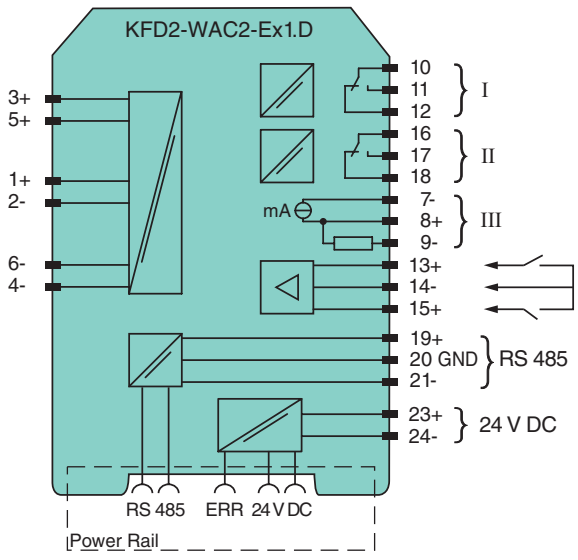
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



Connection





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General specifications		
Signal type		Analog input
Supply		
Connection		Power Rail or terminals 23+, 24-
Rated voltage	U_n	20 ... 35 V DC
Ripple		within the supply tolerance
Power consumption		≤ 3 W
Interface		
Connection		Power Rail or terminals 19+, 20 GND, 21-
Type		RS-485
Programming interface		RS 232 programming jack
Field circuit		
Connection		terminals 1+, 2-, 3+, 4-, 5+, 6-
Lead resistance		≤ 25 Ω per lead
Input I		
Connection		terminals 1+, 2-
Sensor supply		1 ... 5 V
Connection		terminals 3+, 4- (supply); 5+, 6- (signal)
Short-circuit current		50 mA
Load		≥ 116 Ω up to 5V, ≥ 85 Ω up to 4V
Input		
Connection		Input I: terminals 1+, 2-; Input II: terminals 13+, 14-; Input III: terminals 15+, 14-
Programmable Tare		0 ... 500 % of span
Input I		Signal, analog
Input signal		-100 ... 100 mV
Input resistance		> 1 MΩ for voltage measurement
Input II, III		tare adjustment, calibration and zero
Open circuit voltage/short-circuit current		18 V / 5 mA
Active/Passive		I > 4 mA/I < 1.5 mA
Output		
Connection		Output I: terminals 10, 11, 12; Output II: terminals 16, 17, 18; Output III: terminals 7-, 8+, 9-
Output I, II		Relay output
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
Output III		Analog output
Current range		-20 ... 20 mA
Load		≤ 550 Ω
Analog voltage output		0 ... ± 10 V; output resistance 500 Ω (bridge between terminal 7 and 9)
Analog current output		0 ... ± 20 mA or 4 ... 20 mA; load 0 ... 550 Ω (terminals 7 and 8)
Line fault detection		downscale -21.5 mA (-10.75 V) or 2 mA (1 V), upscale 21.5 mA (10.75 V)
Collective error message		Power Rail
Transfer characteristics		
Deviation		
Resolution/accuracy		≤ ± 0.05 % incl. non-linearity and hysteresis
Temperature effect		≤ ± 0.01 %/K
Reaction time		300 ... 850 ms
Electrical isolation		
Input I/other circuits		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Output I, II against eachother		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/Input II, III		not available
Output III/Programming socket		not available
Other circuits from each other		functional insulation, rated insulation voltage 50 V_{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006
Low voltage		
Directive 2006/95/EC		EN 61010-1:2010
Conformity		
Electromagnetic compatibility		NE 21:2006
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		

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Degree of protection		IP20
Mass		approx. 250 g
Dimensions		40 x 119 x 115 mm (1.6 x 4.7 x 4.5 in) , housing type C3
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with Ex-areas		
EC-Type Examination Certificate		TÜV 04 ATEX 2531 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		Ⓔx II (1)G [Ex ia Ga] IIC Ⓔx II (1)D [Ex ia Da] IIIC Ⓔx I (M1) [Ex ia Ma] I
Supply		Power Rail or terminals 23+, 24- non-intrinsically safe
Maximum safe voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Input I		terminals 1+, 2- Ex ia IIC, Ex iaD
Voltage	U_o	14 V
Current	I_o	238 mA
Power	P_o	833 mW (linear characteristic)
Input II and III		terminals 13+, 14-; 15+, 14- non-intrinsically safe
Maximum safe voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Output I, II		terminals 10, 11, 12; 16, 17, 18 non-intrinsically safe
Maximum safe voltage	U_m	253 V AC / 40 V DC (Attention! U_m is no rated voltage.)
Contact loading		253 V AC/2 A/500 VA/cos ϕ min. 0.7; 40 V DC/2 A resistive load
Output III		terminals 7-, 8+, 9- non-intrinsically safe
Maximum safe voltage	U_m U_m	40 V DC (Attention! U_m is no rated voltage.)
Interface		RS 485 programming jack
Maximum safe voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Electrical isolation		
Input I/other circuits		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 94/9/EC		EN 60079-0:2012, EN 60079-11:2012, EN 60079-26:2007
International approvals		
FM approval		
Control drawing		116-0302 (cFMus)
IECEx approval		IECEx TUN 06.0005
Approved for		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

Supplementary information

Single or parallel connection of strain gauges with resulting resistance between 116 Ω ... 10 kΩ can be connected and will provide a 4 mA ... 20 mA output and 2 relay outputs as well as an RS 485 interface in the safe area.

The device supports the transmission of measured values via the RS 485 interface. In this mode of operation, input signal range may be transmitted with 26 Bit resolution with up to 31 signal converters connected to the Power Rail UPR-05 or via terminals 19, 20 and 21.

RS 485 communication may be done via the Power Rail when using power feed modules with bus access, e. g. KFD2-EB2.R4A.B or via the terminals 19, 20 and 21 of one module. The device is addressed via keypad and display or with a PC with PACTware and adapter K-ADP-USB.

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

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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-05

The Power Rail UPR-05 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!

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