

Features

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

Function

This signal conditioner provides the isolation for non-intrinsically safe 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.

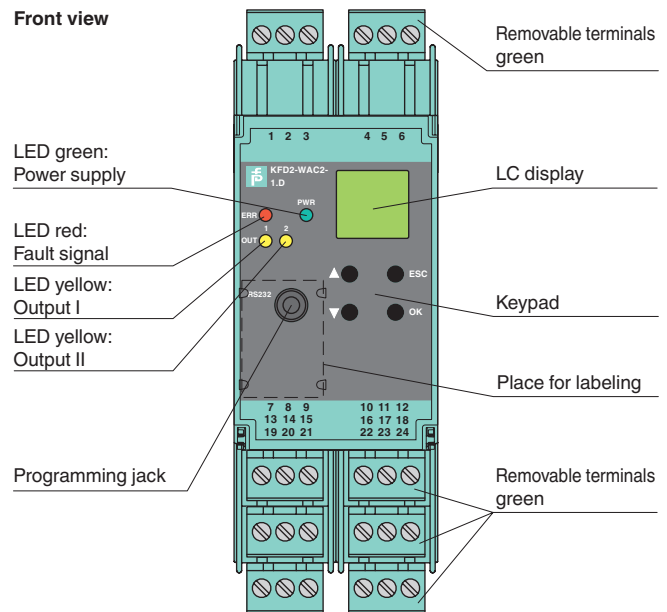
The device is easily configured by the use of keypad or with the PACTware configuration software.

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

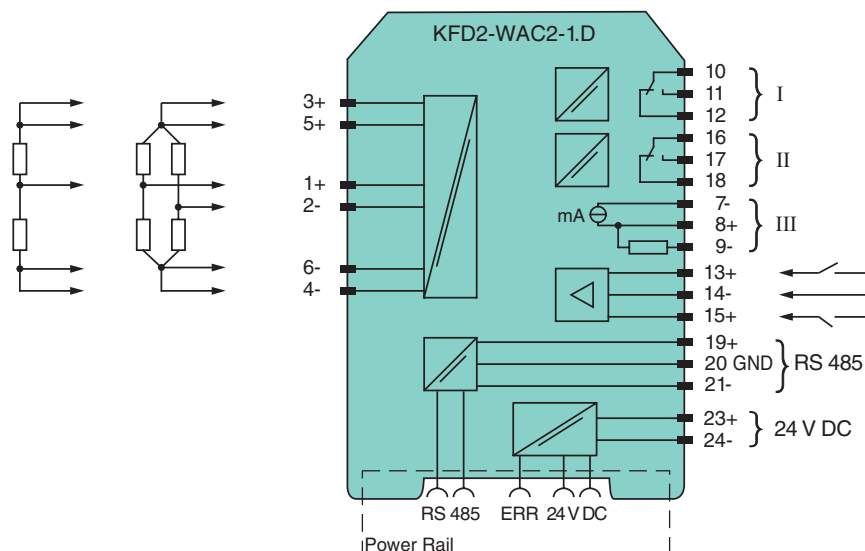
A fault is signaled by LEDs acc. to NAMUR NE44 and a separate collective error message output.

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

Assembly



Connection



General specifications	
Signal type	Analog input
Supply	
Connection	Power Rail or terminals 23+, 24-
Rated voltage	U_r 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	programming socket
Field circuit	
Connection	terminals 1+, 2-, 3+, 4-, 5+, 6-
Lead resistance	$\leq 25 \Omega$ per line
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	$\geq 116 \Omega$ up to 5V, $\geq 85 \Omega$ up to 4V
Input	
Connection side	field side
Connection	Input I: terminals 1+, 2-; Input II: terminals 13+, 14-; Input III: terminals 15+, 14-
Programmable Tare	0 ... 500 % of span
Input I	
Input signal	-100 ... 100 mV
Input resistance	$> 1 \text{ M}\Omega$ for voltage measurement
Input II, III	
Open circuit voltage/short-circuit current	18 V / 5 mA
Active/Passive	$I > 4 \text{ mA}$ / $I < 1.5 \text{ mA}$
Output	
Connection side	control side
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	2×10^7 switching cycles
Output III	
Analog output	
Current range	-20 ... 20 mA
Load	$\leq 550 \Omega$
Analog voltage output	0 ... ± 10 V; output resistance 500Ω (bridge between terminal 7 and 9)
Analog current output	0 ... ± 20 mA or 4 ... 20 mA; load 0 ... 550Ω (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	$\leq \pm 0.05$ % incl. non-linearity and hysteresis
Temperature effect	$\leq \pm 0.01$ %/K
Reaction time	300 ... 850 ms
Galvanic isolation	
Input I/other circuits	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output I, II against each other	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}
Indicators/settings	
Display elements	LEDs, display
Control elements	Control panel
Configuration	via operating buttons via PACTware
Labeling	space for labeling at the front
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	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 250 g
Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
International approvals	
UL approval	E223772
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals 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.

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!