

Features

- 1-channel signal conditioner
- 24 V DC supply (Power Rail)
- Input for 2- or 3-wire sensors, NAMUR sensors or dry contacts
- Input frequency 1 mHz ... 12 kHz
- Current output 0/4 mA ... 20 mA
- Relay and transistor output
- Start-up override
- Line fault detection (LFD)
- Up to SIL2 acc. to IEC 61508/IEC 61511

Function

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

The device is a universal frequency converter that changes a digital input signal into a proportional free adjustable 0/4 mA ... 20 mA analog output signal and functions as a switch amplifier and a trip alarm.

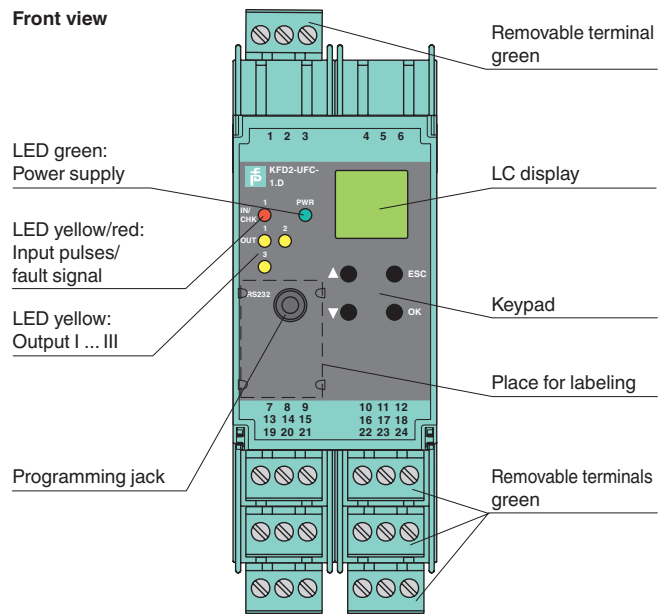
The functions of the switch outputs (2 relay outputs and 1 potential free transistor output) are easily adjustable [trip value display (min/max alarm), serially switched output, pulse divider output, error signal output].

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

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

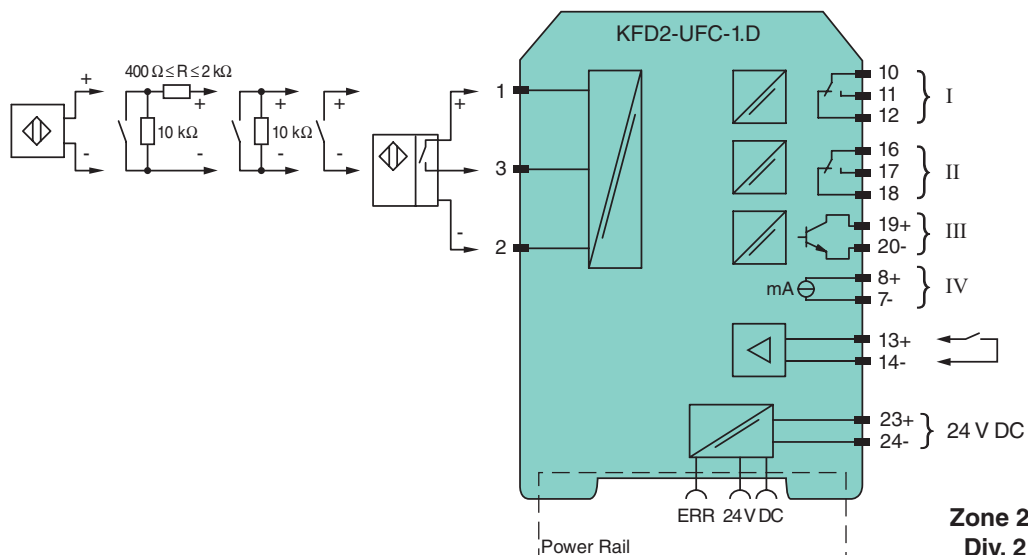
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



SIL2

Connection



Release date 2014-08-18 13:06 Date of issue 2015-02-16 231193_eng.xml

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

General specifications		
Signal type		Digital Input
Supply		
Connection		terminals 23+, 24- or power feed module/Power Rail
Rated voltage	U_n	20 ... 30 V DC
Rated current	I_n	approx. 100 mA
Power loss/power consumption		$\leq 2 \text{ W} / 2.2 \text{ W}$
Input		
Connection		Input I: 2-wire sensor: terminals 1+, 3- three wire sensor: terminals 1+, 2- and 3 input II: terminals 13+, 14- start-up override;
Input I		2- or 3-wire sensor, sensor acc. to EN 60947-5-6 (NAMUR) or mechanical contact
Open circuit voltage/short-circuit current		22 V / 40 mA
Input resistance		4.7 k Ω
Switching point/switching hysteresis		logic 1: $> 2.5 \text{ mA}$; logic 0: $< 1.9 \text{ mA}$
Pulse duration		$> 50 \mu\text{s}$
Input frequency		0.001 ... 12000 Hz
Lead monitoring		breakage I $\leq 0.15 \text{ mA}$; short-circuit I $> 4 \text{ mA}$
Input II		startup override: 1 ... 1000 s, adjustable in steps of 1 s
Active/Passive		I $> 4 \text{ mA}$ (for min. 100 ms) / I $< 1.5 \text{ mA}$
Open circuit voltage/short-circuit current		18 V / 5 mA
Output		
Connection		output I: terminals 10, 11, 12 output II: terminals 16, 17, 18 output III: terminals 19+, 20- output IV: terminals 8+, 7-
Output I, II		signal, relay
Contact loading		250 V AC / 2 A / $\cos \phi \geq 0.7$; 40 V DC / 2 A
Mechanical life		5×10^7 switching cycles
Energized/De-energized delay		approx. 20 ms / approx. 20 ms
Output III		electronic output, passive
Contact loading		40 V DC
Signal level		1-signal: (L+) -2.5 V (50 mA, short-circuit/overload proof) 0-signal: blocked output (off-state current $\leq 10 \mu\text{A}$)
Output IV		analog
Current range		0 ... 20 mA or 4 ... 20 mA
Open loop voltage		$\leq 24 \text{ V DC}$
Load		$\leq 650 \Omega$
Fault signal		downscale I $\leq 3.6 \text{ mA}$, upscale $\geq 21.5 \text{ mA}$ (acc. NAMUR NE43)
Collective error message		Power Rail
Transfer characteristics		
Input I		
Measurement range		0.001 ... 12000 Hz
Resolution		0.1 % of the measurement value , $\geq 0.001 \text{ Hz}$
Accuracy		0.1 % of the measurement value , $> 0.001 \text{ Hz}$
Measuring time		$< 100 \text{ ms}$
Influence of ambient temperature		0.003 %/K (30 ppm)
Output I, II		
Response delay		$\leq 200 \text{ ms}$
Output IV		
Resolution		$< 10 \mu\text{A}$
Accuracy		$< 20 \mu\text{A}$
Influence of ambient temperature		0.005 %/K (50 ppm)
Electrical isolation		
Input I/other circuits		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}
Mutual output I, II, III		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output III/power supply and collective error		basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}
Output III/IV		basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}
Output IV/power supply and collective error		functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}
Start-up override/power supply and collective error		functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}

Release date 2014-08-18 13:06 Date of issue 2015-02-16 231193_eng.xml

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

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0002
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
pa-info@sg.pepperl-fuchs.com

Interface/power supply and collective error	functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}
Interface/output III	basic insulation according to IEC/EN 61010-1, 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	
Degree of protection	IP20
Mass	300 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	
Statement of conformity	PF 08 CERT 1216 X
Group, category, type of protection, temperature class	⊕ II 3G Ex nA nC IIC T4 Gc
Output I, II	
Contact loading	50 V AC/2 A/cos φ > 0.7; 40 V DC/1 A resistive load
Ambient conditions	
Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)
Directive conformity	
Directive 94/9/EC	EN 60079-0:2012 , EN 60079-15:2010
General information	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed 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!

PACT^{ware}™

Device-specific drivers (DTM)

Adapter K-ADP1

Programming adapter for parameterisation via the serial RS 232 interface of a PC/Notebook

For programming, please use the new version of adapter K-ADP1 (part no. 181953, connector length 14mm). When using the previous version K-ADP1 (connector length 18 mm) the plug is exposed by approx. 3 mm. The function is not affected.

Adapter K-ADP-USB

Programming adapter for parameterisation via the serial USB interface of a PC/Notebook

Release date 2014-08-18 13:06 Date of issue 2015-02-16 231193_eng.xml