

Features

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input for NAMUR sensors or dry contacts
- Input frequency 1 mHz ... 5 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 isolated barrier is used for intrinsic safety 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.

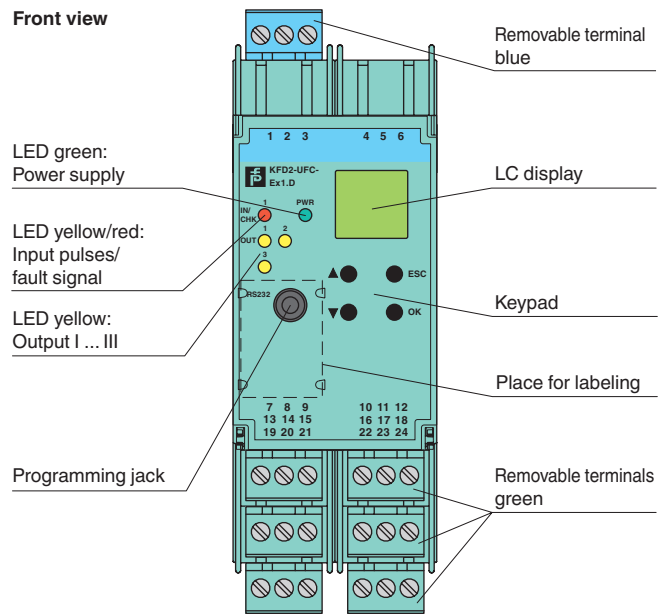
The functions of the switch outputs (2 relay outputs and 1 potential free transistor output) are easily adjustable [trip value display (min/max alarm), serially switched output, pulse divider output, error signal output].

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.

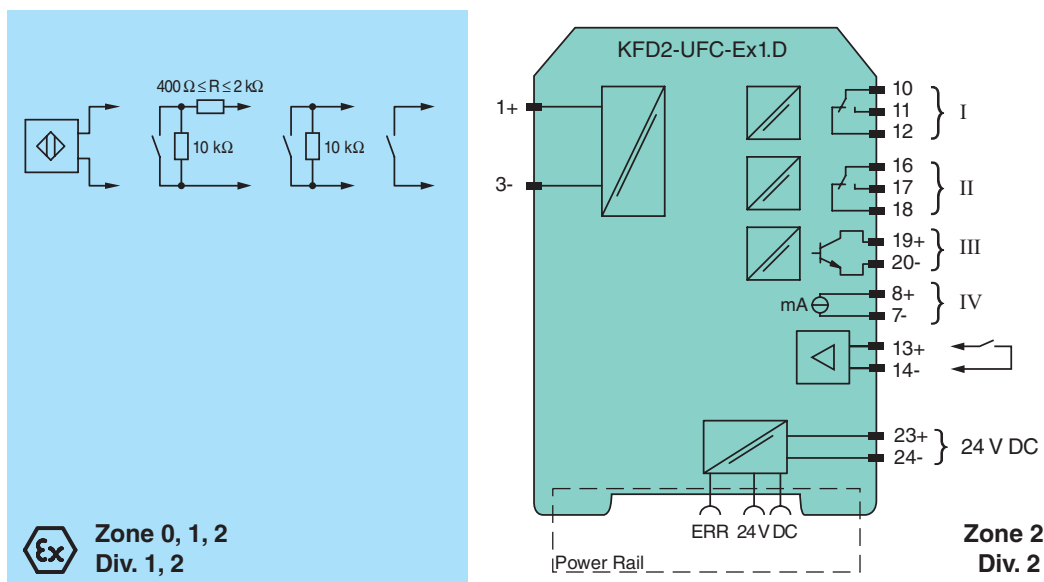
For additional information, refer to the manual and www.pepperl-fuchs.com.

Assembly



SIL2

Connection



Release date 2014-08-19 09:56 Date of issue 2015-02-27 231194_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: intrinsically safe: terminals 1+, 3- Input II: non-intrinsically safe: terminals 13+, 14- |
| Input I | | sensor acc. to EN 60947-5-6 (NAMUR) or mechanical contact |
| Pulse duration | | $> 50 \mu\text{s}$ |
| Input frequency | | 0.001 ... 5000 Hz |
| Lead monitoring | | breakage $I \leq 0.15 \text{ mA}$; short-circuit $I > 6.5 \text{ mA}$ |
| 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: switched off (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 ... 5000 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/start-up override | | 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} |
| 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 | | |

Release date 2014-08-19 09:56 Date of issue 2015-02-27 231194_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

| | | |
|---|-------------------------------|--|
| 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 |
| Input | | EN 60947-5-6:2000 |
| 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 | | |
| EC-Type Examination Certificate | | TÜV 99 ATEX 1471 , for additional certificates see www.pepperl-fuchs.com |
| Group, category, type of protection | | ⊕ II (1)GD, I (M1) [Ex ia] IIC, [Ex iaD], [Ex ia] I (-20 °C ≤ T _{amb} ≤ 60 °C) |
| Supply | | |
| Maximum safe voltage | U _m | 40 V DC (Attention! U _m is no rated voltage.) |
| Input I | | terminals 1+, 3- Ex ia IIC, Ex iaD |
| Voltage | U _o | 10.1 V |
| Current | I _o | 13.5 mA |
| Power | P _o | 34 mW (linear characteristic) |
| Input II | | terminals 13+, 14- non-intrinsically safe |
| Maximum safe voltage | U _m | 40 V (Attention! The rated voltage can be lower.) |
| Output I, II | | terminals 10, 11, 12; 16, 17, 18 non-intrinsically safe |
| Maximum safe voltage | U _m | 253 V (Attention! The rated voltage can be lower.) |
| Contact loading | | 253 V AC/2 A/cos φ > 0.7; 40 V DC/2 A resistive load (TÜV 99 ATEX 1471) |
| Output III | | terminals 19+, 20- non-intrinsically safe |
| Maximum safe voltage | U _m U _m | 40 V (Attention! U _m is no rated voltage.) |
| Output IV | | terminals 8+, 7- non-intrinsically safe |
| Maximum safe voltage | U _m | 40 V DC (Attention! U _m is no rated voltage.) |
| Interface | | RS 232 |
| Maximum safe voltage | U _m | 40 V (Attention! U _m is no rated voltage.) |
| Statement of conformity | | TÜV 02 ATEX 1885 X |
| Group, category, type of protection, temperature class | | ⊕ II 3G Ex nA nC IIC T4 |
| Output I, II | | |
| Contact loading | | 50 V AC/2 A/cos φ > 0.7; 40 V DC/1 A resistive load |
| 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 60079-15:2010 , EN 60079-26:2007 |
| International approvals | | |
| FM approval | | |
| Control drawing | | 16-538FM-12 |
| 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 . |

Release date 2014-08-19 09:56 Date of issue 2015-02-27 231194_eng.xml

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