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.

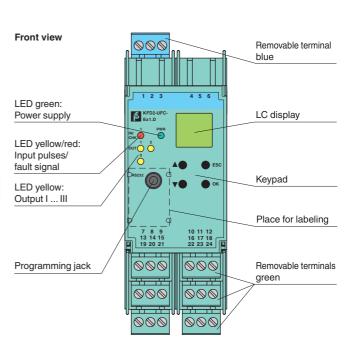
The device is a universal frequency converter that changes a digital input signal into a proportional free adjustable 0/4 mA ... 20 mA analog output signal and functions as a switch amplifier and a trip alarm.

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 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.

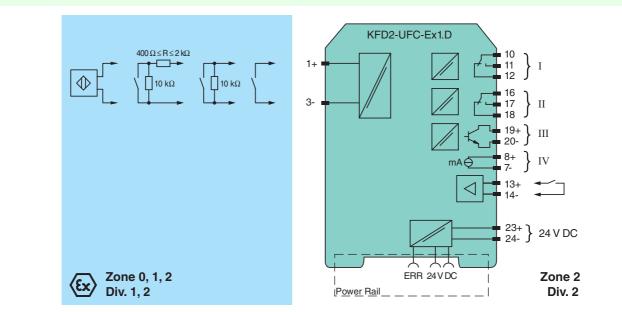


CE (Ex

Assembly

SIL2

Connection



General specifications Digital Input Supply Digital Input Supply terminals 22+, 24-or power feed module/Power Rail Rated vortage 20-, 30 V DC Rated oursent appox. 100 mA Connection terminals 22+, 24-or power feed module/Power Rail Connection uppot. 100 mA Connection uppot. 100 mA Connection uppot. 100 mA Connection uppot. 100 mA Pute duration > 50 µs Input. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Pute duration > 50 µs Input. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Input. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Input. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Output. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Output. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Output. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Output. 1 sonsor acc. to EN 60947-56 (NAMUR) or mechanical contact Open Circuit voltageAbort -circuit worton acontact		
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Connection terminals 23-, 24. or power feed module/Power Rail Rated voltage 2020 V DC Rated current approx. 100 mA Power loss/power consumption 2 V / 2.2 W Connection Imput F Connection Imput F. individual safe: terminals 14, 3- Imput I non-individual safe: terminals 15, 14- Input I requency 0.0015000 Hz Lead monitoring Beraser acc. to EN 60947-5-6 (NAMUR) or mechanical contact Active/Passive 10.0015000 Hz Lead monitoring Beraser acc. to EN 60947-5-6 (NAMUR) or mechanical contact Open circuit voltage/short-circuit 16.9 / S and/stable in steps of 1 s Active/Passive 12.4 mA (for min. 100 ms) / 1< 1.5 mA		gital input
Finish voltage 2030 V DC Ratic durrent approx.100 mÅ Power losspower consumption 5.2 W 2.2 W Input Input I: intrinsically safe: terminals 14, 3- Input I: non-intrinsically safe: terminals 13, 14- Puise duration > 50 µs Input I: mon-intrinsically safe: terminals 13, 14- Puise duration > 50 µs Input I: aon-intrinsically safe: terminals 13, 14- Puise duration > 50 µs Input I: admonitoring brankage 15 0.15 mA Input III safup override: 1 1000 s, adjustable in steps of 1 s Active/Pasive 1 × 4 mA (for min. 100 ms) / 1 < 1.5 mA	-	
Fated curven approx. 100 mÅ Power loss/power consumption 52 W / 2.2 W Power loss/power consumption 52 W / 2.2 W Connection Input I: intrinsically safe: terminals 14, 3- Input I: non-intrinsically safe: terminals 14, 14- Input I: consumption > 50 µ Pulse duration > 50 µ Input I: consumption > 500 µ Lead monitoring breakage 12 0.15 mA stort-circuit 1 - 6.5 m A Input I: startup override: 1 1000 s., adjustable in stops of 1 s Active/Passivo 1.5 4 mA (for min. 100 ma) / 1 < 1.5 mA		
Power loss/power consumption \$2 W / 2.2 W input Input 1: intrinsically safe: terminals 14, 3- input 11: non-intrinsically safe: terminals 13, 14- Connection Input 1: intrinsically safe: terminals 13, 14- Pulse duration > 50 µs Input 1: non-intrinsically safe: terminals 13, 14- Input 10 Input 1: non-intrinsically safe: terminals 13, 14- Input 10 Input 1: non-intrinsically safe: terminals 13, 14- Input 10 Input 1: non-intrinsically safe: terminals 13, 14- Input 10 Lead monitoring Doto 12 Lead monitoring Is 4m A(for min. 100 mg / 1<1.5 mA	•	
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Active/Passive $1 > 4 mA$ (for min. 100 ms) / $1 < 1.5 mA$ Open circuit voltage/short-circuit current $18 V / 5 mA$ Output $18 V / 5 mA$ Outputcompatibility (for the massive management value)Connectionoutput I: terminals 10, 11, 12 output IV: terminals 94, 20- output IV: terminals 94, 20- output IV: terminals 94, 7-Output Isignal, relayContect loading250 V AC / 2 A / cos $\diamond = 0.7 : 40 V DC / 2 A$ Mechanical life 5×10^7 switching cyclesEnergized/De-energized delayapprox. 20 ms / approx. 20 msOutput IIelectronic output, passiveContact loading40 V DCSignal level1-signal: (L+) - 2.5 V (50 mA, short-circuit/overload proof) Orisinal: switched off (off-state current < 10 µA)Output IIanalog Current rangeOutput IVanalogCollective error messagePower RailTransfer characteristics Input I0.001 5000 HzMeasuring time0.001 5000 HzAccuracy0.1 % of the measurement value, > 0.001 HzAccuracy0.1 % of the measurement value, > 0.001 HzAccuracy0.03 %/K (30 ppm)Output I, IIenforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff} Output I, IIreinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff} Output I, IV other circuitsreinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff} Output I, IV other circuitsreinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V	-	
Open circuit voltage/short-circuit current 18 V / 5 mA Output - Connection output I: terminals 10, 11, 12 output II: terminals 16, 7, 18 output II: terminals 16, 7, 20- output IV: terminals 19+, 20- output IV: terminals 8+, 7- Output Garding 250 V AC / 2A / cos e ≥ 0.7; 20 V DC / 2 A Mechanical life 5 x 10 ² awitching cycles Energized/De-energized delay approx. 20 ms / approx. 20 ms Output II electronic output, passive Contact loading 40 V D C Signal level - signal: (L+) - 2.5 V (50 mA, short-circuit/overload proof) O-signal: switched df (dif-state current ≤ 10 µA) Output IN analog Current range 0 20 mA or 4 20 mA Open loop voltage < 24 V DC	l sta	artup override: 1 1000 s, adjustable in steps of 1 s
current index Output output 1: terminals 10, 11, 12 output 11: terminals 16, 17, 18 output 11: terminals 19, 20- output 11: terminals 84, 7- Output I.1 signal: relay Contact loading SigNa 109, 200 Energized/De-energized delay approx.20ms /	ive/Passive I > -	4 mA (for min. 100 ms) / l < 1.5 mA
Connection output I: terminals 10, 11, 12 output II: terminals 16, 17, 18 output IV: terminals 19, 20- output IV: terminals 19, 20- output IV: terminals 8+, 7- Output I, II Sandar S	-	5 V / 5 mA
output II: terminals 16, 17, 18 output II: terminals 14, 20- output IV: terminals 84, 7-Output I, IIIsignal, relayContract Ioading250 V AC / 2 A / cos $\phi \ge 0.7$; 40 V DC / 2 AMechanical life5 × 10 ⁷ switching cyclesEnergized/De-energized delayapprox. 20 ms / approx. 20 msOutput IIIelectronic output, passiveContract Ioading40 V DCSignal level1-signal: (L+) - 2.5 V (50 mA, short-circuit/overload proof) osignal: switched of (off-state current < 10 µA)	ut	
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Response delay ≤ 200 ms Output IV Resolution < 10 μA		
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Output III/IV basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}		
Output IV/power supply and collective functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}		
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collective error Interface/power supply and collective functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}		nctional insulation acc. to IEC 62103, rated insulation voltage 50 V_{eff}
error Interface/output III basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}	ace/output III bas	sic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}
Directive conformity		

Subject to reasonable modifications due to technical advances. Pepperl+Fuchs Group • Tel.: Germany +49-621-776-0 • USA +1-330-4253555 • Singapore +65-67-799091 • Internet www.pepperl-fuchs.com

Electromagnetic compatibilit	У	
Directive 2004/108/EC	,	EN 61326-1:2006
Low voltage		
Directive 2006/95/EC		EN 61010-1:2010
Conformity		
Electromagnetic compatibilit	y	NE 21:2006
Protection degree	,	IEC 60529:2001
Input		EN 60947-5-6:2000
Ambient conditions		
Ambient temperature		-20 60 °C (-4 140 °F)
Mechanical specifications	;	
Protection degree		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 con with Ex-areas	nection	
EC-Type Examination Certifi	icate	TÜV 99 ATEX 1471, for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		⟨ ix ⟩ II (1)GD, I (M1) [Ex ia] IIC, [Ex iaD], [Ex ia] I (-20 °C ≤ T _{amb} ≤ 60 °C)
Supply		
Maximum safe voltage	Um	40 V DC (Attention! U _m is no rated voltage.)
Input I		terminals 1+, 3- Ex ia IIC, Ex iaD
Voltage	Uo	10.1 V
Current	I _o	13.5 mA
Power	Po	34 mW (linear characteristic)
Input II		terminals 13+, 14- non-intrinsically safe
Maximum safe voltage	Um	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	Um	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	Um	40 V DC (Attention! U _m is no rated voltage.)
Interface		RS 232
Maximum safe voltage	Um	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 60079-0:2009, EN 60079-11:2007, EN 60079-15:2005, EN 60079-26:2007, EN 61241-11:2006
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.

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KFD2-UFC-Ex1.D

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