

Frequency Converter with Trip Values

KFU8-UFC-1.D.FA

SIL2

- 1-channel signal conditioner
- Universal usage at different power supplies
- Input for 2- or 3-wire sensors, NAMUR sensors or dry contacts
- Input frequency 1 mHz ... 10 kHz
- Current output 0/4 mA ... 20 mA
- Relay contact and transistor output
- Start-up override
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC 61508/IEC 61511

48 V AC ... 253 V AC/20 V DC ... 90 V DC



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

Technical Data

General specifications

Signal type Digital Input

Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Supply

Connection terminals 23, 24
 Rated voltage U_r 20 ... 90 V DC / 48 ... 253 V AC 50 ... 60 Hz
 Power dissipation/power consumption ≤ 2 W ; 2.5 VA / 2.2 W ; 3 VA

Interface

Programming interface programming socket

Input

Connection side field side
 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 mA ; logic 0: < 1.9 mA
 Pulse duration > 50 μ s
 Input frequency 0.001 ... 10000 Hz
 Line fault detection breakage I ≤ 0.15 mA; short-circuit I > 4 mA
 Input II startup override: 1 ... 1000 s, adjustable in steps of 1 s
 Active/Passive I > 4 mA (for min. 100 ms) / I < 1.5 mA
 Open circuit voltage/short-circuit current 18 V / 5 mA

Output

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

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Technical Data

Connection side		control side
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 x 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		max. 24 V DC
Load		max. 650 Ω
Fault signal		downscale I $\leq 3.6 \text{ mA}$, upscale $\geq 21.5 \text{ mA}$ (acc. NAMUR NE43)
Transfer characteristics		
Input I		
Measurement range		0.001 ... 10000 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 ms
Influence of ambient temperature		0.003 %/K (30 ppm)
Output I, II		
Response delay		$\leq 200 \text{ ms}$
Output IV		
Resolution		< 10 μA
Accuracy		< 20 μA
Influence of ambient temperature		0.005 %/K (50 ppm)
Galvanic 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		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Output III/IV		basic insulation according to IEC/EN 61010-1, rated insulation voltage 50 V _{eff}
Output IV/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Start-up override/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Interface/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}
Interface/output III		basic insulation according to IEC/EN 61010-1, 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 2014/30/EU		EN 61326-1:2006
Low voltage		
Directive 2014/35/EU		EN 61010-1:2010
Conformity		
Electromagnetic compatibility		
Degree of protection		NE 21:2006 IEC 60529:2001

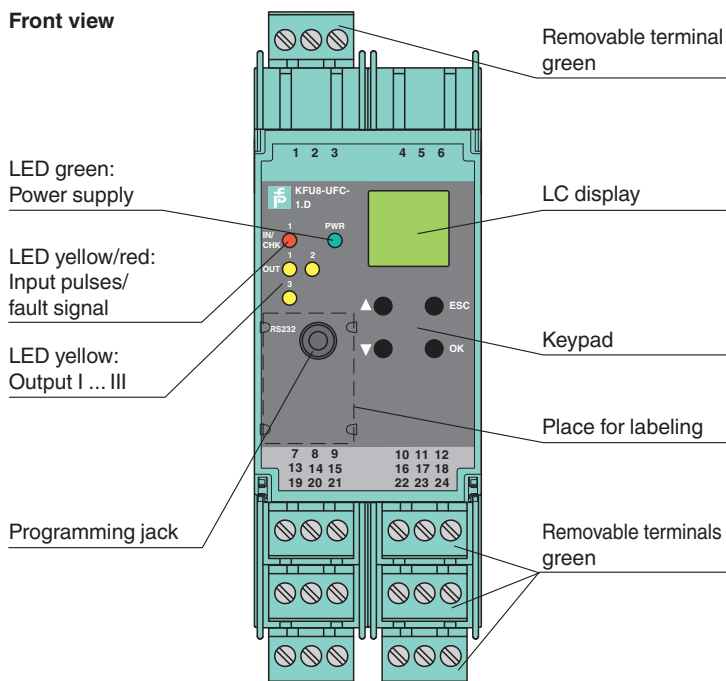
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Technical Data

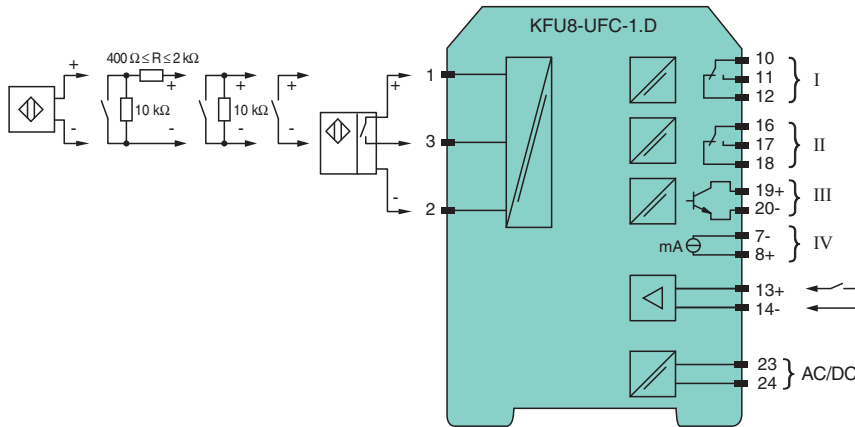
Ambient conditions	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications	
Degree of protection	IP20
Connection	screw terminals
Mass	300 g
Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 inch) , housing type C3
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .
Accessories	
Optional accessories	- FDT framework PACTware 4.1 - device type manager DTM Interface Technology - adapter K-ADP-USB

Assembly



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Connection



Accessories

	<p>DTM Interface Technology</p>	
	<p>PACTware 5.X</p>	<p>FDT Framework</p>

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