- 1-channel
- Input frequency 1 mHz ... 12 kHz
- Analogue output 0/4 mA ... 20 mA
- Measuring range parameterisable
- 2 relay outputs
- 1 electronic output, isolated
- Startup override
- Restart inhibit
- Bounce filter
- Parameterization via PC or control panel
- Up to SIL2 acc. to IEC 61508

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

KFU8-UFC-1.D

Function

The frequency converter converts an input frequency into a frequency-proportional current and offers at the same time the possibility to monitor trip values.

The frequency value for the minimum (0 mA or 4 mA) and the maximum output current (20 mA) is freely parameterisable.

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

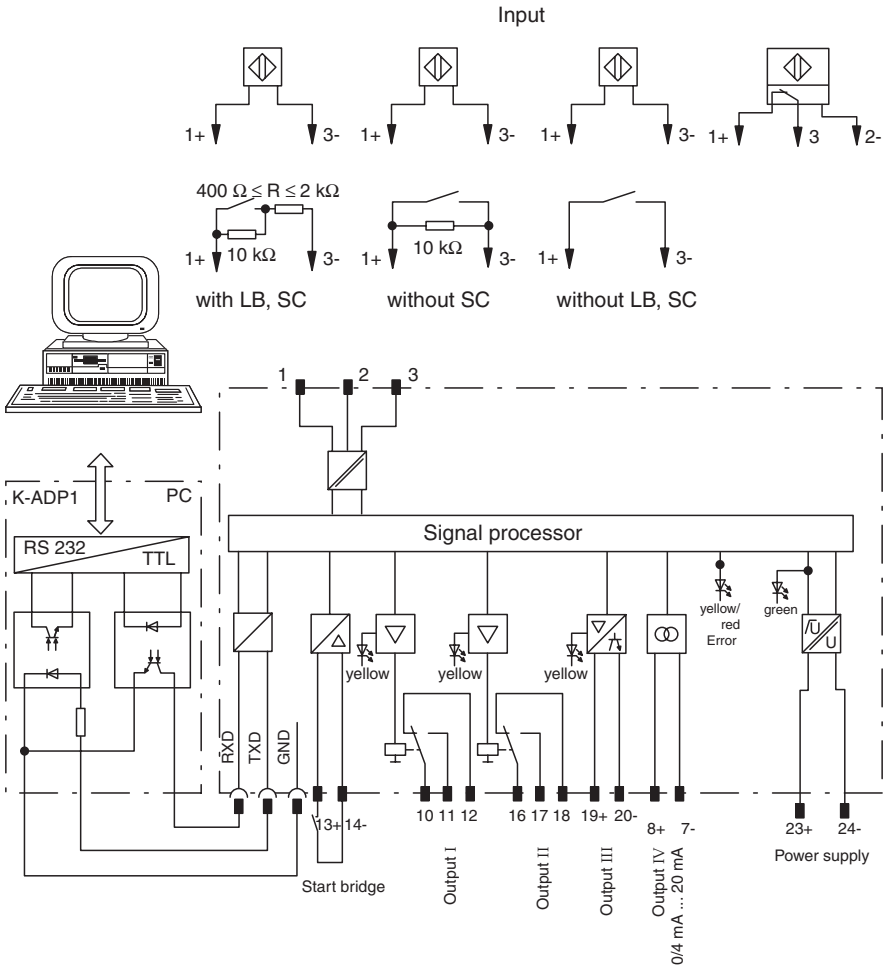
A start-up override that can be activated externally is integrated as well. The maximum input frequency is 12 kHz.

The input and output circuits are galvanically isolated.

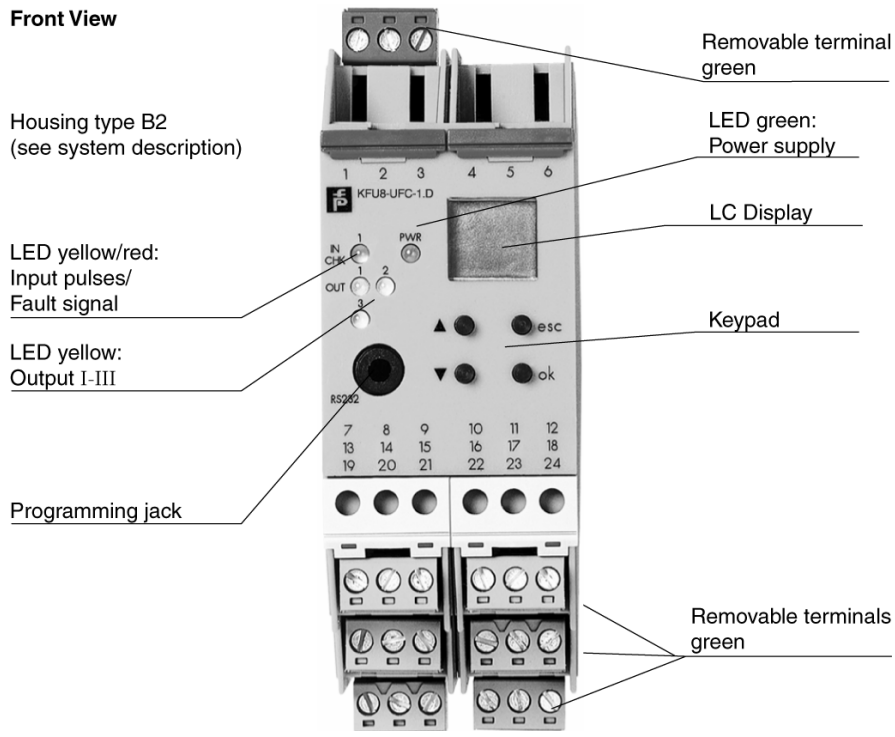
The universal power supply allows the operation of the frequency converter at various supply voltages at the same terminals, without change-over or consideration of the polarity.

The device can be adjusted by means of the control panel or the software.

Connection



Composition



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Supply	
Connection	terminals 23, 24
Rated voltage	20 ... 90 V DC / 48 ... 253 V AC
Power loss/power consumption	≤ 2 W ; 2.5 VA / 2.2 W ; 3 VA
Input	
Connection	input I: 2-wire sensor: terminals 1+, 3- three wire sensor: terminals 1+, 2- and 3 input II: terminals 13+, 14- startup override;
Input I	sensor
Open circuit voltage/short-circuit current	22 V / 40 mA
Input resistance	4.7 kΩ
Switching point/switching hysteresis	logic 1: > 2.5 mA ; logic 0: < 1.9 mA
Pulse duration	> 50 µs
Input frequency	0.001 ... 12000 Hz
Lead monitoring	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	
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 ϕ ≥ 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 ≤ 10 µA)
Output IV	analog
Current range	0 ... 20 mA or 4 ... 20 mA
Open circuit voltage	≤ 24 V DC
Load	≤ 650 Ω
Fault signal	downscale I ≤ 3.6 mA , upscale ≥ 21.5 mA (acc. NAMUR NE43)
Transfer characteristics	
Input I	
Measuring range	0.001 ... 12000 Hz
Resolution	0.1 % of the measurement value , ≥ 0.001 Hz
Accuracy	0.1 % of the measurement value , > 0.001 Hz
Measuring time	< 100 ms
Influence of ambient temperature	0.003 %/°C (30 ppm)
Output I, II	
Response delay	≤ 200 ms
Output IV	
Resolution	≤ 10 µA
Accuracy	< 20 µA
Influence of ambient temperature	0.005 %/°C (50 ppm)
Electrical isolation	
Input/other circuits	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Output I, II/other circuits	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{rms}
Mutual output I, II, III	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{rms}
Output III, IV/power supply	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{rms}
Output III/IV/start-up override	functional insulation acc. to EN 50178, rated insulation voltage 253 V_{eff}
Start-up override/power supply	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{rms}
Interface/power supply	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V_{rms}
Interface/output III	functional insulation acc. to EN 50178, rated insulation voltage 300 V_{rms}
Directive conformity	
Electromagnetic compatibility	
Directive 89/336/EEC	EN 61326, EN 50081-2
Conformity	
Insulation coordination	EN 50178
Electrical isolation	EN 50178
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529

Release date 2009-07-02 11:44 Date of issue 2009-07-02 104657_ENG.xml

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Protection against electric shock	IEC 61140
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Mechanical specifications	
Protection degree	IP20
Mass	300 g
Dimensions	40 x 100 x 115 mm (1.6 x 3.9 x 4.5 in)

Supplementary information

Statement of Conformity, Declaration of Conformity and instructions have to be observed. For information see www.pepperl-fuchs.com.

Accessories

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

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