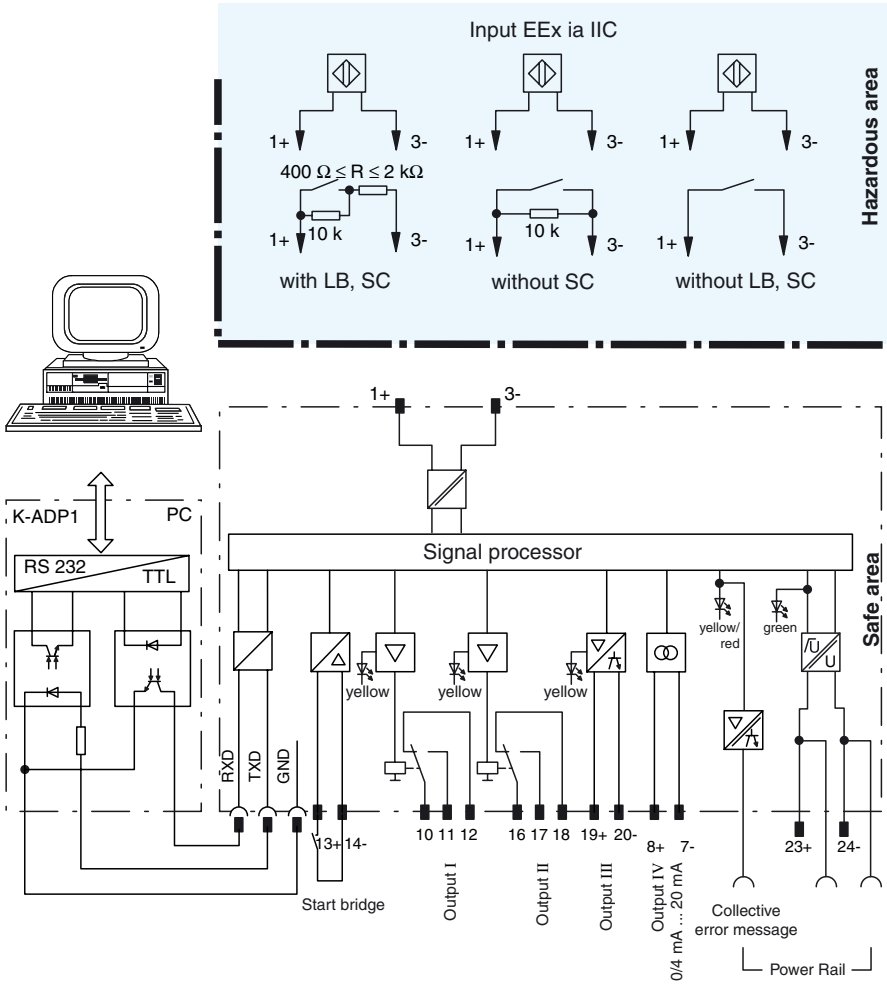
24 V DC

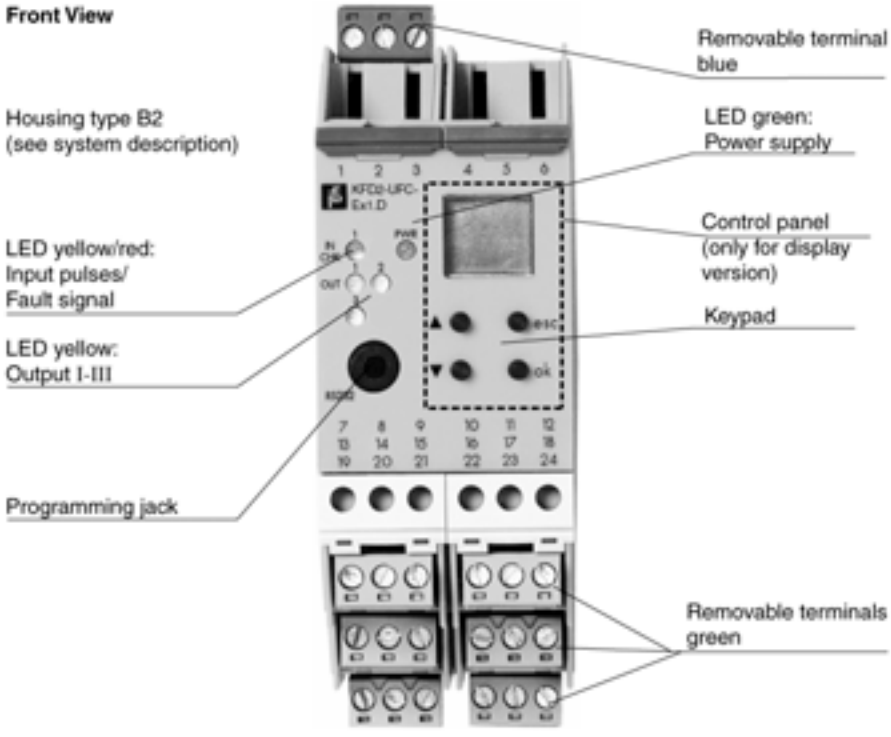
- 1-channel
- Input frequency 0.001 Hz ... 5 kHz
- Analogue output 0/4 mA ... 20 mA
- Measuring range parameterisable
- 2 relay outputs
- 1 electronic output, isolated
- Each output can be assigned individual parameters, such as a limiting value (high/low alarm), incrementing, pulse separator or error message output
- Start-up override
- Restart inhibit
- Lead breakage (LB) monitoring and short-circuit (SC) monitoring
- Bounce filter
- Parameterisation via PC

Function

The universal frequency converter converts an input frequency into a frequency-proportional current and offers at the same time the possibility to monitor the limit 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 and 1 potential free transistor output) are freely adjustable [limit value display (MAX or MIN alarm), serially switched output, pulse separator output, fault signal output].
A start-up override that can be activated externally is integrated as well. The maximum input frequency is 5 kHz.
The input and output circuits are separated galvanically. The KFD2-UFC-Ex1... can be supplied via the Power Rail. It also transfers a collective error message via the Power Rail. The version KFD2-UFC-Ex1.D can be adjusted by means of the control surface and the software, the version KFD2-UFC-Ex1 only by means of the software.



Composition



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Supply	
Connection	terminals 23+, 24- or Power Rail
Rated voltage	20 ... 30 V DC
Rated current	approx. 100 mA
Power loss/Power consumption	≤ 2 W / 2,2 W
Input	
Connection	Input I: intrinsically safe: terminals 1+, 3- Input II: non-intrinsically safe: terminals 13+, 14-
Input I	acc. to IEC 60947-5-6 (NAMUR, DIN 19234), see system description for electrical data
Pulse duration	> 50 µs
Input frequency	0,001 ... 5000 Hz
Lead monitoring	breakage I ≤ 0.15 mA; short-circuit I > 6.5 mA
Input II	start-up 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-;
Collective error message	Power Rail
Output I and II	signal, relay
Contact loading	250 V AC / 2 A / cos φ ≥ 0,7 ; 40 DC / 2 A
Mechanical life	5 x 10^7 switching cycles
Energised/De-energised 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 ≤ 10 µA)
Output IV	analogue
Current range	0 ... 20 mA or 4 ... 20 mA
Open loop voltage	≤ 24 V DC
Load	≤ 650 Ohm
Fault signal	downscale I ≤ 3,6 mA , upscale ≥ 21,5 mA (acc. to NAMUR NE 43)
Transfer characteristics	
Input I	
Measurement range	0,001 ... 5000 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
Temperature	0.003 % / °C (30 ppm)
Output I and II	
Response delay	≤ 200 ms
Output IV	
Resolution	< 10 µA
Accuracy	< 20 µA
Temperature	0.005 % / °C (50 ppm)
Electrical isolation	
Output I, II/Other circuits	reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Mutual output I, II, III	reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Output III, IV/Power supply and collective error	reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Output III/IV/Start-up override	function insulation acc. to DIN EN 50178, rated insulation voltage 300 V_{eff}
Start-up override/Power supply and collective error	reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Interface/Power supply	reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Interface/Output III	function insulation acc. to DIN EN 50178, rated insulation voltage 300 V_{eff}
Directive conformity	
Electromagnetic compatibility	standards
Directive 89/336/EEC	EN 61326, EN 50081-2, NE 21
Standard conformity	
Coordination of insulation	acc. to DIN EN 50178
Electrical isolation	acc. to DIN EN 50178
Electromagnetic compatibility	acc. to EN 50081-2 / EN 50082-2
Climatic conditions	acc. to DIN IEC 721
Input	acc. to DIN EN 60947-5-6
Ambient conditions	

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Ambient temperature		-20 ... 60 °C (253 ... 333 K)
Mechanical specifications		
Protection degree		IP20
Mass		300 g
Data for application in conjunction with hazardous areas		
EC-Type Examination Certificate		TÜV 99 ATEX 1471 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		⟨Ex⟩ II (1) G D [EEx ia] IIC [circuit(s) in zone 0/1/2]
Supply		
Safety maximum voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Input I		terminals 1+, 3- EEx ia IIC
Voltage	U_o	10,1 V
Current	I_o	13 mA
Power	P_o	34 mW (linear characteristic)
Input II		terminals 13+, 14- non-intrinsically safe
Safety maximum voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Statement of conformity		TÜV 02 ATEX 1885 X , observe statement of conformity
Group, category, type of protection, Temperature classification		⟨Ex⟩ II 3 G EEx nAC IIC T4 [device in zone 2]
Output I and II</font		terminals 10, 11, 12; 16, 17, 18 non-intrinsically safe
Contact loading		253 V AC / 2 A / cos φ > 0.7; 40 V DC / 2 A resistive load (TÜV 99 ATEX 1471) 50 V AC / 2 A / cos φ > 0.7; 40 V DC / 2 A resistive load (TÜV 02 ATEX 1885 X)
Output III		terminals 19+, 20- non-intrinsically safe
Safety maximum voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Output IV		terminals 8+, 7- non-intrinsically safe
Safety maximum voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Interface		RS 232
Safety maximum voltage	U_m	40 V DC (Attention! U_m is no rated voltage.)
Electrical isolation		
Input/Other circuits		safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity		standards
Directive 94/9 EC		EN 50014, EN 50020, EN 50021

Supplementary information

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

Accessories

PR-03 Power Rail
UPR-03 Power Rail
KFD2-EB2 power feed module
The devices are supplied with 24 VDC through the KFD2-EB2 power feed module and the PR-03 or the UPR-03 Power Rail. Each power feed module monitors and provides protection for groups of as many as 100 individual devices. The PR-03 Power Rail is an insert component for the DIN rail. The UPR-03 Power Rail is a complete unit consisting of an electrical insert and an aluminium DIN rail measuring 35 mm x 15 mm x 2000 mm. The devices are simply snapped in place to make electrical contact.
If a Power Rail is not being used, power can be supplied to the devices directly through the device terminals.
K-CJC
Removable terminals with integrated temperature measurement sensor for cold junction compensation for thermocouples.
PACT*ware*™
Device-specific drivers (DTM)
Adapter K-ADP1
Interface adapter for connection with the serial interface of a PC/Notebook.

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