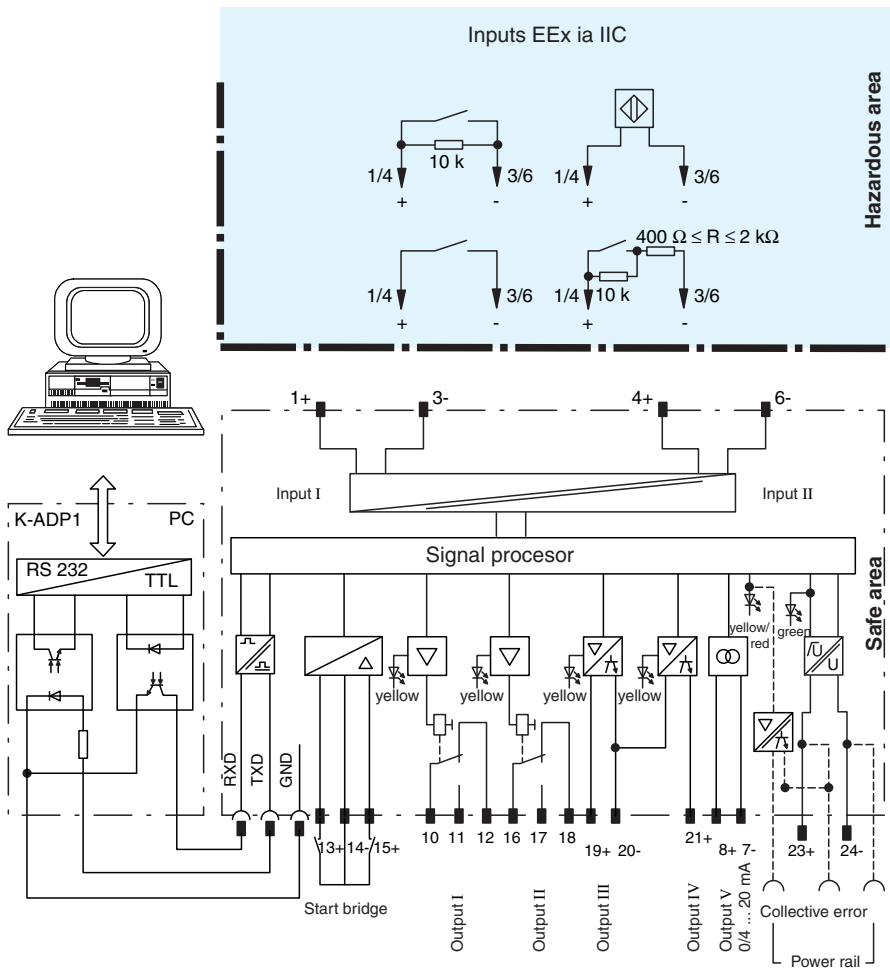


Frequency current converter with trip value and direction of rotation

KFD2-UFT-Ex2

- 2 inputs
- Control circuit EEx ia IIC
- Input frequency 1 mHz ... 5 kHz
- Analog output 0/4 mA ... 20 mA
- Measuring range parameterisable
- 2 relay outputs
- 2 electronic outputs, isolated
- Each output individually parameterisable as trip value, serially switched output, direction of rotation, synchronization monitoring or error message output
- Start-up override
- Lead breakage (LB) and short-circuit (SC) monitoring
- Debounce filter
- Parameterization via PC or control panel (optional)

24 V DC:



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

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PEPPERL+FUCHS

Technical Data

Supply		
Connection		terminals 23+, 24- or power feed module/Power Rail
Rated voltage	U_r	20 ... 30 V DC
Rated current	I_r	approx. 100 mA
Power dissipation		2.2 W
Power consumption		2.5 W
Input		
Connection		input I: terminals 1+, 3- input II: terminals 4+, 6- input III: terminals 13+, 14- (reset) input IV: Terminals 15+, 14- (Hold)
Function		reset: rotation direction signaling: reset in preferred direction (left-hand rotation) slip monitoring: reset slip error hold: slip monitoring: if the input is bridged, the Hold function becomes active. Lead fault is only indicated by relay 2 and combined fault indication. The condition of the relay is hold during fault.
Input I, II		acc. to EN 60947-5-6 (NAMUR)
Open circuit voltage/short-circuit current		8.2 V / 10 mA
Pulse duration		min. 200 μ s overlapping by rotation direction signaling: $\geq 100 \mu$ s
Input frequency		rotation direction monitoring 0.001 ... 1000 Hz slip monitoring 10 ... 1000 Hz
Line fault detection		breakage $I \leq 0.15$ mA; short-circuit $I > 6.5$ mA
Input III, IV		
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 21+, 20-
Output I, II		signal , relay
Contact loading		250 V AC / 2 A / $\cos \phi \geq 0.7$; 40 DC / 2 A
Mechanical life		5×10^7 switching cycles
Energized/De-energized delay		approx. 20 ms / approx. 20 ms
Output III and IV		signal , 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 $\leq 10 \mu$ A)
Programming interface		
Connection		programming socket
Interface		RS 232
Transfer characteristics		
Input I		
Resolution		slip monitoring : 1 %
Influence of ambient temperature		0.003 %/K (30 ppm)
Output I, II		
Response delay		≤ 200 ms
Galvanic isolation		
Output I, II/other circuits		reinforced insulation according to IEC 61140, rated insulation voltage 300 V _{eff}
Mutual output I, II, III		safely isolated acc. to VDE 0106, part 101, rated insulation voltage 253 V _{eff}
Mutual output I, II, IV		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		functional 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, IV		functional insulation acc. to EN 50178, rated insulation voltage 253 V _{eff}

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 PEPPERL+FUCHS

Technical Data

Directive conformity			
Electromagnetic compatibility			
Directive 89/336/EEC			EN 61326, EN 50081-2, NE 21
Standard conformity			
Explosion protection			acc. to EN 50014 / EN 50020
Insulation coordination			acc. to DIN EN 50178
Galvanic isolation			acc. to DIN EN 50178
Electromagnetic compatibility			acc. to EN 50081-2 / EN 50082-2
Climatic conditions			acc. to DIN IEC 721
Input			according to EN 60947-5-6
Ambient conditions			
Ambient temperature			-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications			
Degree of protection			IP20
Mass			300 g
Data for application in connection with hazardous areas			
EU-type examination certificate			TÜV 99 ATEX 1471
Marking			Ⓜ II (1)GD [EEx ia] IIC
Supply			
Maximum safe voltage	U_m		40 V DC (Attention! U_m is no rated voltage.)
Input I and II			terminals 1+, 3-; 4+, 6- EEx ia IIC
Voltage U_o			10.1 V
Current I_o			13 mA
Power P_o			34 mW (linear characteristic)
Input III and IV			
Maximum safe voltage U_m			40 V DC (Attention! U_m is no rated voltage.)
Output I, II			
Maximum safe voltage	U_m		253 V AC / 40 V DC (Attention! U_m is no rated voltage.)
Contact loading			253 V AC/2 A/cos $\phi > 0.7$; 40 V DC/2 A resistive load (TÜV 99 ATEX 1471) 50 V AC/2 A/cos $\phi > 0.7$; 40 V DC/2 A resistive load (TÜV 02 ATEX 1885 X)
Output III and IV			
Maximum safe voltage U_m	U_m		40 V DC (Attention! U_m is no rated voltage.)
Galvanic isolation			
Input/Other circuits			safe galvanic isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity			
Directive 94/9/EC			on request

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PEPPERL+FUCHS

Front View

Housing type B2
(see system description)

LED yellow/red:
Input pulses/
Fault signal

LED yellow:
Output I-IV

Programming jack

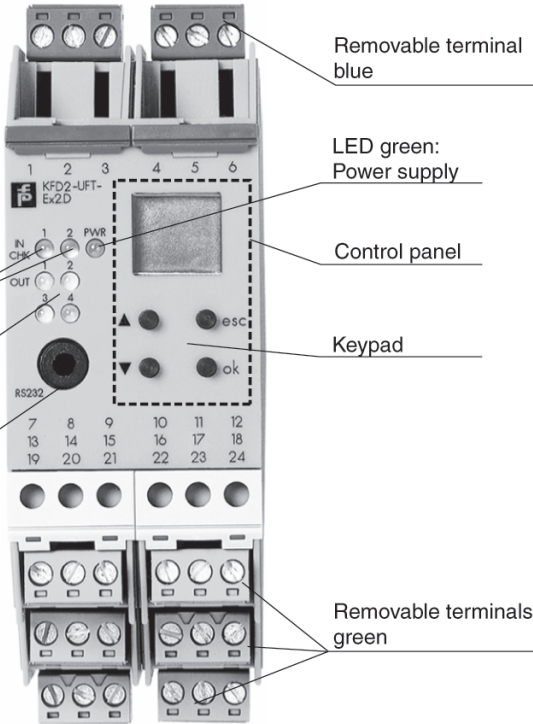
Removable terminal
blue

LED green:
Power supply

Control panel

Keypad

Removable terminals
green



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Function

The device processes 2 input frequencies (max. 5 kHz). The switch output functions (2 potential-free transistor outputs) are parameterizable via the programming jack (software K-PK1) and via the control panel (...-Ex2.D) [max- or min. limit values (alarm), increment output and fault signal output]. For each channel a start-up override is integrated that can be activated externally. For the frequency-current-transformation the frequency values for the basic values (0/4 ... 20 mA) are parameterizable.

The rotation direction indication evaluates input signals of both inputs offset by 90°. Depending on mode of operation and parameterization, corresponding outputs switch.

During synchronisation monitoring, the pulse counts of Inputs I and II are compared during a measurement cycle. If the measured difference in pulse is greater than the value set in the parameter, the specified output switches. If the number of the admissible synchronisation is exceeded, an error signal is indicated.

The input and output circuits are galvanically separated. The Power Rail can take over the role of supplying power and transferring collective error messages.

Accessories

Power Rail PR-03

Power Rail UPR-03

Power feed module KFD2-EB2...

Using Power Rail PR-03 or UPR-03 the devices are supplied with 24 V DC by means of the power feed modules. If no Power Rails are used, power supply of the individual devices is possible directly via their device terminals.

Each power feed module is used for fusing and monitoring groups with up to 100 individual devices. The Power Rail PR-03 is an inset component for the DIN rail. The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 mm x 2000 mm. To make electrical contact, the devices are simply engaged.

The Power Rail must not be fed via the device terminals of the individual devices!

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 RS 232 serial interface of a PC/Notebook