



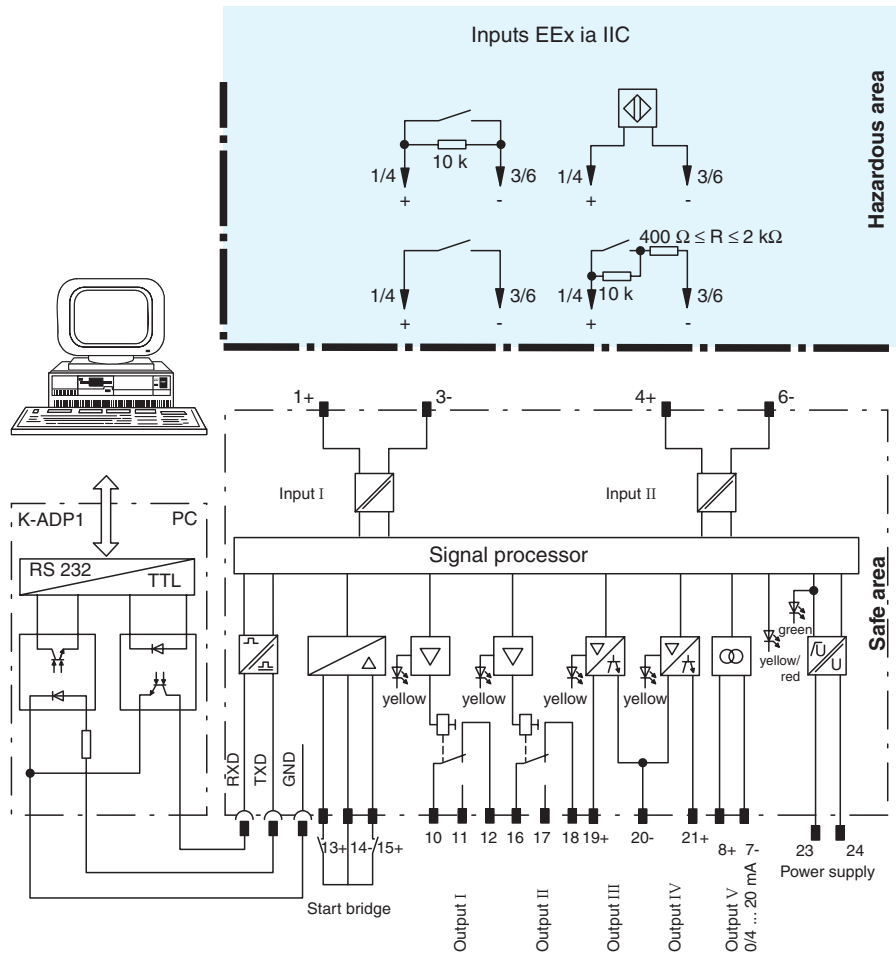
- 2 inputs
- Control circuit EEx ia IIC
- Input frequency 1 mHz ... 5 kHz
- Analogue output 0/4 mA ... 20 mA
- Measuring range parameterisable
- 2 relay outputs
- 2 electronic outputs, isolated
- Each output individually parameterisable as trip value, serially switched output, direction of rotation,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

48 V AC ... 253 V AC/20 V DC ... 90 V DC  
**KFU8-UFT-Ex2**

**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-ADP1) 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.

**Connection**



**Composition**

**Front View**

Housing type B2 (see system description)

LED yellow/red: Input pulses/ Fault signal

LED yellow: Output I-IV

Programming jack

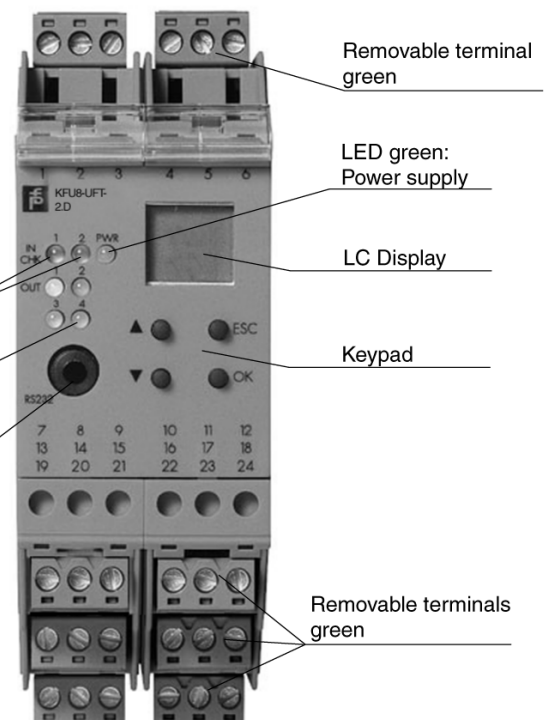
Removable terminal green

LED green: Power supply

LC Display

Keypad


Removable terminals green



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<b>Supply</b>	
Connection	terminals 23, 24
Rated voltage	20 ... 90 V DC / 48 ... 253 V AC
Power loss	2.2 W / 3.5 VA
Power consumption	2.5 W / 4 VA
<b>Input</b>	
Connection	input I: terminals 1+, 3- input II: terminals 4+, 6- start-up override I: terminals 13+, 14- start-up override II: terminals 15+, 14-
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	≥ 200 μs overlapping by rotation direction signaling: ≥ 100 μs
Input frequency	rotation direction monitoring 0.001 ... 1000 Hz slip monitoring 10 ... 1000 Hz
Lead monitoring	breakage I ≤ 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
<b>Output</b>	
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 and II	signal , relay
Contact loading	250 V AC / 2 A / cos φ ≥ 0.7 ; 40 DC / 2 A
Mechanical life	5 x 10 <sup>7</sup> 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 ≤ 10 μA)
Programming interface	
Connection	programming jack
Interface	RS 232
<b>Transfer characteristics</b>	
Input I	
Resolution	slip monitoring : 1 %
Influence of ambient temperature	0.003 %/°C (30 ppm)
Output I and II	
Response delay	≤ 200 ms
<b>Electrical isolation</b>	
Output I, II/other circuits	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Mutual output I, II, III	safely isolated acc. to VDE 0106, part 101, rated insulation voltage 253 V <sub>eff</sub>
Mutual output I, II, IV,	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Output III, IV/power supply	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Output III/IV/start-up override	function insulation acc. to DIN EN 50178, rated insulation voltage 300 V <sub>eff</sub>
Start-up override/power supply	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Interface/power supply	reinforced insulation acc. to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Interface/output III, IV	function insulation acc. to EN 50178, rated insulation voltage 253 V <sub>eff</sub>
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 89/336/EC	EN 61326, EN 50081-2, NE 21
<b>Standard conformity</b>	
Explosion protection	acc. to EN 50014 / EN 50020
Insulation coordination	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 EN 60947-5-6

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<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
<b>Mechanical specifications</b>	
Protection degree	IP20
Mass	300 g
<b>Data for application in conjunction with hazardous areas</b>	
EC-Type Examination Certificate	TÜV 99 ATEX 1471
Group, category, type of protection	 II (1)GD [EEx ia] IIC
Supply	
Safety maximum voltage $U_m$	253 V AC / 125 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	terminals 13+, 14-, 15+, 14- non-intrinsically safe
Safety maximum voltage $U_m$	40 V DC (Attention! $U_m$ is no rated voltage.)
Output I and II	terminals 10, 11, 12; 16, 17, 18 non-intrinsically safe
Safety maximum 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	terminals 19, 20, 21 non-intrinsically safe
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	
Directive 94/9 EC	<b>on request</b>

**Accessories**

**K-CJC**

Removable terminals with integrated temperature measurement sensor for cold junction compensation for thermocouples.

**PACT<sub>ware</sub><sup>TM</sup>**

Device specific drivers (DTM)

**Adapter K-ADP1**

Interface adapter for connecting with the serial interface of a PC/Notebook.