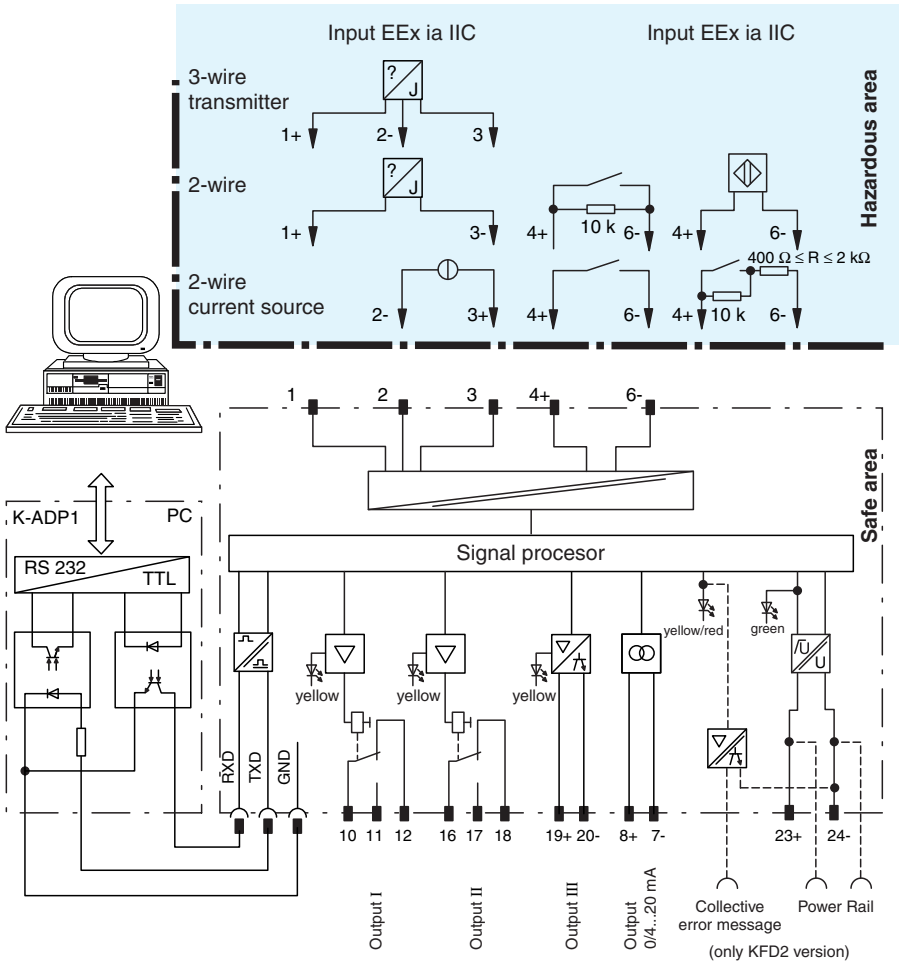
Transmitter power supplies

KFD2-CRGN-Ex1.D

- 1-channel
- Analog input 0/4 mA ... 20 mA EEx ia IIC
- NAMUR input with limiting value switching and correction function
- Analog output 0/4 mA ... 20 mA
- 2 relay outputs
- Each relay output individually parameterisable as high/low alarm
- 1 electronic output, isolated with stepping function
- Lead breakage (LB) and short-circuit (SC) monitoring
- Parameterization via PC or control panel (optional)

24 V DC



Technical Data

Supply		
Connection		Power Rail or terminals 23+, 24-
Rated voltage	U_r	20 ... 30 V DC
Rated current	I_r	approx. 100 mA
Power dissipation		2.5 W

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Technical Data

Power consumption	2.3 W
Input	
Connection	Input I: terminals 1, 2, 3 Input II: terminals 4+, 6-
Input I	
Input signal	0 ... 20 mA or 4 ... 20 mA
Available voltage	≥ 15 V at 20 mA
Open circuit voltage/short-circuit current	24 V / 33 mA
Input resistance	30 Ohm (terminals 2, 3)
Line fault detection	breakage I < 0.2 mA; short-circuit I > 22 mA acc. to NAMUR NE43
Input II	acc. to EN 60947-5-6 (NAMUR), see manual for electrical data
Open circuit voltage/short-circuit current	8.2 V / 10 mA
Pulse duration	min. 50 µs
Line fault detection	breakage I ≤ 0.15 mA; short-circuit I > 6.5 mA
Output	
Connection	output I: terminals 10, 11, 12 ; output II: terminals 16, 17, 18 ; output III: terminals 19+, 20- ; Output: analog terminals 8+, 7-
Output signal	0 ... 20 mA
Output I, 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
Energized/De-energized delay	approx. 20 ms / approx. 20 ms
Output III	incrementing, passive electronic output
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	Signal, analog
Current range	0 ... 20 mA or 4 ... 20 mA
Open loop voltage	max. 24 V DC
Load	max. 650 Ohm
Fault signal	downscale I ≤ 3.6 mA , upscale ≥ 21.5 mA (acc. NAMUR NE43)
Transfer characteristics	
Input I	
Measurement range	0 ... 20 mA
Measuring time	< 100 ms
Influence of ambient temperature	0.003 %/K (30 ppm)
Input II	
Measurement range	0.001 ... 1 kHz
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 %/K (30 ppm)
Output I, II	
Response delay	≤ 200 ms
Output IV	
Resolution	< 20 µA
Accuracy	< 10 µA
Influence of ambient temperature	0.005 %/K (50 ppm)
Galvanic isolation	
Input/Other circuits	safe electrical isolation according to DIN EN 50020 voltage peak value 375 V
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	functional insulation acc. to DIN EN 50178, rated insulation voltage 300 V_{eff}

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Technical Data

Interface/power supply		reinforced insulation according to IEC 61140, rated insulation voltage 300 V_{eff}
Interface/output III		functional 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		
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 01 ATEX 1701 , for additional certificates see www.pepperl-fuchs.com
Marking		⟨Ex⟩ II (1)GD [EEx ia] IIC [circuit(s) in zone 0/1/2]
Input		EEx ia IIC
Supply		
Maximum safe voltage	U_m	40 V DC (Attention! The rated voltage can be lower.)
Input I		
Voltage U_o		25.8 V DC (terminals 1, 2, 3 and 1, 3) 5 V DC (terminals 2, 3)
Current I_o		93 mA (2-wire) or 112 mA (3-wire) (terminals 1, 2, 3 and 1, 3) 0.3 mA (terminals 2, 3)
Power P_o		603 mW (2 wire) or 720 mW (3 wire) (terminals 1, 2, 3 and 1, 3) 0.3 mW (terminals 2, 3)
Characteristic curve		linear, R_i = 230 Ohm (terminals 1, 2, 3) R_i = 275 Ohm (terminals 1, 3) R_i = 22 kOhm (terminals 2, 3)
Input II		
Voltage U_o		14.2 V
Current I_o		11 mA
Power P_o		39 mW
Characteristic curve		linear, R_i = 1291 Ohm
Output		
Contact loading		253 V AC/2 A/cos ϕ > 0.7; 40 V DC/2 A resistive load
Analog output		
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Transistor output		
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.)
Interface		
Maximum safe voltage	U_m	40 V (Attention! The rated voltage can be lower.) , RS 232
Galvanic isolation		
Input/Other circuits		safe galvanic isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity		Standards
Directive 94/9/EC		EN 50014, EN 50020

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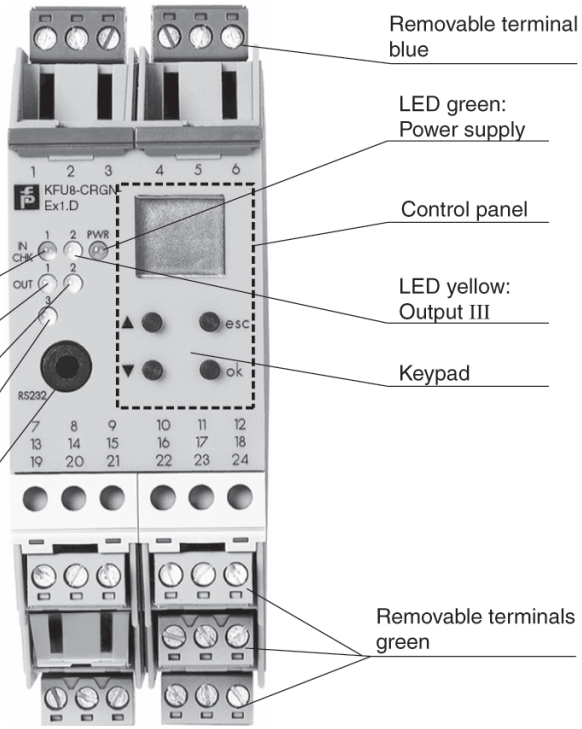
Front View



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Function

The transmitter power
supplies KF**-CRGN-Ex1.D are suited for a variety of measuring tasks. 2- and 3-wire transmitters as well as active power supplies with 0/4 ... 20 mA signal can be connected.
Two relays and an active
0/4 mA ... 20 mA current output are available as outputs.
The CRGN has been developped specially for the requirements of the level control technology and has a sensor input in accordance with DIN EN 60947-5-6 (NAMUR), which is switches 1:1 to a switch output in the safe area. This input can be used for the limit detection of the level control or for the correction of the measurement value of the transmitter signal. By means of a freely programmable linearization curve the analogue value (i. e. altitude measuring) can be adjusted to the corresponding application (volume measurement within a container. The current output is freely scaleable.
Both inputs have a lead breakage and short circuit monitoring in the input circuit.
The device is operated by means of a PC software (**PACT***ware*™) or via the control surface on the front panel.

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

Power feed modules KFD2-EB2...

The power feed module is used to supply the devices with 24 V DC via the Power Rail. The fuse-protected power feed module can supply up to 100 individual devices depending on the power consumption of the devices. A galvanically isolated mechanical contact uses the Power Rail to transmit collective error messages.

Power Rail UPR-03

The Power Rail UPR-03 is a complete unit consisting of the electrical inset and an aluminium profile rail 35 mm x 15 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-**

This removable terminal block with integrated temperature measurement sensor is needed for internal cold junction compensation for thermocouples. One K-CJC-** is needed for each channel.

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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