



- Output EEx ia IIC
- Device installation permissible in zone 2
- Polarity reversal protected
- Accuracy 1 %
- EMC acc. to NAMUR NE 21

**1-channel  
KFD0-CS-Ex1.51P**

**Function**

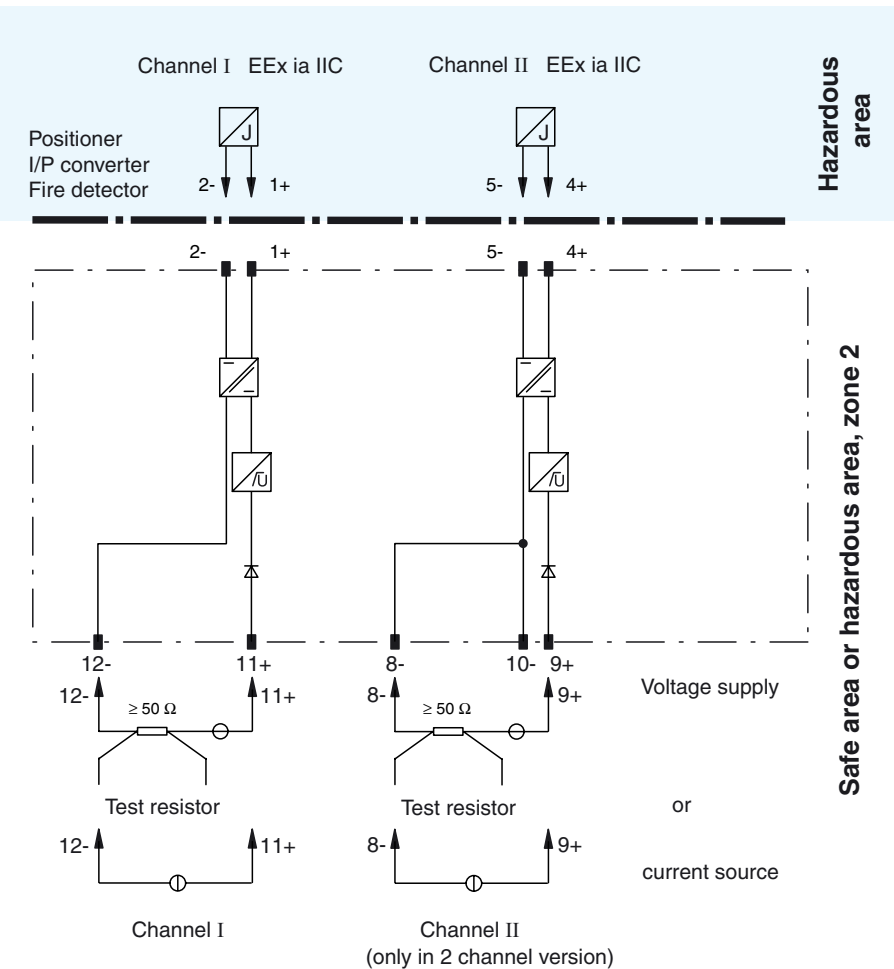
Each channel (4 terminals per channel) functions like a "DC current isolator". Both channels have separate reverse polarity protection. The input and output are galvanically isolated from each other.

These units are designed for the connection of fire detectors, smoke detectors, temperature sensors, etc. Their increased current range and the higher accuracy allow for differentiation between normal operation, fire alarm, lead breakage and short circuit currents in the safe area. In many cases they may also be used for controlling I/P converters. A separate power supply with auxiliary power is not required. The 2 channel version allows for the connection of 2 independent circuits in a single housing. Due to the input voltage limiting of 24 V, the maximum voltage output is 21 V.

**Application**

- The isolation of power loops for the control of positioner, I/P converters etc. A current source is connected to the safe area terminals.
- The isolation of a current signal from fire detectors or similar sensors. In this case, a voltage source can be connected to the safe area terminals. A specific measurement current across a passive sensor can be measured in the safe area with a series resistor (min. 50 Ω).  
In the case of use a voltage supply serves a test resistor at the same time as necessary current limit.

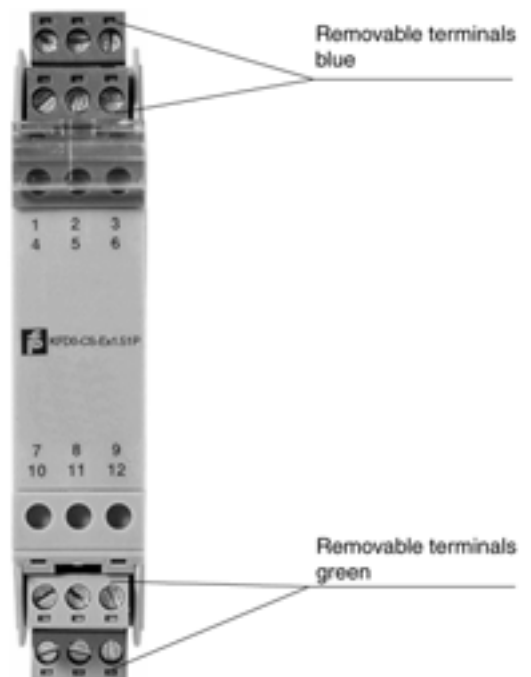
**Connection**



**Composition**

**Front View**

Housing type A4  
(see system description)



**Supply**

Rated voltage	loop powered
Power loss	0.2 W

**Inputs/Outputs (not intrinsically safe)**

Connection	terminals 12-, 11+; 8-, 10-, 9+
Voltage	4 ... 35 V DC
Safety maximum voltage $U_m$	-
Current	0 ... 40 mA
Power loss	at 40 mA and $U_{in} < 24 V$ : 700 mW per channel at 40 mA and $U_{in} > 24 V$ : 1.2 W per channel

**Inputs/Outputs (Intrinsically safe)**

Connection	terminals 1+, 2-; 4+, 5-
Output voltage	for $4 V < U_{in} < 24 V$ : $\geq U_{in} - (0.4 \times \text{current in mA}) - 1$ for $U_{in} > 24 V$ : $\geq 23 V - (0.4 \times \text{current in mA})$
Short-circuit current	at $U_{in} > 24 V$ : $\leq 65 mA$
Transfer current	$\leq 40 mA$

**Transfer characteristics**

<b>Deviation</b>	
After calibration	$\leq \pm 200 \mu A$ ; incl. calibration, linearity, hysteresis and load fluctuations at the output up to a load of 1 kOhm at 20 °C (293 K)
Temperature	$< 2 \mu A/K$ (0 °C ... +50 °C); $< 5 \mu A/K$ (-20 °C ... +60 °C)
Rise time	$\leq 20 ms$ at 4 ... 20 mA and 250 Ohm load

**Electrical isolation**

Input/Output	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
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**Directive conformity**

Electromagnetic compatibility	standards
Directive 89/336/EC	on request

**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, NAMUR NE 21
Climatic conditions	acc. to DIN IEC 721

**Ambient conditions**

Ambient temperature	-20 ... 60 °C (253 ... 333 K)
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**Mechanical specifications**

Protection degree	IP20
Mass	approx. 100 g

**Data for application in conjunction with hazardous areas**

EC-Type Examination Certificate	BAS 98 ATEX 7343 ; for additional certificates see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a>
Group, category, type of protection	$\text{Ex}$ II (1) G D [EEx ia] IIC (-20 °C $\leq T_a \leq$ 60 °C)
Voltage $U_0$	25.2 V
Current $I_0$	93 mA
Power $P_0$	585 mW

Type of protection [EEx ia]

Explosion group	IIA	IIB	IIC
External capacitance	75 $\mu F$	16.8 $\mu F$	2.41 $\mu F$
External inductance	32 mH	17 mH	4 mH

Statement of conformity TÜV 99 ATEX 1499 X (observe statement of conformity)

Group, category, type of protection, Temperature classification	$\text{Ex}$ II 3 G EEx nA II T4
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Electrical isolation

Input/Output	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity	standards
Directive 94/9 EC	on request

**Entity parameter**

Certification number	4Z6A5.AX
FM control drawing	No. 116-0129
Suitable for installation in division 2	yes
Connection	terminals 1, 2

Input I

Voltage $V_{OC}$	28.5 V
Current $I_t$	96 mA
Explosion group	A&B      C&E      D, F&G
Max. external capacitance $C_a$	0.13 $\mu F$ 0.41 $\mu F$ 1.09 $\mu F$
Max. external inductance $L_a$	3.93 mH    15.93 mH    32.21 mH

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Safety parameter			
CSA control drawing	LR 65756-13		
Control drawing	No. 116-0132		
Connection	terminals 1, 2		
Input I			
Safety parameter	28 V / 300 Ohm		
Voltage $V_{OC}$	28 V		
Current $I_{SC}$	93.3 mA		
Explosion group	A&B	C&E	D, F&G
Max. external capacitance $C_a$	0.14 $\mu$ F	0.42 $\mu$ F	1.14 $\mu$ F
Max. external inductance $L_a$	3.1 mH	16.7 mH	34 mH

**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](http://www.pepperl-fuchs.com).