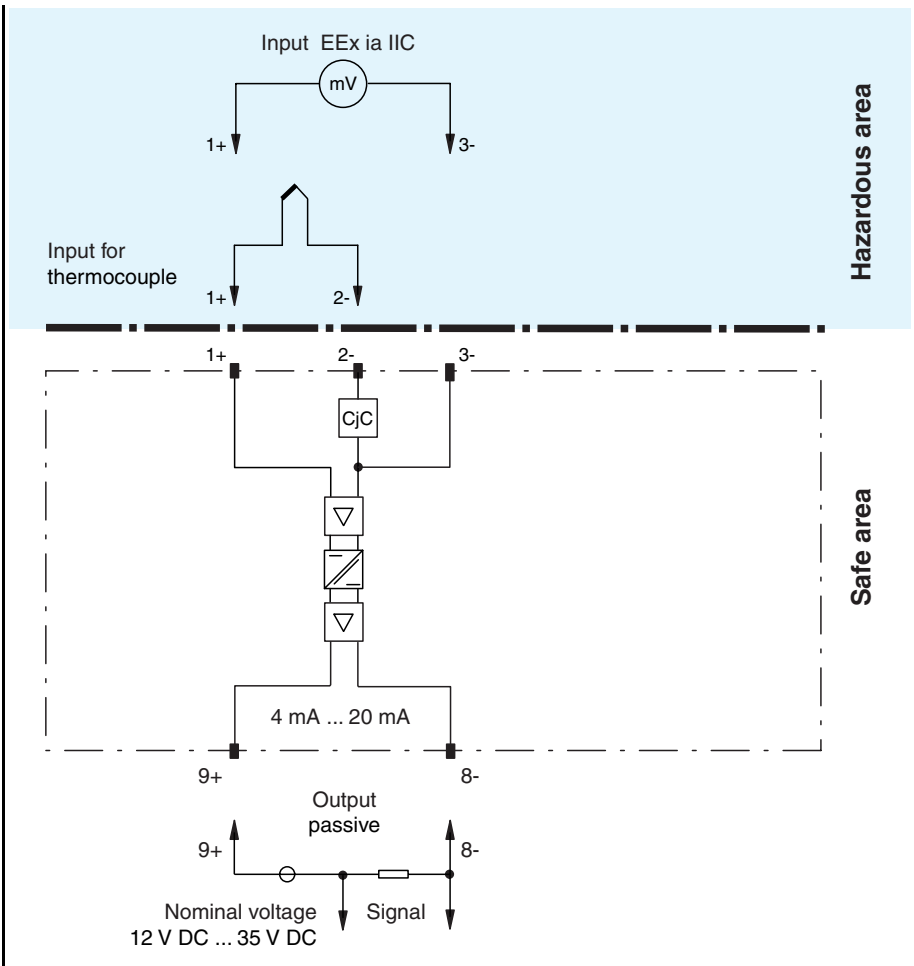




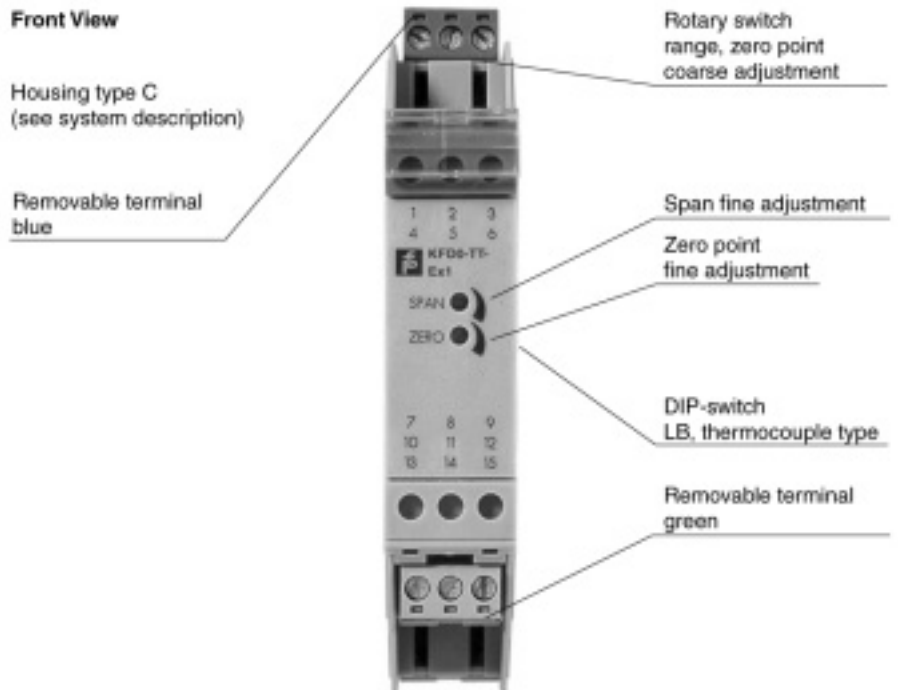
- 1-channel
- Input EEx ia IIC
- Loop powered 12 V DC ... 35 V DC
- Galvanic isolated measuring circuits
- Thermocouples E, J, K, N, R, S, T
- Lead monitoring
- Output voltage is linearly proportionate to input voltage
- Internal cold junction
- Span and zero point adjustable
- EMC acc. to NAMUR NE 21

**Application**

The loop powered 2-wire converter is suited for the connection of thermocouples and mV signals. The internal cold measuring point can be bypassed by connection to terminals 1+, 3-. Thermocouples with external reference or other mV sources can be evaluated in this operation mode.



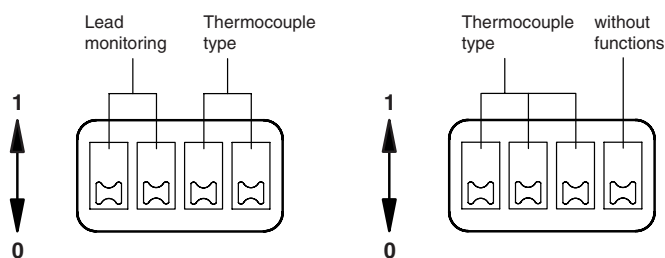
**Composition**



<b>Supply</b>	
Rated voltage	12 ... 35 V DC loop powered
Power loss	0,4 W
<b>Input</b>	
Connection	terminals 1+, 2-, 3- thermocouple E, J, K, N, R, S or T, cold junction referenced to 0 °C
Lead resistance	≤ 100 Ω per lead
Current	lead monitoring ON: ≤ 15 nA; OFF: ≤ 1 nA
<b>Output</b>	
Connection	terminals 9+, 8-
Load	(V <sub>S</sub> -12 V) / 0.02 A
Current output	4 ... 20 mA , limited to ≤ 35 mA
Fault signal	downscale ≤ 3 mA , upscaling ≥ 22 mA
<b>Transfer characteristics</b>	
Measurement range f <sub>n</sub>	span 4 ... 100 mV, zero point -12 ... 60 mV , both adjustable
Deviation	
After calibration	0.1 % of full-scale value ± 1 °C for the cold junction
Temperature effect	temperature deviation 0.015 % of the span/K or 1.5 μV/K cold junction ± 2.0 °C (calibrated at T <sub>A</sub> = 20 °C)
Influence of supply voltage	6.5 ppm/V
Characteristic curve	the output voltage is linearly proportionate to the input voltage (not to temperature)
Rise time	250 ms
<b>Electrical isolation</b>	
Input/Output	safe isolation according to EN 50178, rated insulation voltage 253 V <sub>eff</sub>
<b>Standard conformity</b>	
Coordination of insulation	acc. to DIN EN 50178
Electrical isolation	acc. to DIN EN 50178
Electromagnetic compatibility	NAMUR NE 21
Climatic conditions	acc. to DIN IEC 721
<b>Directive conformity</b>	
Electromagnetic compatibility	standards
Directive 89/336/EG	EN 61326, EN 50081-2
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
<b>Mechanical specifications</b>	
Protection degree	IP20
Mass	approx. 150 g
<b>Data for application in conjunction with hazardous areas</b>	
EC-Type Examination Certificate	ZELM 00 ATEX 0035 ; for additional certificates see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a>
Group, category, type of protection	⊕ II (1) G D [Ex ia] IIC
Voltage U <sub>0</sub>	16,1 V
Current I <sub>0</sub>	0,8 mA
Power P <sub>0</sub>	3,2 mW
Type of protection [Ex ia and Ex ib]	
Explosion group	IIA      IIB      IIC
External capacitance	10,7 μF    2,7 μF    0,4 μF
External inductance	1000 mH    1000 mH    1000 mH
Statement of conformity	TÜV 01 ATEX 1777X (observe statement of conformity)
Group, category, type of protection, Temperature classification	⊕ II 3 G EEx nA II T4
<b>Output</b>	
Safety maximum voltage U <sub>m</sub>	60 V (Attention! The rated voltage can be lower)
<b>Electrical isolation</b>	
Input/Output	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
<b>Directive conformity</b>	
Directive 94/9 EU	EN 50014, EN 50020, EN 50021

## Notes

DIP switch functions on side of unit:



Switch	Position	Function
S1.1/S1.2	1/0	LB UP-upscaled
S1.1/S1.2	0/1	LB DOWN-downscaled
S1.3	1	Thermocouple type E
S1.4	1	Thermocouple type J
S2.1	1	Thermocouple type K, T
S2.2	1	Thermocouple type N
S2.3	1	Thermocouple type R, S

\* other combinations not allowed/defined

**Note:**

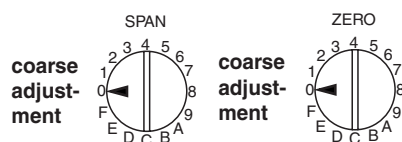
A new adjustment is necessary in the case of modified configuration (e. g. LB from upscaled to downscaled).

**Recommendation for adjustment:**

- Span determination (in mV).
- "Span coarse adjustment" in accordance with the table.
- Minimum value adjustment (in mV or °C) at the input.
- "Zero point coarse adjustment", to approach to 4 mA.
- "Zero point fine adjustment" to exactly 4 mA.
- Maximum value adjustment (in mV or °C) at the input.
- "Span fine adjustment" to exactly 20 mA.
- If necessary repeat fine adjustment for 4 mA and 20 mA.

Please consider that the values of the Zero-table are only valid for the span range Pos. 0 and that both tables contain typical values, which can be used as an adjustment help.

Rotary switch function on the side of device



Switch SPAN	Span (mV)	Switch ZERO	Zero point (mV) for max. span (potentiometer right-hand stop)	Zero point (mV) for min. span (potentiometer left-hand stop)
0	100.0 ... 53.0	0	-12.0 ... -8.0	-13.6 ... -8.5
1	55.0 ... 30.0	1	-8.3 ... -3.7	-9.0 ... -4.0
2	32.0 ... 20.0	2	-4.0 ... 1.0	-4.3 ... 1.1
3	22.0 ... 5.0	3	0.5 ... 5.6	0.5 ... 6.1
4	17.0 ... 12.0	4	4.6 ... 10.2	5.2 ... 11.2
5	14.0 ... 11.0	5	9.3 ... 14.9	10.2 ... 16.2
6	13.0 ... 9.0	6	13.9 ... 19.5	15.2 ... 21.1
7	11.0 ... 8.0	7	18.3 ... 23.9	20.1 ... 25.6
8	10.0 ... 7.0	8	23.0 ... 28.6	24.7 ... 31.0
9	9.0 ... 6.0	9	27.6 ... 33.1	30.0 ... 36.0
A	8.0 ... 5.5	A	32.1 ... 37.6	35.0 ... 40.5
B	7.5 ... 5.0	B	36.6 ... 42.1	39.4 ... 46.0
C	7.0 ... 4.5	C	41.1 ... 46.6	45.1 ... 51.0
D	6.5 ... 4.2	D	45.5 ... 51.0	50.1 ... 56.0
E	6.2 ... 4.1	E	50.0 ... 55.5	55.0 ... 61.0
F	6.1 ... 4.0	F	54.4 ... 60.0	60.0 ... 62.0