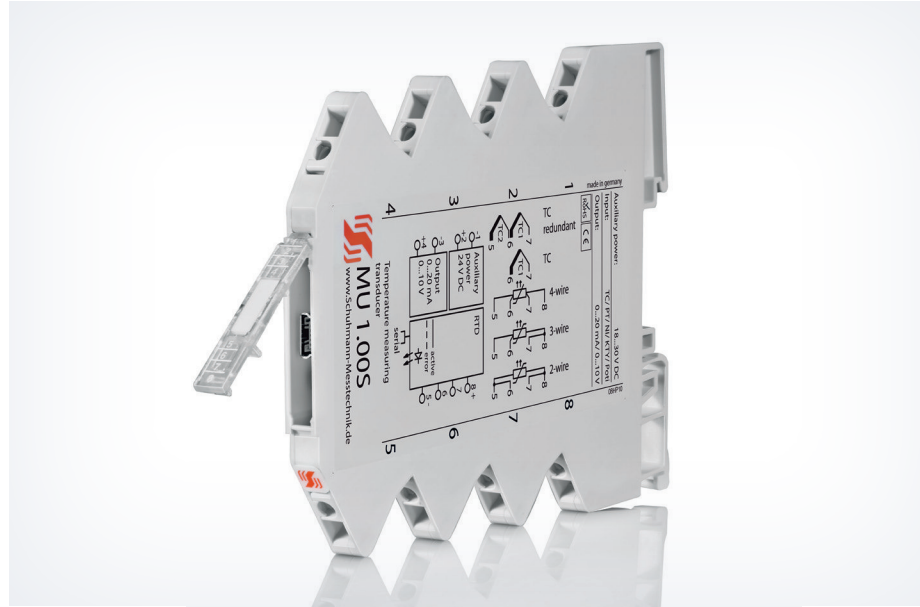




### FEATURES

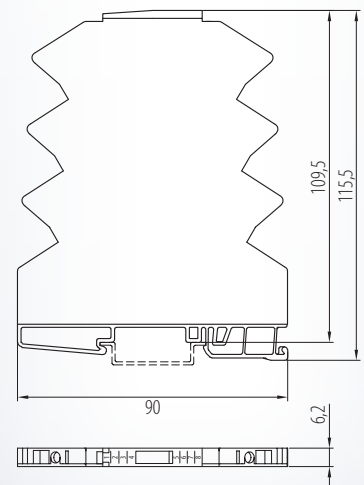
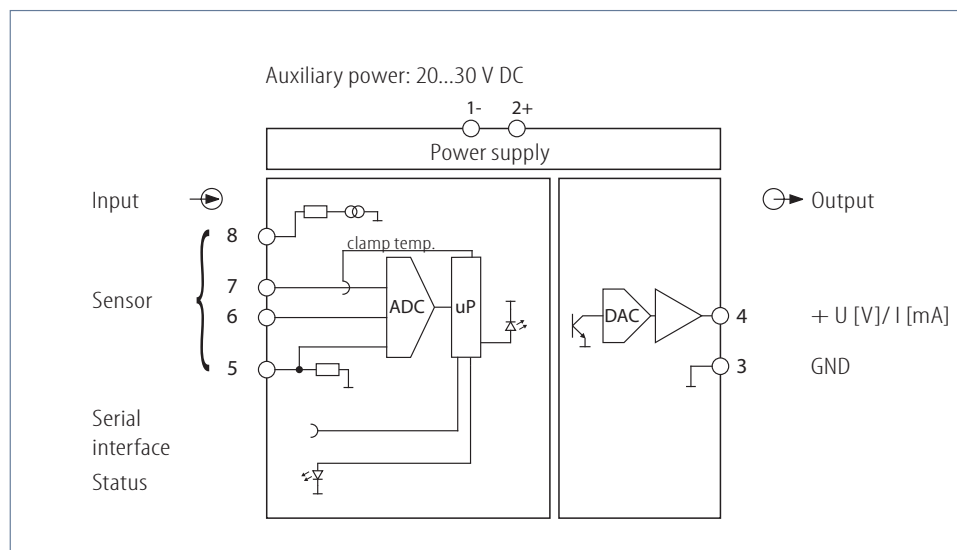
- **Input:**  
PT 100, PT 500, PT 1000, NI 500,  
NI 1000, PTC, KTY, thermocouples  
e.g. type J, K, L, N, S, Poti 0...5 k $\Omega$ ,  
other Sensors via Software
- **Output: 0(4)...20 mA/ 0(2)...10 V**
- **Detection of sensor break  
and short-circuit**
- **Redundant measurement at  
thermocouples possible**
- **Int./ext. cold-junction compensation**
- **Parameterization without  
auxiliary power via PC-interface**
- **Galvanic 3-way isolation of 2,5 kV**



### FUNCTION

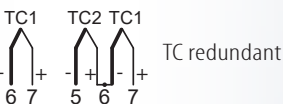
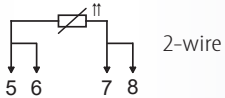
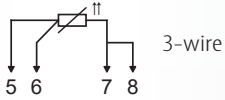
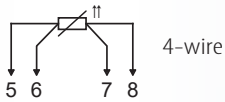
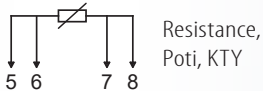
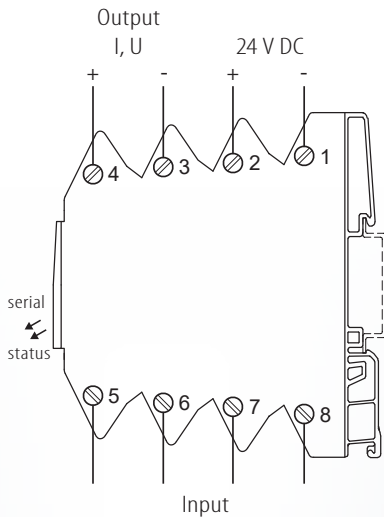
The MU 1.00 S is processing sensor signals and is used for the precise measurement of virtually all temperature sensors. Measurements of temperatures within a range of -200 and +2400 °C can be made, for example in air-conditioning and process engineering. Sensor break and sensor short-circuit are signaled and can be used as safety functions. By PT-sensors different connections can be selected: 2-, 3-, 4-wire system. The measuring line of the 3- or 4-wire connection is detected on wire break or short-circuits.

Further temperature sensor cams can be produced by a table of value and assigned to the transducer by the USB2 Interface in connection with KALIB-Software. Higher functional safety offers the redundant connection of thermocouples to the transducer. Indication of status is signaled by front sided LED. The integrated protective switching with suppressor diode protects the secondary circuit from voltage peaks and transient excess voltage.



# MU 1.00 S

Connection diagram:



## Input:

Sensor	Measurement range
Type B	400...1820 °C
Type C	400...2300 °C
Type D	400...2400 °C
Type E	-200...1000 °C
Type J	-200...1200 °C
Type K	-200...1372 °C
Type L	-200...900 °C
Type N	-200...1300 °C
Type R	-50...1760 °C
Type S	-50...1760 °C
Type T	-200...400 °C
Type U	-200...400 °C
KTY 81-110..	-58...150 °C
KTY 82-122..	-58...150 °C
KTY 83-110..	-58...150 °C
KT 100/110/130	-58...150 °C
KT 210/230	-58...150 °C
KTY 10/11/13-5..	-58...150 °C
KTY 21/23-5..	-58...150 °C
PTC	
PT100, PT500, PT1000	-200...850 °C
NI100, NI500, NI1000	-58...208 °C
Poti (2-wire) User	0...500 Ω / 5 kΩ

Additional temperature sensor cams can be created by using KALIB-Software.

Temperature compensation:  
 - internal:  $\pm 1$  K typ., max  $\pm 1,2$  K  
 - external: to be recommended at high temperature thermocouples

Redundancy at thermocouples:  
 - thermocouple TC1 has priority over TC2  
 - at deviation TC1 to TC2 > 30 °C warning via LED

Input resistance: approx. 1 MΩ at thermocouples

Sampling cycle: approx. 100 ms int.  
 limiting frequency: approx. 0,5 Hz

connection: terminal 5, 6, 7, 8  
 PT- 2/3/4 wire, at 2-wire measurement with offset correction

## Output:

I: load-independent DC current: 0(4)...20 mA  
 connection: terminal 3 -, 4 +  
 permissible load max. 400 Ω

U: load-independent DC voltage: 0(2)...10 V  
 connection: terminal 3 -, 4 +  
 permissible load  $\geq 2$  kΩ

## Adjustment:

Measuring ranges and parameterization are adjustable by KALIB-Software. For this you need a PC as well as the interface adapter **USB2/ USB-Simulator** with **KALIB-Software**.

## Display:

LED status: green, active  
 green, flashing  
 input signals are in standard range, device ready for use  
 input out of predetermined limits  
 or exceeding of measuring range or sensor error

## Environmental conditions:

Storage temperature: -40...+70 °C  
 Operating temperature: 0...55 °C  
 Isolation voltage:  
 2,5 kV eff. 1 sec. input-output  
 2,5 kV eff. 1 sec. auxiliary voltage

## Directive:

EMC Directive: 2014/30/EU\*  
 Low Voltage Directive: 2014/35/EU  
 \*minimum deviations possible during HF-radiation influence

## Auxiliary power:

24 V DC: 20...30 V DC  
 < 1,5 W

Influence of auxiliary power: < 0,1 %

## Mounting details:

Housing for top hat rail  
 Type of protection: IP 20  
 Mounting rail fixed according to EN 50022-35 x 6,2 mm  
 Width: 6,2 mm  
 Weight: 55 g  
 Material: Polyamide PA  
 Flammability class: V0 (UL 94)  
 Approval: CE  
 Connection: screw clamps  
 0,14...2,5 mm<sup>2</sup>

## Characteristics of transmission:

Transmission error: < 0,12 %  
 Resolution: 0,1 °C, 16 bit  
 Linearity error: < 0,03 %  
 Temperature error: < 30 ppm/ K  
 Load influence I: < 0,07 %  
 of final value  
 Load influence U: < 0,15 % at 2 kΩ load

**Please check parameterization before initial operation!**

## Ordering information:

**Type: MU 1.00 S** 24 V DC Universal  
**MU 1.01 S** 24 V DC only PT100, NI, KTY, Poti  
**MU 1.08 S** 24 V DC only thermocouples

Accessories: USB2/ USB-Simulator with KALIB-Software, manual

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