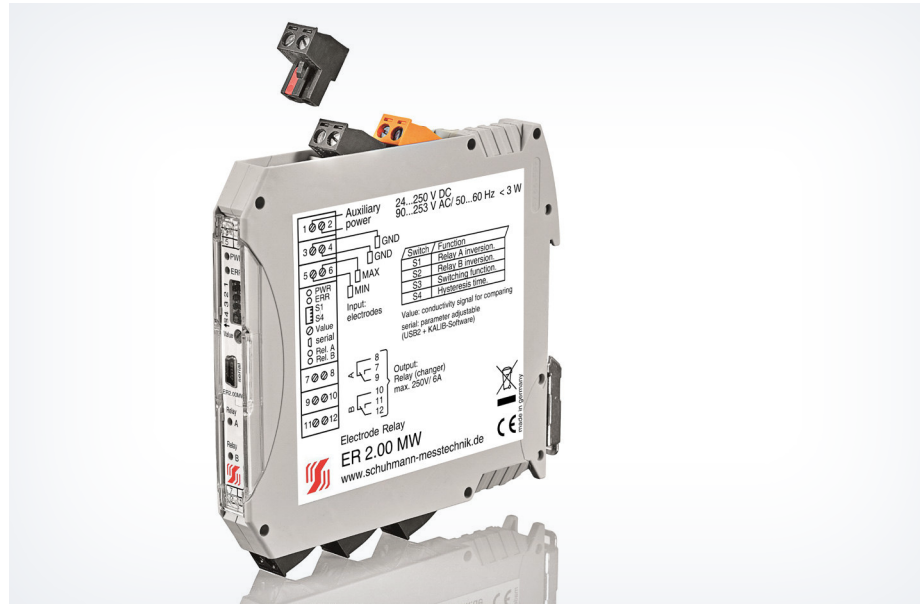


### FEATURES

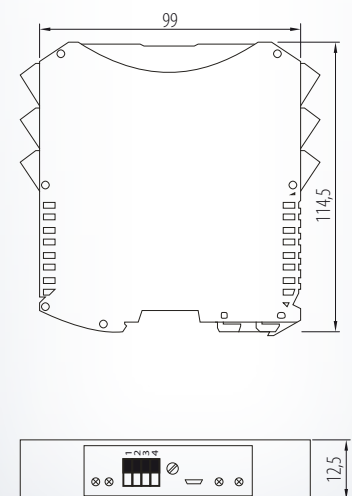
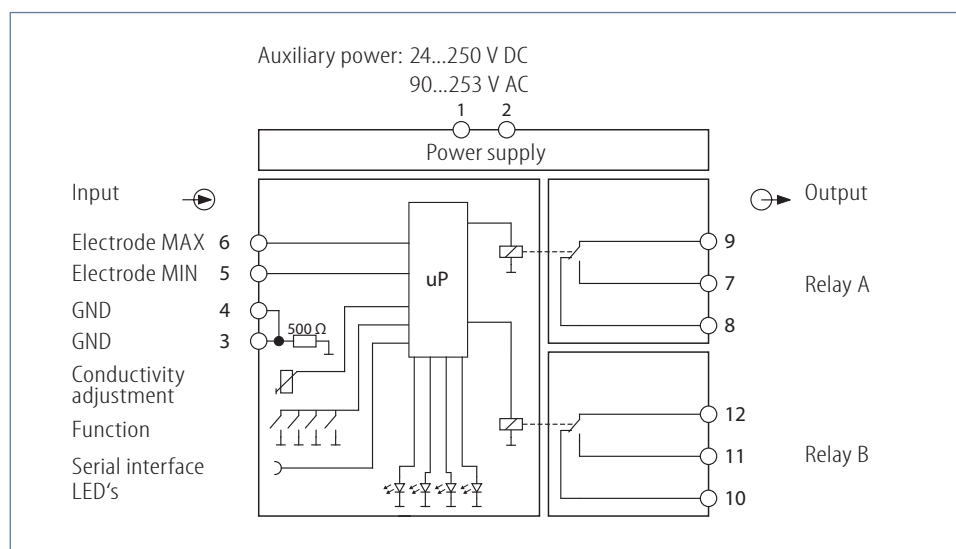
- **Input:**  
2x feeding of electrodes  
Current max. 1,5 mA  
Voltage max. 10 V AC
- **Output:**  
2 relay (changer, invertible)
- **Function selection via DIP-switch**
- **Adjustment of conductivity by trimmer 0,5...50 k $\Omega$**
- **Parameterization without auxiliary power via PC-interface: - hysteresis times**
- **Galvanic 4-way isolation**



### FUNCTION

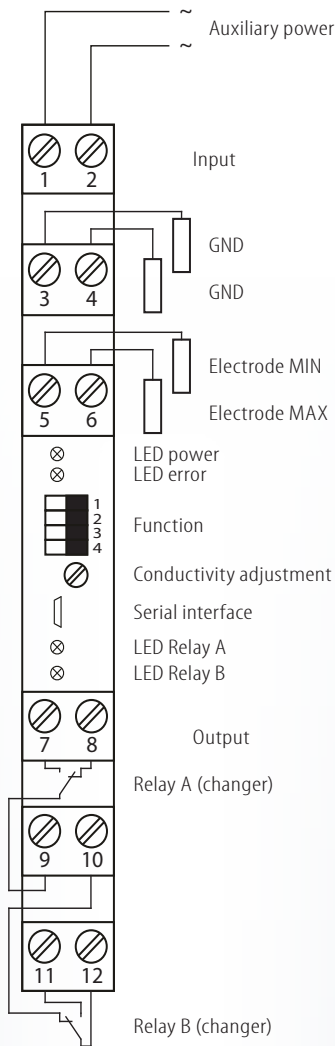
The Electrode Relay ER 2.00 MW is a limit switch that is used for minimum, maximum or level monitoring, the two-point control of tanks, silos and containers with electrically conductive liquids. Internal an alternating voltage square wave signal is being generated. This signal is compared with the conductivity value adjusted via the front side trimmer and evaluated accordingly. By using an alternating voltage at the electrodes corrosion of the probe rods and electrolytic decomposition of the medium can be avoided in almost all cases of the application.

Whether the relays should respond when the level rises or falls can be set via DIP-switch S1 and S2. The relay states are signaled by the front LEDs. Furthermore, DIP-switch S3 can be used to select the switching function „between electrode MIN and MAX“ (relay switching together) as well as „separate min. and max. function“ (relay switching separately, two independent switching points). The hysteresis times of the relays can be independently parameterized with the USB2 interface adapter or USB-Simulator in conjunction with the KALIB-Software and switched over with DIP-switch S4.



# ER 2.00 MW

Connection diagram:



## Input:

Minimal, maximal and ground electrode

maximal electrode current:  $I_{max} = 1,5 \text{ mA}$   
 maximal electrode voltage:  $U_0 = 10 \text{ V AC}$   
 Conductivity adjustment:  $0,5...50 \text{ k}\Omega$   
 connection: electrode MIN 3/ 5, electrode MAX 4/ 6

## Output:

Relay output:

2 changer  
 max. switching current: 6 A  
 max. switching voltage: 250 V AC  
 mechanical life cycle:  $5 \times 10^6$  cycles  
 electrical life cycle:  $10^5$  cycles  
 connection: relay A - common 9, normally closed 8, normally open 7  
 relay B - common 12, normally closed 10, normally open 11

## Adjustment:

DIP-switch for function selection:

Switch	Function	ON	OFF
1	Relay A	inverted	not inverted
2	Relay B	inverted	not inverted
3	switch. function	separate min. and max. function	betw. electrode MIN and MAX
4*	hysteresis time	hysteresis time 2	hysteresis time 1

\*Factory setting:

Hysteresis time 1 für both relays 3 sec. / hysteresis time 2 für both relays 20 sec.

The hysteresis time can be parameterized by KALIB-Software - 0...255 sec. For this you need a PC as well as the interface adapter **USB2/ USB-Simulator** with **KALIB-Software**.

Conductivity adjustment: setting the conductivity value as comparison value for the electrodes.  
 20-turn potentiometer: 1 turn equals approx. 2,5 k $\Omega$ .

## Display:

LED power green, active device active, no error  
 LED error red, active at switching function 1: R of electrode MIN > electrode MAX  
 LED Relay A/B red, active Relay A/ B tightened

## Environmental conditions:

Storage temperature:  $-40...+70 \text{ }^\circ\text{C}$   
 Operating temperature:  $0...55 \text{ }^\circ\text{C}$   
 Isolation voltage: 4 kV eff. 1 sec.  
 input/ output/  
 auxiliary power

## Auxiliary power:

Wide range: 24...250 V DC  
 90...253 V AC  
 $< 3 \text{ W}$   
 Influence of Aux. power:  $< 0,1 \%$

## Characteristics of transmission:

Setting time: approx. 5 sec.

## Directive:

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

## Mounting details:

Housing for top hat rail  
 Type of protection: IP 30 housing  
 IP 20 clamps  
 Mounting rail fixed according to  
 EN 50022-35 x 7,5 mm  
 Width: 12,5 mm  
 Weight: 100 g  
 Material: Polyamide (PA)  
 Flammability class: V0 (UL94)  
 Approval: CE  
 Connection: pluggable  
 screw clamps  
 $0,2...2,5 \text{ mm}^2$

**For safety reasons we recommend to mount the housing for top hat rail with a distance of approx. 5 mm to each other.**

## Ordering information:

Type: **ER 2.00 MW** wide range  
 Accessories: USB2/ USB-Simulator with  
 KALIB-Software

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