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 kΩ**
- **Parameterization without auxiliary power via PC-interface:**
  - Hysteresis times
  - Galvanic 4-way isolation

FUNCTION

The electrode relay 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.

In the electrode relay, an alternating voltage square wave signal will be generated internal. 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.
Input:
Minimal, maximal and ground electrode
maximal electrode current: \( I_{\text{max}} = 1,5 \text{ mA} \)
maximal electrode voltage: \( U_{\text{max}} = 10 \text{ V AC} \)
Conductivity adjustment: 0,5...50 kΩ
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 x 10⁶ cycles
electrical life cycle: 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:

<table>
<thead>
<tr>
<th>Switch</th>
<th>Function</th>
<th>ON</th>
<th>OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Relay A</td>
<td>inverted</td>
<td>not inverted</td>
</tr>
<tr>
<td>2</td>
<td>Relay B</td>
<td>inverted</td>
<td>not inverted</td>
</tr>
<tr>
<td>3</td>
<td>Switch. function</td>
<td>separate min. and max. function</td>
<td>betw. electrode MIN and MAX</td>
</tr>
<tr>
<td>4*</td>
<td>Hysteresis time</td>
<td>Hysteresis time 2</td>
<td>Hysteresis time 1</td>
</tr>
</tbody>
</table>

*Factory setting:
Hysteresis time 1 für both relays 3 sec. / Hysteresis time 2 für both relays 20 sec.
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.

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 °C
Operating temperature: 0...55 °C
Isolation voltage: 4 kV eff. 1 sec.
input/ output/ auxiliary power

Auxiliary power:
Wide range: 24...250 V DC
90...250 V AC
< 3 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 mm²

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 with KALIB-Software

connection diagram: