



### Safety Precautions:

- Installation, initial start-up and maintenance may only be performed by trained personnel! All applicable European and national regulations regarding installation of electrical equipment must be adhered to.
- The device may only be connected to supply power which complies with the specifications included in the technical data and on the serial plate!
- The device must be disconnected from all sources of power during installation and maintenance work!
- The device may only be operated under the conditions specified in the operating instructions!

### Functions Description:

The electrode control VESA is working according to the conductivity principle. The electrical conductivity of fluids is used to detect an electrical connection between the immersed electrodes for the control of four limits. This conductive level sensor is not suitable for liquids that contain fat or oil, or in which form electrically conductive or insulating deposits.

Ranges: The electrode control VESA can be used with fluids, the resistance between the electrodes is less than 120kΩ

**The VESA is available with up to 5 electrodes**

Modes: It can be set in two modes:

- Direct supervision of 4 levels (Niv)
- Interval circuit (MIN / MAX-control) with self-retaining with the electrodes E2, E3 and reference electrode and in addition to the electrodes E1 and E4 as overflow and dry run monitoring

Metal containers can be connected and used as an extended reference electrode connected to the E0-electrode.

### Technical Data:

<b>Supply power:</b>	10-30V DC
<b>Power consumption:</b>	~2W
<b>Ambient temperature:</b>	-20...+60°C
<b>Medium temperature:</b>	max. 100°C
<b>Terminal housing:</b>	PBT, fibre-glass reinforced, IP65 protection per EN 60 529
<b>Operating pressure:</b>	Atmospheric 6 bar at +20°C, 1 bar at +100°C (greater upon request)
<b>Process interface:</b>	PP, G2"- Screw-in plug
<b>Elektrodes:</b>	Stainless Steel 316L, min. 45mm, max. 2000mm

### Technical Data (continued):

<b>Measuring Circuit:</b>	Electrically isolated alternating voltage < 5V / < 1 mA
<b>Sensitivity:</b>	selectable with DIP-Switch
	Low < 10kΩ > 0,1mS
	Medium ~60kΩ ~16μS
	High > 120kΩ < 8μS
<b>Reset hysteresis:</b>	approx. 10% of the selected sensitivity value
<b>Sensor inputs:</b>	2...5 Electrodes, for up to 4 detection levels
<b>Signalisation:</b>	4 x LED for relays pulled on
<b>Control:</b>	6-DIP Switches for operating and sensitivity
<b>Relay-outputs:</b>	2 or 4 floating contacts with common root AC: max. 250V, 5A, 500VA DC: max. 30V, 1A, 40W <b>Please Note:</b> The max. acceptable current equals the sum of the single currents through the root. When the power supply is switched off all relay contacts are opened.
<b>Operating Principle:</b>	working current / closed-circuit current selectable with DIP switch
<b>Delay:</b>	ON/OFF delay selectable 0.5 or 5 sec
<b>CE Mark:</b>	The device fulfills the legal requirements of applicable EU-guidelines

### Mounting and startup:

**Sensitivity:** DIP-Switch 1-3 for adaptation to the conductivity of the liquid

**Principle:** for a smaller conductivity of the liquids and a greater distance between the electrodes, a higher sensitivity must be set.

**Hint:**

The low sensitivity (DIP 1=ON, low) is right for very highly conductive liquids

The medium sensitivity (DIP 2=ON, med) is right for the most conductive liquids

The high sensitivity (DIP 3=ON, high) is right for very highly conductive liquids

**Warning:** if the sensitivity is set too high incorrect switching is possible

Observe that always **only one of DIPs 1/2/3** is switched to ON-position, e.g. OFF/ON/OFF

**Working current / closed-circuit current:** DIP-Switch 5

All relay contacts are **inverted**

**ON / OFF delay:** DIP-Switch 6

Chatter protection, to prevent excessive switching in the event of disturbances at the surface of the liquid.

**Operation modes:**

DIP Switch changing between 2 Operation modes

**Mode Niv (level control):**

DIP- Switch 4 = OFF

Every electrode E.. is assigned to a relay A...

If a electrode E contacts the medium, the assigned relay will be activated

**Mode MIN/MAX:**

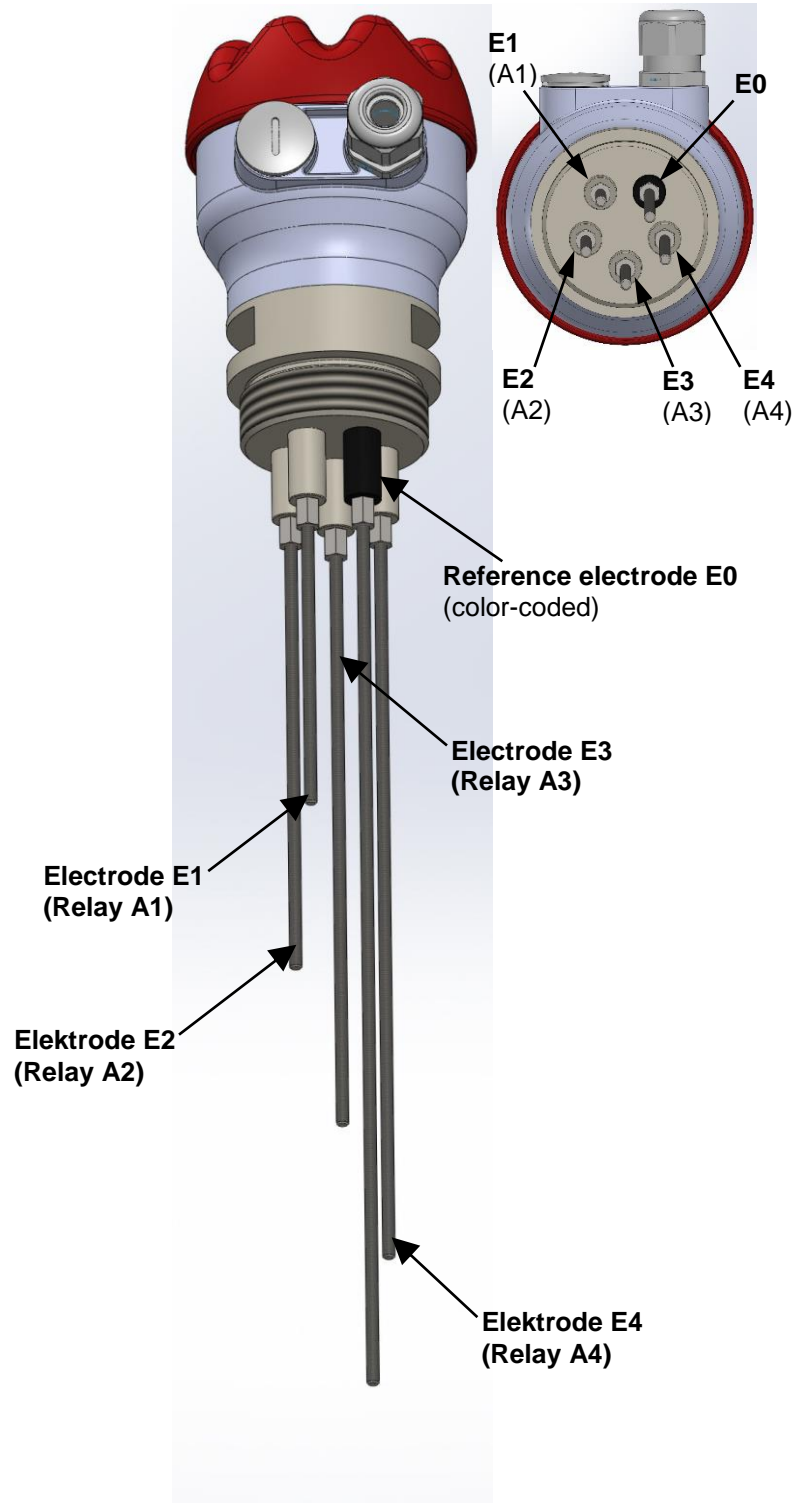
DIP-Switch 4 = ON: MIN/MAX-control with self-retaining for automatic filling or discharging

The electrodes E1 and E4 are always assigned to relay A1 and A4.

The behavior of relay A2 and A3 is like a change-over contact.

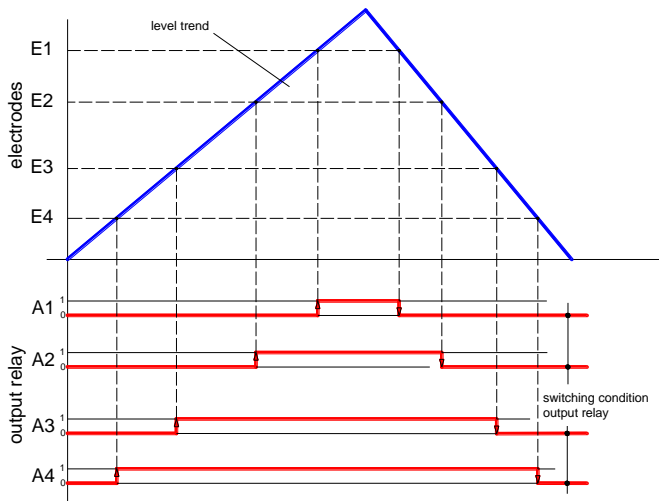
**Electrode modification:**

The electrodes can be cut manually, if needed. The electrodes are assigned to the relays as following:

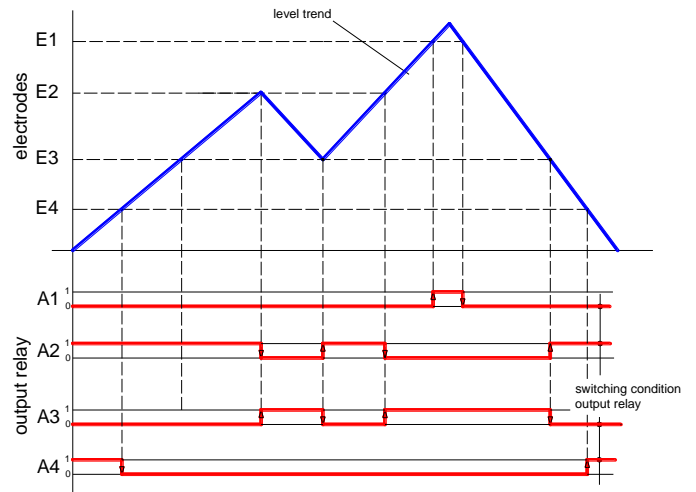


The electrode-order starts with the color-coded reference electrode E0 and continues increasing from short to long (E1, E2, E3, E4) anticlockwise (view from below, as shown on the pictures).

**Functional diagram:**



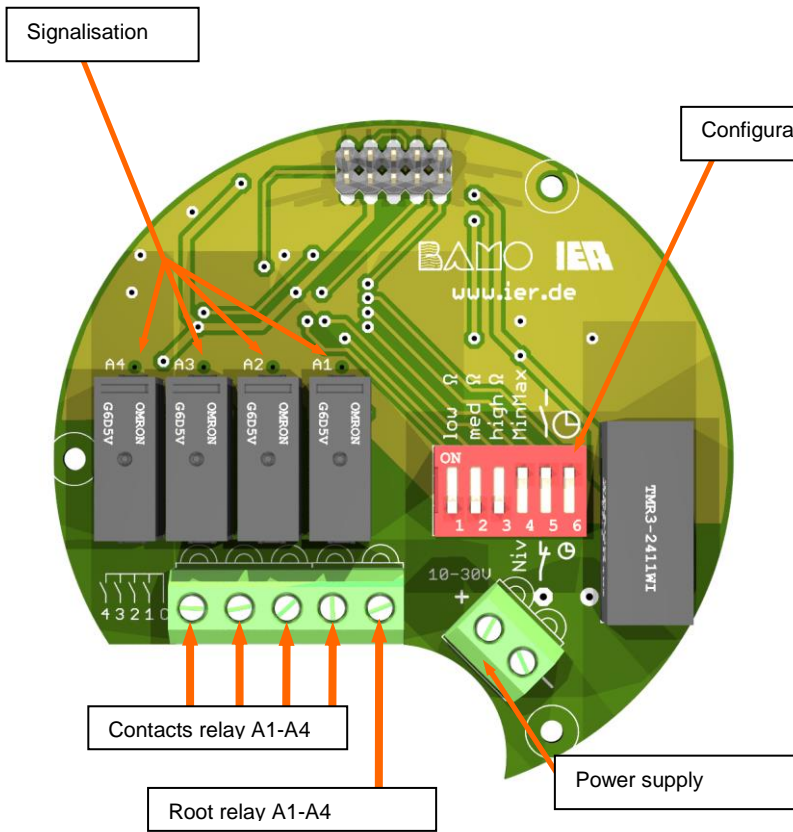
Level-Control



MIN/MAX-control with electrodes E2/E3, electrode E1 for **overflow-control** and electrode E4 for **dry-running-control**

Note: with no supply power all relay-contacts are open!

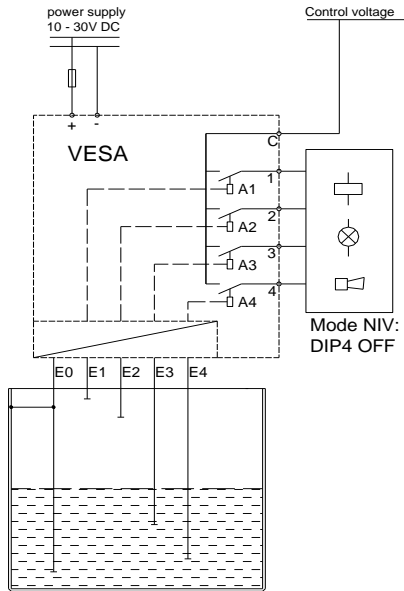
**Controls:**



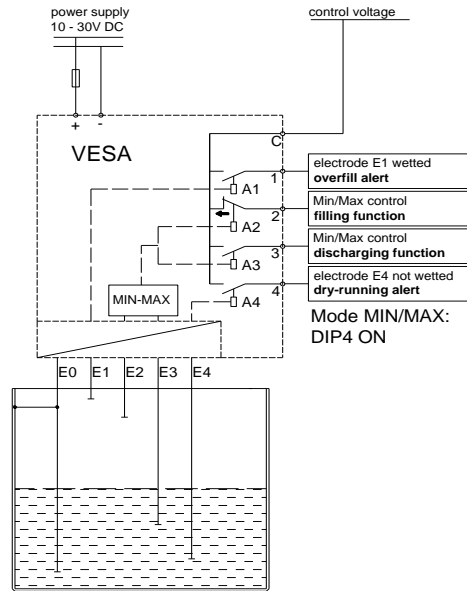
DIP	AUS	EIN	Funktion
1*)	-	<10kΩ	Low
2*)	-	~60kΩ	Medium
3*)	-	>120kΩ	High
4	Niveau	MIN/MAX	Mode
5	Closing contact	Opening contact	Relais
6	0,5 sec.	5 sec.	Time

\*) Only one of the dip-switches 1-3 may be switched ON!

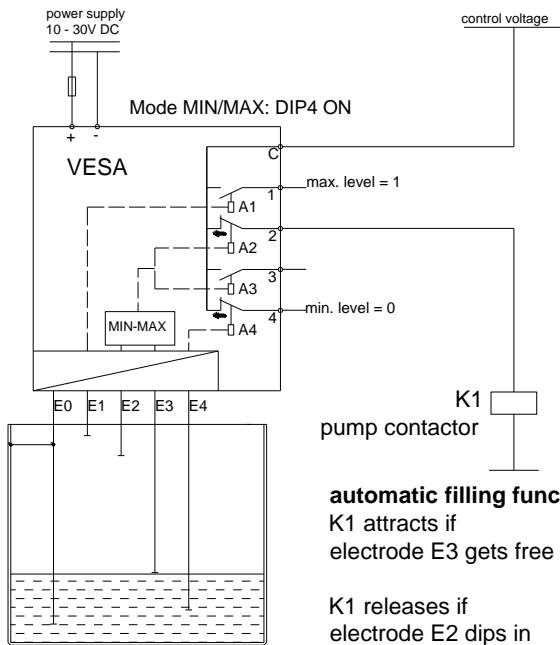
**Elektrical Connection:**



Note:  
E1 is always the shortest electrode

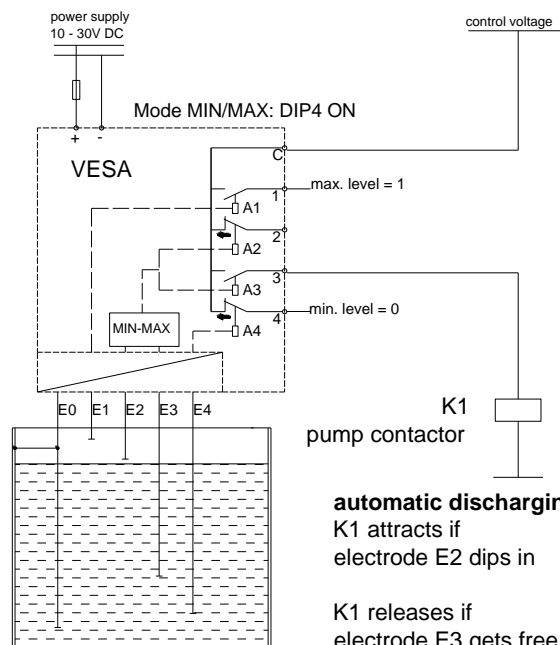


Note:  
E1 is always the shortest electrode



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**automatic filling function:**  
 K1 attracts if  
 electrode E3 gets free  
  
 K1 releases if  
 electrode E2 dips in



Note:  
E1 is always the shortest electrode

**automatic discharging function:**  
 K1 attracts if  
 electrode E2 dips in  
  
 K1 releases if  
 electrode E3 gets free

Please note: With DIP-switch 5 = ON all contacts are inverted