

Installation and commissioning instructions ER-104

Important safety instructions please read and note

A precondition for perfect, safe operation of the electrode relay modules is proper transport, storage, mounting, correct installation and commissioning.

Only persons with the necessary technical knowledge and qualification may carry out this work. The pertinent safety regulations for the installation and operation of electrical devices must be observed.

When installing or if maintenance work be carried out disconnect the device before beginning. Operate the device only under the conditions which are defined in the technical data.

If the information in these instructions should prove insufficient, the manufacturer should be contacted.

All electrical connections and "internal" module settings must be made with the device isolated from the supplier

Mounting

ER-104 electrode relay modules are intended for mounting on standard mounting rails according to DIN. The maximum ambient temperature of the electrode relay must not be exceeded at the place of installation. The operating voltage of the ER-104 must correspond with that of the installation.

Electrical connection

Limit monitoring (overflow/dry-running)

Connect the reference electrode (ground) to terminal E0; connect the electrode of the level to be monitored terminal E2.

Two-step control (Min/Max operation)

Connect the reference electrode (ground) to terminal E0; connect the electrode for the lower level to terminal E1 (Min) and the electrode for the upper level to terminal E2 (max). The ground electrode must be located below "Max" and "Min".

Multiple combinations

Terminal E0 must be bridged at all terminals and the common electrode (ground) connected.

Note:

For installation of the sensor cable in the vicinity of power cables, the use of a shielded cable can reduce interference through coupling. The maximum cable length between the sensor and electrode relay depends on the sensitivity of the devices.

Connection of supply voltage

Electrical connection to the terminals marked "supply" A1(+) and A2(-) must be established according to the diagram on the housing cover. EN 61 010-1 requires that all-pole disconnection and overcurrent protection is provided in the building installation.

Output contacts

The switch position shown on the type plate corresponds to that of the relay in a de-energised condition (further information, see "Functional description").

Commissioning/Setting

After setting the required module functions (factory settings: Range I / Open-Circuit Operation / Min. sensitivity), the housing cover must be replaced carefully.

When all settings have been made and connection to the supply has been established, the ER-104 electrode relay module can be adjusted to the respective media.

For this purpose, the sensitivity must initially be set to the minimum value with a screwdriver ("sensitivity" potentiometer must be turned fully COUNTER-CLOCKWISE).

When the "max." and "ground" electrodes are immersed in the conductive liquid, the potentiometer must be turned clockwise until the output relay picks up (or drops out in closed-circuit operation).

When this position is reached, the potentiometer must be turned a further 10°-15° to take into account conductivity variations. If the relay fails to operate at max., the module must be exchanged for an ER-104 electrode module with higher sensitivity.

Indicating elements/ Control elements

"Red" LED

Lit: output relay picked up
Dark: output relay in normal position

Sensitivity range:

Range I: 2...300 k
switch (jumper) position [300]
Range II: =2...30 k
switch (jumper) position [30]
Position of the switch: inside the device in the upper area of the board.

Sensitivity

The potentiometer can be adjusted through the openings in the housing cover provided for this purpose with a screwdriver.
Counter-clockwise = Minimum sensitivity
Clockwise = Maximum sensitivity

Closed-circuit/open-circuit operation

The selector switch (jumper) for the setting of closed-circuit/open-circuit operation can be found inside the device in the upper area of the board.

Operating delay (optional)

The respective switch inside the housing can be adjusted with a screwdriver.
"0" = minimum operating delay
"F" = maximum operating delay
(See Technical Data)

Button (optional)

The optional button T1 can be directly accessed from the front.



E.L.B.
FÜLLSTANDSGERÄTE

Supply 24 V DC / 1 W
Switching capacity
AC: max. 250 V, 500 VA
DC: max. 250 V, 60 W

A1	L(+)		
11	COM	E0	Ground
12	NC	E1	MIN
14	NO	E2	MAX
A2	N(-)		

ER-104/B/1W



Range 1: 2...300 kΩ
Range 2: 2...30 kΩ




Closed-circuit/
open-circuit operation



Measuring range
300 kΩ

The selector switch for the setting of closed-circuit/open-circuit operation can be found inside the device

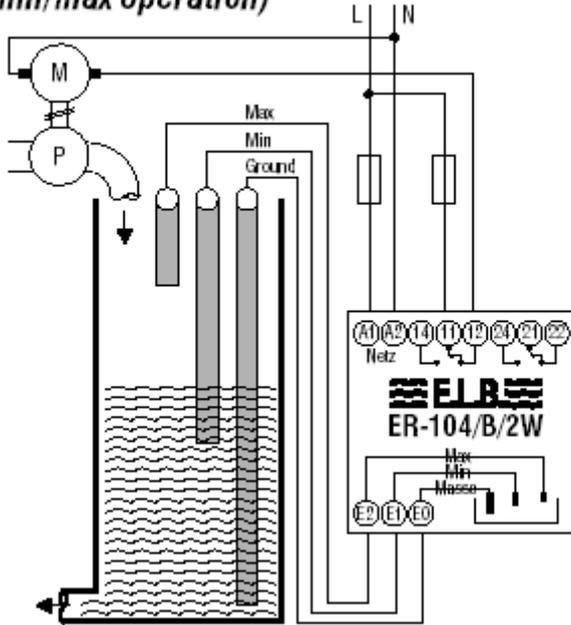
Before setting the switches separate the device from the supply

Maintenance/Cleaning

The electrode relay modules require no particular maintenance over and above general inspection/functional testing of the electrical installation.

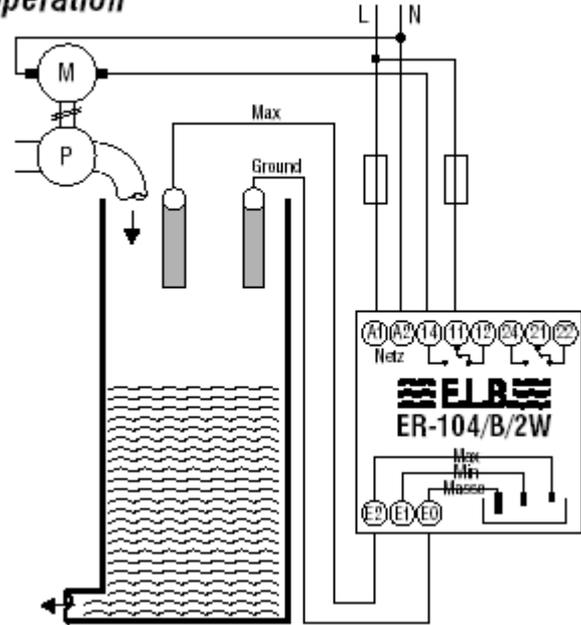
Wiring example filling

Limit level monitoring in open-circuit operation (min/max operation)



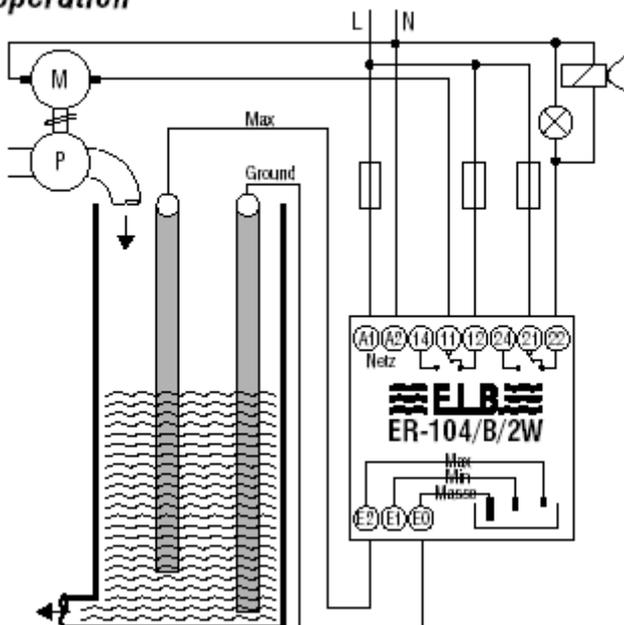
Wiring example overflow

Limit level monitoring in closed-circuit operation



Wiring example dry-running

Limit level monitoring in open-circuit operation



Wiring example filling

Open-circuit

