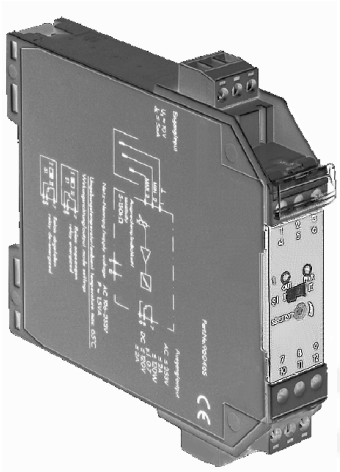
*Datasheet*

# Electrode Relay ER 24 / ER 230

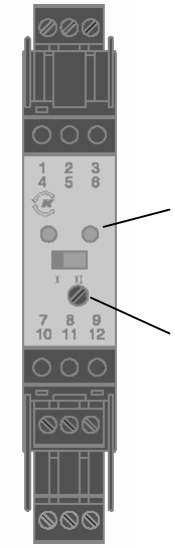
## Electrode Relay ER 24 / ER 230



## Features

- Relay for conductive limit detection
- Variable sensitivity
- Protected low voltage control circuit to VDE 0100 part 410
- Min-Max-Control
- Open circuit current / closed circuit current – user selectable

## Front View




LED green: Power
LED yellow: Relays-output

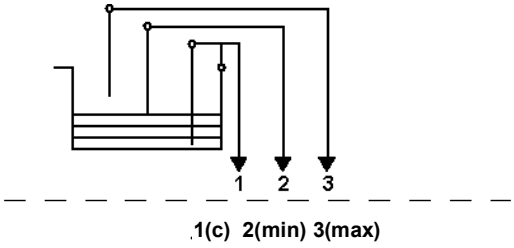
Potentiometer

## Operating Principle

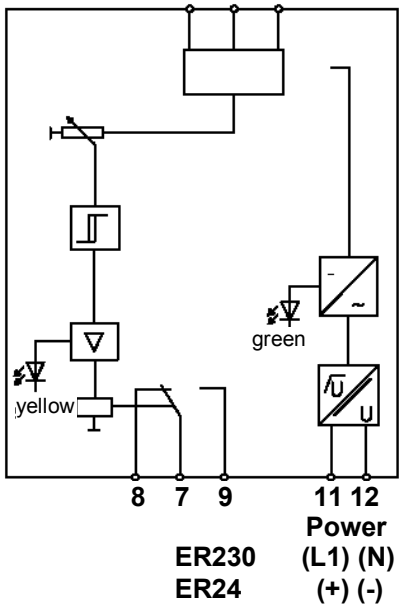
The relays provide an AC measuring voltage to VDE 0100 to the electrodes. The units are voltage and temperature stabilised and guarantee a defined switch behaviour. A holding contact allows the units to be used as a min-max controller.

The KSR Electode Relays ER react to the small alternating current at the electrode tip, generated upon contact with the conductive medium. As the conductivity of liquids to be measured may vary, the response sensitivity of the relay units is adjustable.

## Electrical Connection




**1(c) 2(min) 3(max)**



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# Electrode Relay ER 24 / ER 230

## Technical data

**Response sensitivity**

| | |
|---|---|
| ER 24 / ER 230 | 5 ... 150 kΩ adjustable via potentiometer (20 turns) |

**Input/Measuring circuit**

| | |
|---|---|
| terminals | 1 (mass/ground), 2 (min), 3 (max) |
| max. voltage | 10 V AC (approx. 1 Hz) |
| max. current | 5 mA |
| min-/max-control | terminals 1, 2, 3 |
| on-/off-control | terminals 1, 3 |

**Output** 1 changeover contact

| | |
|---|---|
| terminals | 7, 8, 9 |
| contact rating | AC 250 V/2A/cos φ ≥ 0,7<br>DC 40 V/2A (resistance load) |
| delay time (energising and de-energising) | approx. 1 s / approx. 1 s |
| switch S1 | I open circuit current<br>II closed circuit current |

**Galvanic isolation**

| | |
|---|---|
| power supply/output<br>power supply/input<br>input/output | galvanic isolation to DIN 106, rated insulation voltage 253 $V_{eff}$ |

**Power supply**

**ER 24**

| | |
|---|---|
| terminals | 11 (+), 12 (-) |
| nominal voltage | DC 24 V |
| power consumption | approx. 0.8 W |

**ER 230**

| | |
|---|---|
| terminals | 11 (L1), 12 (N) |
| nominal voltage | AC 230 V, (48 ... 62 Hz) |
| power consumption | appox. 0.8 W |

## Environmental conditions

| | |
|---|---|
| temperature | -25 °C ... +65 °C |

**Mechanical**

| | |
|---|---|
| dimensions | W/H/D 20/114/115 mm, |
| connections | screw connections, max. 2.5 mm² |
| mounting | snap/clip onto standard DIN EN 50022 rail (35mm) or screw mounted via pullout latches |
| weight | ~ 110 g |
| isolation coordination | to EN 50178 |
| galvanic isolation | to EN 50178 |
| climate conditions | to IEC 721 |
| electromagnetic compatibility | to EN 50081-2 / EN 50082-2 |
| type of protection to IEC 60529 conformity to standards | IP20 |

## Open circuit current principle

In the open circuit current principle the relay energises when the liquid reaches the electrode.

## Closed circuit current principle

In the closed circuit current principle the relay energises immediately on power up. It de-energises, when the liquid reaches the electrode.