

KSR Electrode Relay Type ER230 and ER24



General description KSR Electrode relays type ER230 and ER24 operate on the conductive measurement principle and can be used in conjunction with KSR Rod electrodes to monitor and control liquid levels of electrically conductive media such as water, caustic solutions or acids. They have a protected low voltage control circuit to VDE 0100 part 410.

The electrode relays provide an AC measuring voltage to the electrodes and react to the small alternating current at the electrode tip, generated upon contact with the conductive medium. The controllers are voltage and temperature stabilised and guarantee a defined switch behaviour. A holding contact allows the units to be used as min-max controllers. As conductivity can vary from liquid to liquid, the response sensitivity of the relay units is adjustable.

Via the relay outputs, the switch signals can be forwarded to other evaluating circuits or instruments.

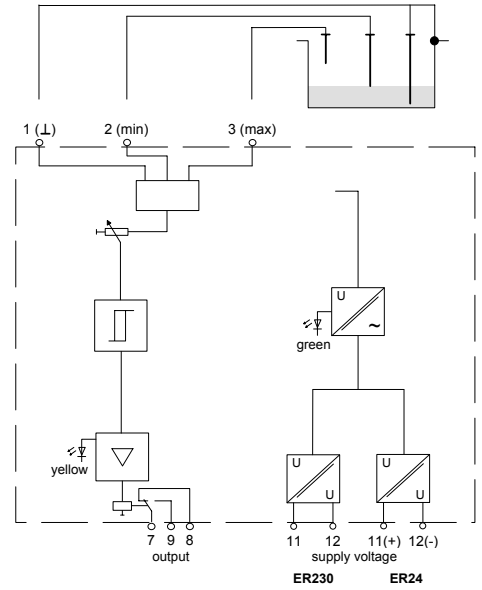
Power supply/output, power supply/input and input/output are galvanically isolated to DIN 106, rated insulation voltage of 253V_{eff}.

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.

Technical features

- ◆ protected low voltage control circuit to VDE 0100 part 410
- ◆ Min-Max-Control
- ◆ open circuit current / closed circuit current – user selectable



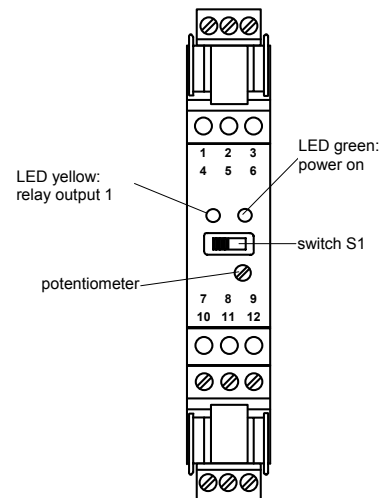
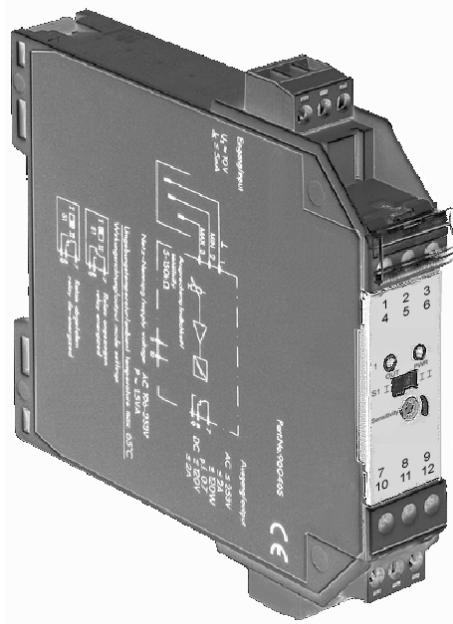
Selection of operating mode output relay

detail front panel	input	output
	 1 - Signal	relay energised
	 0 - Signal	relay de-energised

detail front panel	input	output
	 0 - Signal	relay energised
	 1 - Signal	relay de-energised

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Dimensions
B 20 mm
H 105 mm
T 115 mm



		ER230	ER24	Technical data
Supply				
supply voltage	terminals 11(+), 12(-)	230V AC, 48Hz ... 62Hz	24V DC	
power consumption		≤ 0.8W		
Input/control circuit		terminals 1, 2 and 3	1 (mass/ground) ; 2 (min.) ; 3 (max.)	
response sensitivity		5 kOhm ... 150 kOhm adjustable		
max. voltage		10V AC (approx.. 1 Hz)		
max. current		5mA		
min- /max- control		terminals 1, 2 and 3		
on- / off- control		terminals 1 and 3		
Output		terminals 7, 8 and 9	1 relay output (changeover contact) volt-free	
contact rating AC		250V / 2A / cosφ > 0,7		
contact rating DC		40V / 2A / resistance load		
delay time: energising / de-energising		approx. 1s / approx. 1s		
switch S1		I open circuit current II closed circuit current		
Transfer characteristics				
switching frequency		≤ 10Hz		
Galvanic isolation				
power supply / output		galvanic isolation		
power supply / input		to DIN 106		
input / output		rated insulation voltage 253V _{eff}		
Environmental conditions				
operating temperature		-25°C ... +65°C		
type of protection		IP 20		
Mechanical data				
design		modular terminal housing in Makrolon, flammability class UL94: V - 0		
mounting		snap/clip onto standard 35mm rail or screw mounted via 2 screws		
connection terminals		self-opening instrument terminals max. 2.5mm ²		
weight		approx. 110g		