

Measuring relay  
**SUR - Voltage measuring with 1 Changeover**  
 11.25mm housing



### Application

Voltage measuring of AC and DC systems.

### Description

Using two separate connections, the **SUR voltage measuring relay** can operate with either 230V AC using terminals A1 and A2 or 24V AC/DC using terminals A3 and A2. The green LED indicates the connection to the power supply. The power supply must be continuously connected to the relay.

### Function

The SUR measures an AC or DC voltage connected to the terminals B1 and B2. If the voltage exceeds the response value selected with the potentiometer  $U >$ , the relay switches to its operating position. This status is indicated with the red LED. The relay returns to its rest position when the monitoring voltage falls below the selected value and the selected hysteresis. The response time of the relay can be adjusted between 0 and 10 seconds. The monitoring circuit is electrically isolated from the power supply. The relay continuously monitors the rectified value of the input signal.

### Part number

012019	SUR 50...500mV	DC/AC
012018	SUR 0.1...1V	DC/AC
012017	SUR 0.5...5V	DC/AC
012009	SUR 1...10V	DC/AC
012012	SUR 5...50V	DC/AC
012010	SUR 10...100V	DC/AC
012005	SUR 25...250V	DC/AC

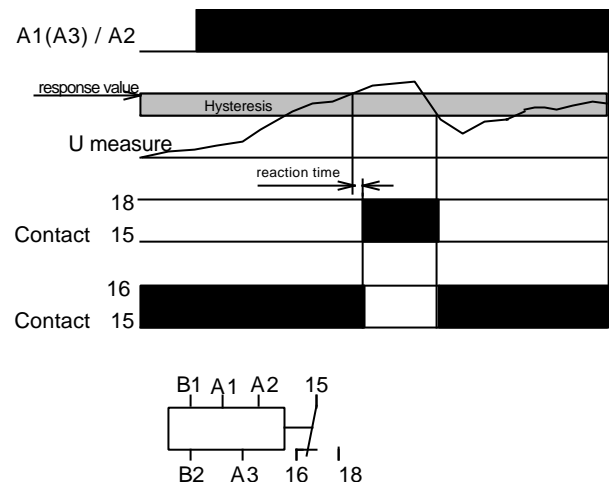
### Options

Other monitoring ranges and voltages available upon request.

### Approvals



### Function diagram



### Mounting

Snap-on mounting using a standard DIN rail EN 50022. The unit is designed to allow side-by-side mounting, with an ambient temperature of  $< 60^{\circ}\text{C}$ .

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## Technical data

### Supply

Supply voltage	A1 / A2 :	230V AC	-15 / +10%
	A3 / A2 :	24V AC/DC	-15 / +10%
Frequency range:		0 / 50 ... 60Hz	
Power consumption:		0,8W at 24V/DC 6VA at 230V/AC	
Operating mode:		continuous	

### Measuring circuit

Measuring accuracy:		2% over the total temperature and voltage range	
Repetitive accuracy:		± 2%	
Measuring circuit U > :	No. 012019	50...500mV DC	
	No. 012018	55...555mV AC	
	No. 012017	0.1...1V DC	
	No. 012017	0.11...1.11V AC	
	No. 012017	0.5...5V DC	
	No. 012009	0.55...5.55V AC	
	No. 012012	1...10V DC	
	No. 012012	1.1...11.1V AC	
	No. 012012	5...50V DC	
	No. 012010	5.5V...55.5 V AC	
	No. 012010	10...100V DC	
	No. 012010	11...111V AC	
	No. 012005	25...250V DC	
	No. 012005	27.7...277 AC	

Hysteresis $\Delta I$ :	5...30%
Reaction time $t_v$ :	0...10s

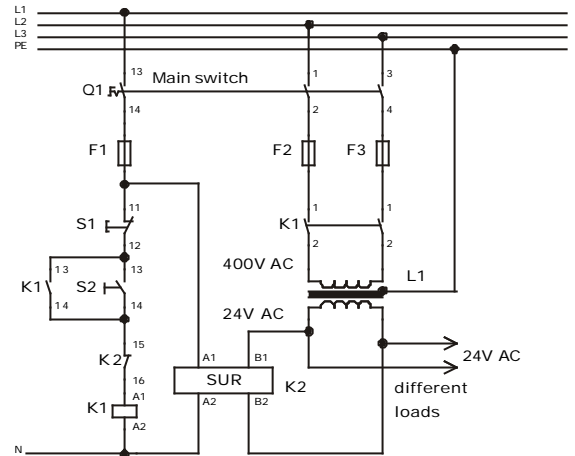
### Operation indicators

Supply voltage:	LED, green
Relay in work position:	LED, red
Contact	
Number of changeovers:	1
Contact material:	AgSnO <sub>2</sub>
Maximum switching voltage:	250V AC
Maximum switching current:	4A
Drop-off time of switching element:	approx. 20ms
Mechanical life:	30 Mio.
Electrical life (with rated load):	0.8 Mio.

### General data

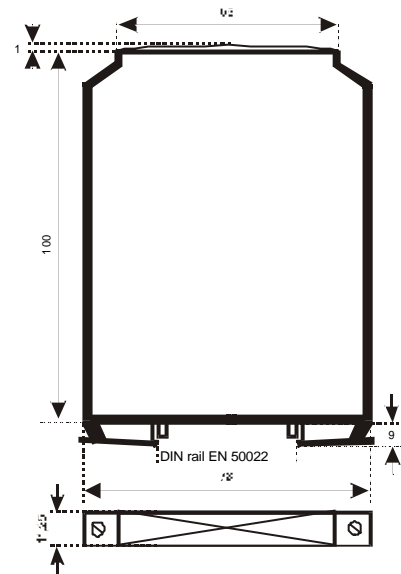
Ambient temperature:	0 ... + 60°C
Climate resistance:	VDE 0435T.2021
Mounting position:	any
Vibration resistance:	VDE 0435T.2021
Test voltage:	2.5kV
Isolation group:	VDE 0110 Group C 250
Protection class:	Terminals IP 20 Housing IP 40
Connection terminals:	Crosshead screws; M3.5 self opening
Connection cross section:	Multi-strand wire with wire sleeves 2 x 2.5mm <sup>2</sup> single wire 2 x 2.5mm <sup>2</sup>
Finger touch protection:	VDE 0106T.100 and VBG4
Mounting:	Symmetrical DIN rail EN 50022
Dimensions l x w x h:	78mm x 11.25mm x 110mm
Weight:	77g

## Example



The SUR monitors the voltage from the transformer for continuous 24V AC.

## Dimensions



## Connections

The terminal assignment for the connections is located on the front panel of the relay. **Reading the front panel from top to bottom**, the connections are in the following order:

LED side:	B1 – A1 – A3 – 15
Potentiometer side:	B2 – A2 – 16 – 18

上海悦中电气设备有限公司  
上海恒通路360号一天下大厦24C  
TEL: 021-62246890  
FAX: 021-52240873  
Http://www.skjd.cn  
E-mail: shskjd@126.com