

Measuring relay  
**SMU - Phase measuring relay / voltage windowing with 1 c/o**  
 11.25mm housing



### Application

Measures three-phase systems for under voltage, over voltage and phase failure.

### Description

The **SMU / voltage windowing relay** measures the phases of a three-phase system for under voltage, over voltage and phase failure. The relay is powered with the phase L1 (L1 – N >170V AC ). In addition, the star point (neutral) of the phases to be monitored must be connected. The green LED indicates the connection of the power supply.

### Function

The relay switches into its work position as long as all three phases are within the selected threshold value window (relay energizes). This status is indicated by the red LED. If at least one of the phases falls below or exceeds the selected values, the relay switches into its rest position. The relay's response time can be adjusted between 0 and 10 seconds. The SMU senses the phase angle and will also switch off if the user generates a feed back.

### Options

Other timing and threshold values available upon request.

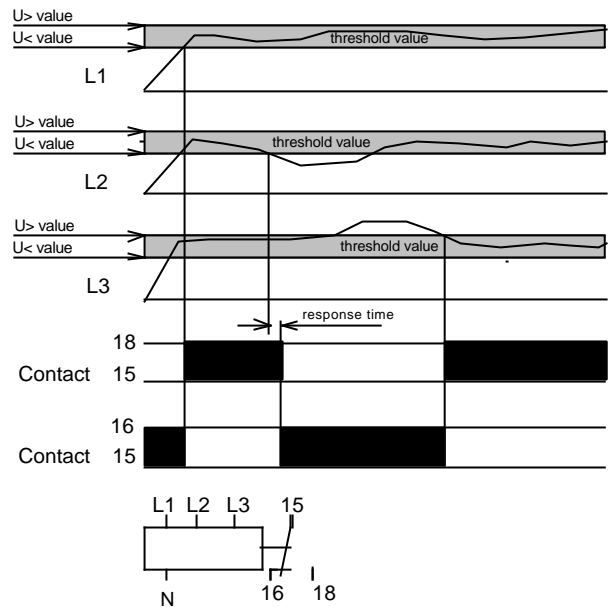
### Part number

012023      **SMU phase measuring relay**  
**Voltage windowing / 1 Changeover**  
 U < : L – N    170 – 230V AC  
 U > : L – N    230 – 270V AC

### 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°C.

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## Technical data

### Supply

Supply voltage: 3 x 400V AC / N  
Frequency range: 50 ... 60Hz  
Power consumption: 8VA

Operating mode: continuous

### Adjustment ranges

$U >$ : 230...270V AC  
 $U <$ : 170...230V AC  
 $t_v$ : 0...10 seconds  
Measuring accuracy: 5% over the entire temperature and voltage range

Repetitive accuracy:  $\pm 2\%$

### 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: - 25 ... + 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:

Connection cross section: Crosshead screws;  
M3.5 self opening  
Multi-strand wire with wire sleeves 2 x 2.5mm<sup>2</sup>  
single wire 2 x 2.5mm<sup>2</sup>

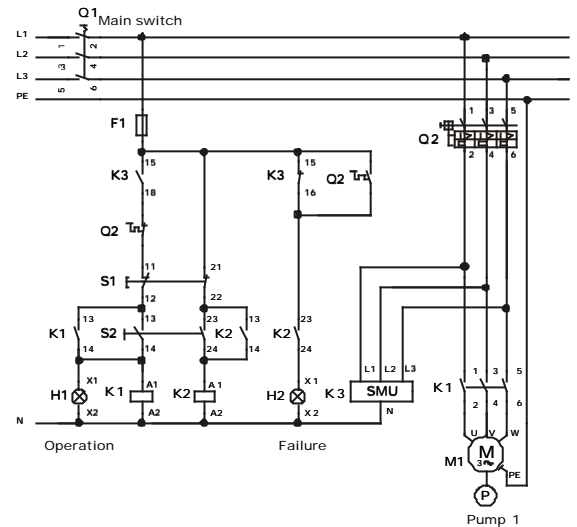
Finger touch protection: VDE 0106T.100 and VBG4

Mounting: Symmetrical DIN rail EN 50022

Dimensions l x w x h: 78mm x 11.25mm x 110mm

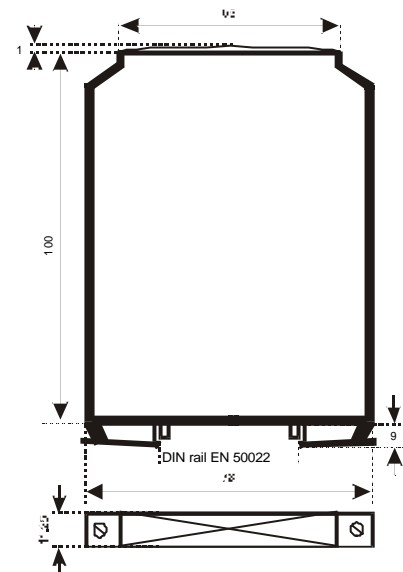
Weight: 66g

## Example



The SMU monitors a pump motor for under voltage, over voltage and phase failure.

## 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: L1 – L2 – L3 - 15  
Potentiometer side: nc – N – 16 – 18

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