

## Product description

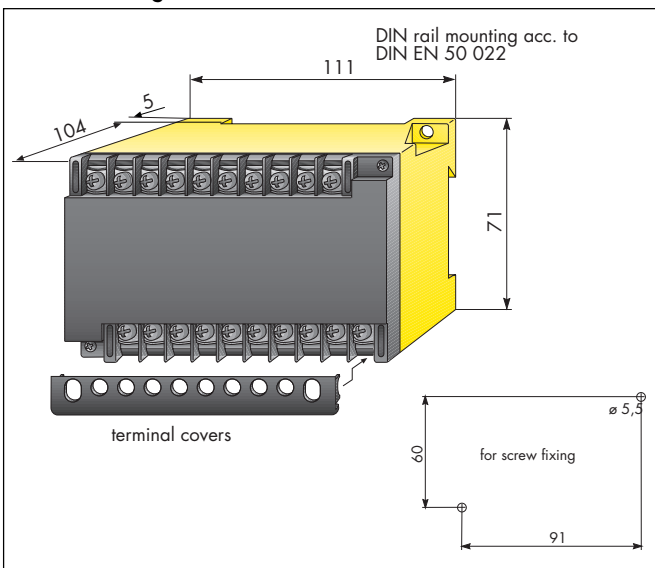
The voltage relay SUA200 and SUA200Z are used as combined under- and overvoltage relays in single-phase AC or DC systems. The response value for under- and overvoltage ensue via a common output relay which is energized in normal position. The relay drops when under- or overpassing of the rated value limits.

The SUA200 has an adjustable off-delay which actuates on both nominal value limits. Built-in LEDs signal the respective situation of the system without delay.

The SUA200Z works without delay and has no LEDs. Both designs are supplied by the rated voltage and need no additional auxiliary voltage. The adjusted time delay (only with type SUA200Z) keeps in operation even in case of complete black-out of network.

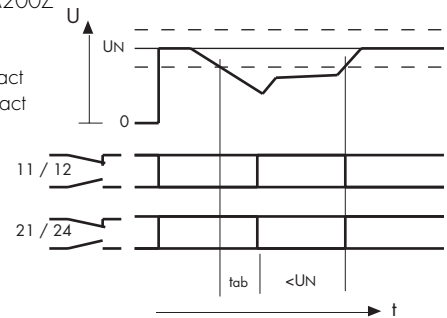
The devices are used in control circuits, U.P.S., stand by lightnings according to VDE 0108, battery systems and other systems up to UC 230 V in all fields of industry and power supply.

## Dimension diagram



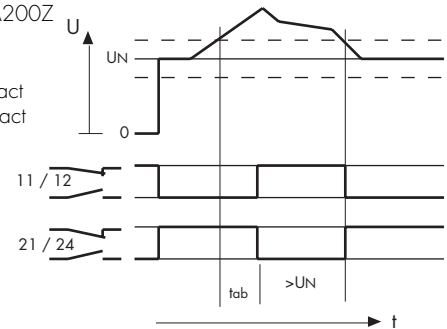
Contact function SUA200Z  
undervoltage

11 / 12 = N/C contact  
21 / 24 = N/O contact



Contact function SUA200Z  
overvoltage

11 / 12 = N/C contact  
21 / 24 = N/O contact



With type SUA200 the contact functions ensue without delay.

## Technical Data

### Insulation coordination acc. to IEC 60664-1

|   |                   |
|---|-------------------|
| Rated insulation voltage                            | AC 250 V/DC 250 V |
| Rated impulse withstand voltage/contamination level | 2,5 kV / 3        |
| Dielectric test acc. to IEC 60255-5                 | 2 kV              |

### System being monitoring

|                                     |                                  |
|-------------------------------------|----------------------------------|
| Nominal voltage of the system $U_N$ | UC 230/220/110/100/60/48/42/24 V |
| Frequency $U_N$                     | 40...400 Hz oder DC              |
| Supply voltage $U_S$                | without                          |
| Self-consumption (220 V)            | 1,5 W                            |
| $1,3 \times U_N$ (220 V)            | 2,2 W                            |
| Short time load (10 s)              | 1,5 $U_N$                        |

### Response value

|                              |                                |
|------------------------------|--------------------------------|
| Response value               | adjustable                     |
| undervoltage                 | 0,95...0,7 $U_N$               |
| overvoltage                  | 1,05...1,3 $U_N$               |
| Long term accuracy           | $\pm 1,4\%$                    |
| Temperature coefficient      | $< \pm 0,1\% / ^\circ\text{C}$ |
| Frequency influence of $U_N$ | $< \pm 0,015\% / \text{Hz}$    |
| Switching hysteresis         | ca. 3%                         |

|                          | SUA200  | SUA200Z                    |
|--------------------------|---------|----------------------------|
| Response time at $< U_N$ | <60 ms  | -                          |
| at $> U_N$               | <100 ms | -                          |
| Response time            | -       | 0,5...5 s or 2...20 s      |
| Long term accuracy       | -       | $\pm 1,5\%$                |
| Restoration time (max.)  | -       | 5 s                        |
| Drop off time (max.)     | -       | 400 ms                     |
| OFF-delay at $< U_N$     | <60 ms  | -                          |
| at $> U_N$               | <30 ms  | -                          |
| Influence of temperature | -       | $< 0,2\% / ^\circ\text{C}$ |

### Contact circuit

|   |                          |
|---|--------------------------|
| Switching components                          | 1 N/C- and 1 N/O-contact |
| Contact class acc. to DIN IEC 60255 part 0-20 | IIB                      |
| Rated contact voltage                         | AC 250 V / DC 300 V      |
| Admissible number of operations               | 12000 cycles             |
| Limited making capacity                       | UC 5 A                   |
| Limited breaking capacity at                  |                          |
| AC 230 V, $\cos \phi = 0,4$                   | AC 2 A                   |
| DC 220 V, $L/R = 0,04\text{s}$                | DC 0,2 A                 |
| Operating principle                           | N/C operation            |

### Type test

#### Test of the Electromagnetic Compatibility (EMV):

#### Interferences acc. to EN 50 082-2:

#### Impulse voltage and electrical disturbance test acc. to IEC 60255:

|   |           |
|---|-----------|
| Impulse voltage test acc. to IEC 60255-5        | class III |
| Electrical disturbance test acc. to IEC 60255-4 | class III |

#### Emissions acc. to EN 50 081:

|                                     |                       |
|-------------------------------------|-----------------------|
| Emissions acc. to EN 55 011/CISPR11 | class B <sup>1)</sup> |
|-------------------------------------|-----------------------|

#### Mechanical tests:

|   |                             |
|---|-----------------------------|
| Shock resistance acc. to IEC 6068-2-27  | 15 g / 11 ms                |
| Bumping acc. to IEC 6068-2-29           | 40 g / 6 ms                 |
| Vibration strength acc. to IEC 6068-2-6 | 10...150 Hz / 0,15 mm - 2 g |

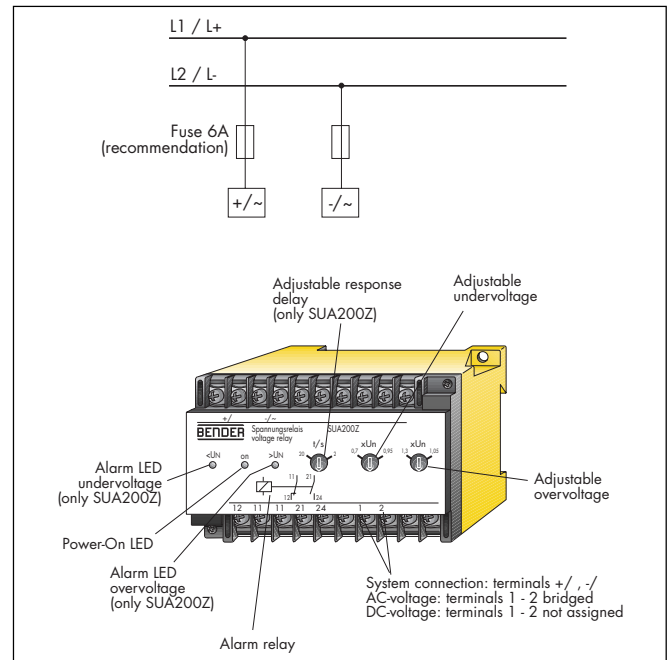
### Ambient temperature

|                                  |   |
|----------------------------------|---|
| During operation                 | -15°...+60°C                                  |
| Storage temperature range        | -20°...+70°C                                  |
| Climatic class acc. to IEC 60721 | 3K5, except condensation and formation of ice |

### General data

|                                    |  |
|------------------------------------|--|
| Operation class                    | continuous operation                     |
| Mounting position                  | any position                             |
| Type of connection                 | terminals with self-lifting damp-washers |
| Wire cross section                 |  |
| single wire                        | 2x(1...1,5 mm <sup>2</sup> )             |
| fine braid                         | 2x(0,75...1,5 mm <sup>2</sup> )          |
| Mounting                           | DIN rail acc. to DIN EN 50 022           |
| Protection class acc. to EN 60 529 |  |
| Internal components                | IP 50                                    |
| Terminals/with terminal covers     | IP10/IP 20                               |
| Type of casing                     | X200                                     |
| Flammability class                 | UL94V-0                                  |
| Weight approx.                     |  |
| SUA200                             | 250 g                                    |
| SUA200Z                            | 300 g                                    |

## Wiring diagram



## Installation, connection, putting into operation



Vorsicht

Please check for correct system voltage!  
The terminals 1, 2 are energized.



Warnung

Electrical equipment shall only be installed by qualified personal  
in consideration of the current safety regulations.



Protection, system coupling: cabling which is short-circuit and to  
earth-fault proof.

Additionally to this data sheet, you will find enclosed "Important  
safety instructions for Bender products".

## Ordering details

| Type    | Response delay | Rated main voltage $U_N$<br>AC/DC ... | Art.-no.  |
|---------|----------------|---------------------------------------|-----------|
| SUA200  | without        | 220 V                                 | B 932 171 |
|         |                | 110 V                                 | B 932 219 |
|         |                | 100 V                                 | B 932 222 |
|         |                | 60 V                                  | B 932 254 |
|         |                | 48 V                                  | B 932 312 |
|         |                | 42 V                                  | B 932 315 |
|         |                | 24 V                                  | B 932 360 |
| SUA200Z | 0,5 - 5 sec    | 230V                                  | B 932 634 |
|         |                | 220 V                                 | B 932 172 |
|         |                | 110 V                                 | B 932 220 |
|         |                | 100 V                                 | B 932 223 |
|         |                | 60 V                                  | B 932 255 |
|         |                | 48 V                                  | B 932 313 |
|         |                | 42 V                                  | B 932 316 |
| SUA200Z | 2 - 20 sec     | 220 V                                 | B 932 173 |
|         |                | 110 V                                 | B 932 221 |
|         |                | 100 V                                 | B 932 224 |
|         |                | 60 V                                  | B 932 256 |
|         |                | 48 V                                  | B 932 314 |
|         |                | 42 V                                  | B 932 317 |
|         |                | 24 V                                  | B 932 362 |

Other rated voltage on request.

Right to modifications reserved