

# SUA143

## Undervoltage and overvoltage relay for AC or DC systems without external supply voltage



SUA143

### Device features

- Undervoltage and overvoltage relay for AC or DC systems
- Without external supply voltage
- 5 device variants, adjustable response values 10...30 V, 20...60 V, 50...150 V, 120...300 V
- Direct reading scale
- Power On LED, Alarm LED
- Alarm relay with two potential-free changeover contacts
- 45 mm enclosure

### Note

In case of new installations refer to VME421H.

### Approvals



### Product description

Relays of the SUA143 series are designed for voltage monitoring in single-phase AC or DC systems. The devices can be used for undervoltage or overvoltage monitoring. External supply voltage is not required.

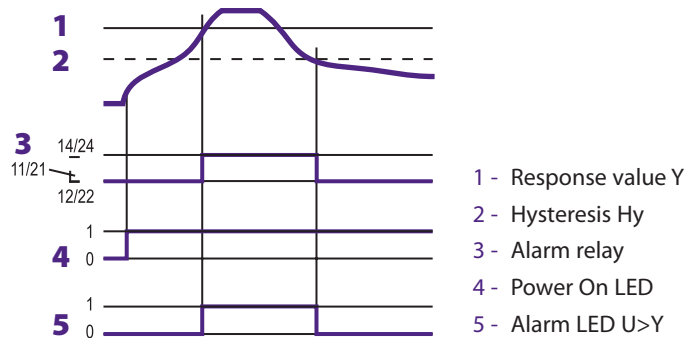
### Typical applications

- Monitoring of the power supply of motors and electrical installations
- Monitoring of loads
- Switching on and switching off at a certain voltage level
- Monitoring of stand-by and emergency supply systems
- Supply voltage monitoring of portable loads

### Function overvoltage relay

When supply voltage is applied, the alarm relay works in N/O operation (relay de-energized) and the alarm LED "U>Y" does not light. If the system voltage  $U_n$  exceeds the set response value "Y", the alarm relay energizes and the alarm LED "U>Y" lights. If the measured quantity falls below the response value plus hysteresis, the alarm relay switches back to its original state within approx. 120 ms.

#### Alarm relay in N/O operation

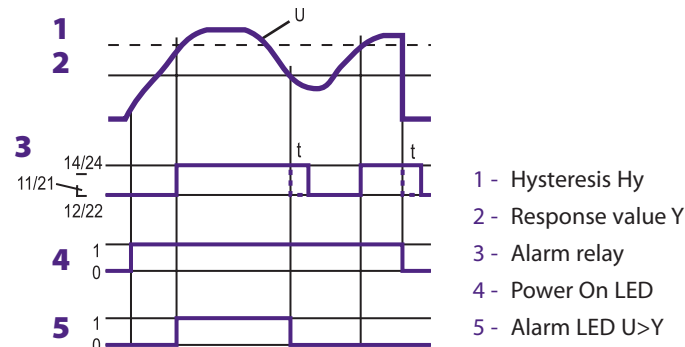


### Function undervoltage relay

When supply voltage is applied, the alarm relay works in N/C operation (relay energized) and the Alarm LED "U>Y" lights.

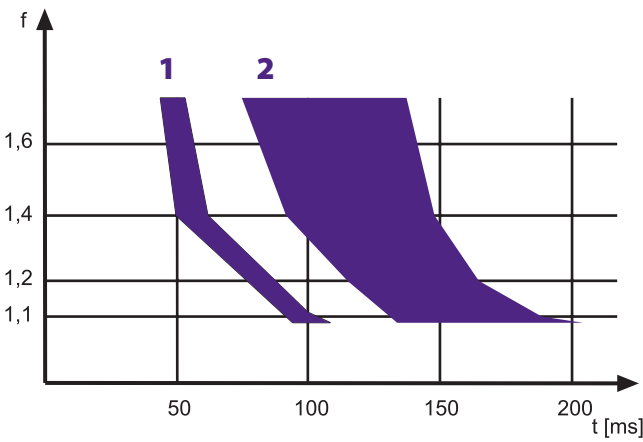
If the system voltage  $U_n$  falls below the set response value "Y", the alarm relay de-energizes and the alarm LED "U>Y" goes out. If the measured quantity exceeds the response value plus hysteresis, the alarm relay switches back to its original state within approx. 120 ms.

#### Alarm relay in N/C operation



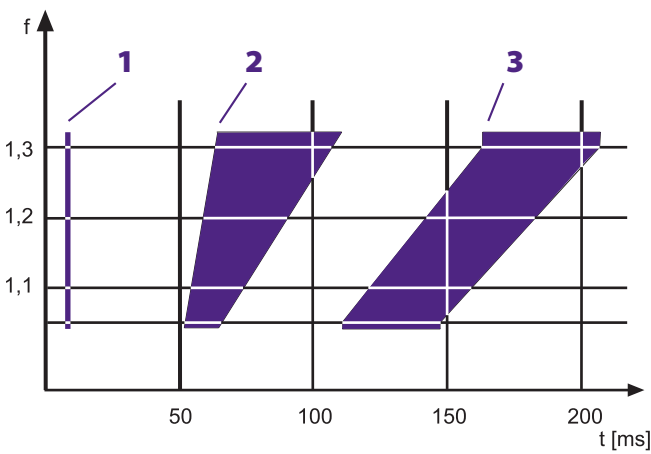


**Response delay overvoltage**



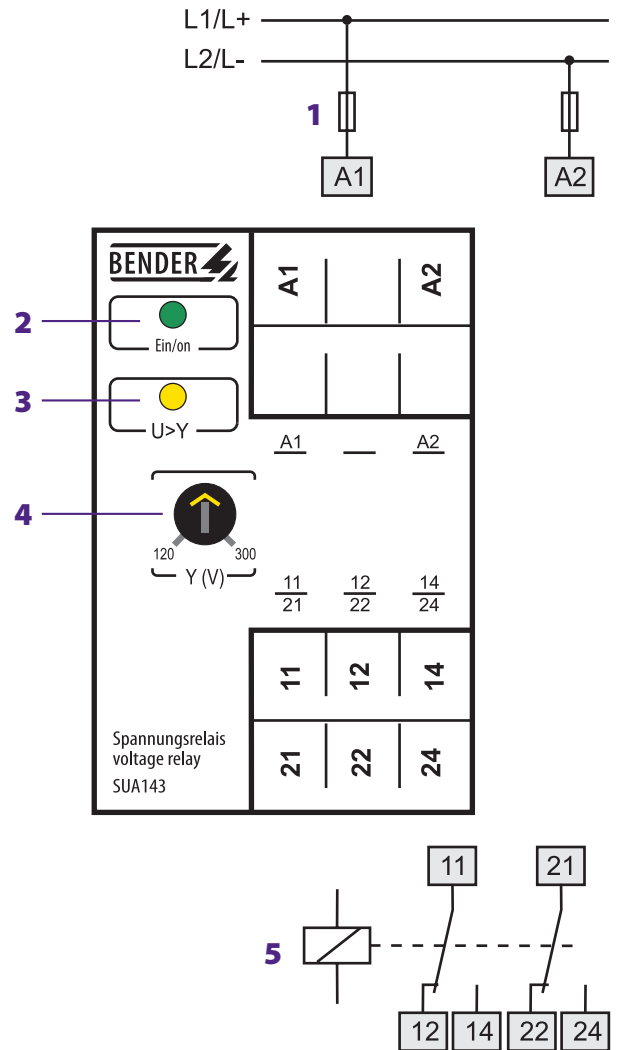
- 1 - Change from 0.8 x Y to f x Y
- 2 - Change from 0 x Y to f x Y

**Response delay undervoltage**



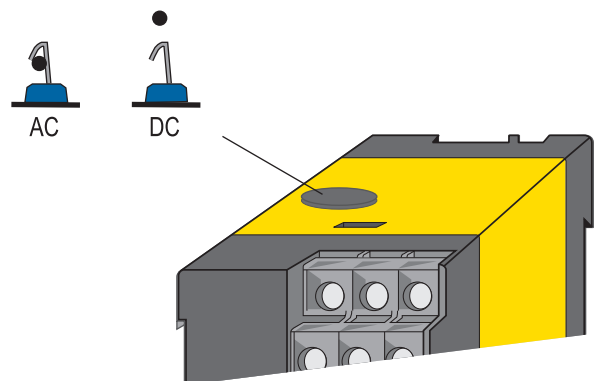
- 1 - Change from f x Y to 0 x Y
  - 2 - Change from f x Y to 0.6 x Y
  - 3 - Change from f x Y to 0.9 x Y
- Y - Set response value  
f - Factor

**Wiring diagram**



- 1 - 6 A fuse
- 2 - Power On LED
- 3 - Alarm LED
- 4 - Adjustable response value
- 5 - Alarm relay

**Setting for AC or DC**



### Technical data undervoltage or overvoltage relay SUA143

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

Rated insulation voltage	AC 250 V
Rated impulse voltage/pollution degree	2.5 kV/3

#### Supply voltage

Supply voltage $U_s$	none
Power consumption	$\leq 3$ VA

#### Measuring circuit

Frequency $f_n$	DC, 40...400 Hz
Adjustable response values (max. permissible voltage)	10...30 V (35 V)
	20...60 V (80 V)
	50...150 V (170 V)
	120...300 V (300 V)
Response time $t_{an}$	see diagram
Hysteresis	approx. 3 %
Delay on release	approx. 120 ms
Repetition accuracy	$\pm 1.5$ %
Temperature influence	$< 0.05$ % / °C

#### Switching elements

Number of changeover contacts	1 x 2
Operating principle overvoltage function	N/O operation
Operating principle undervoltage function	N/C operation
Electrical endurance, number of cycles	12000
Contact class IEC 60255 Part 0-20	IIB
Rated contact voltage	AC 250 V / DC 300 V
Limited making capacity	AC/DC 5 A
Breaking capacity	2 A, AC 230 V, $\cos \phi$ 0.4
	0.2 A, DC 220 V, L/R = 0.04 s

#### Environment / EMC

EMC immunity	acc. to IEC 61000-6-2
EMC emission	acc. to IEC 61000-6-4
Shock resistance IEC 60068-2-27 (during operation)	15 g/11 ms
Bumping IEC 60068-2-29 (during transport)	40 g/6 ms
Vibration resistance IEC 60068-2-6 (during operation)	1 g / 10...150 Hz
Vibration resistance IEC 60068-2-6 (device out of service)	2 g / 10...150 Hz
Ambient temperature, during operation	-15...+50 °C
Ambient temperature (storage)	-20...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5 (except condensation and formation of ice)

#### Other

Operating mode	continuous operation
Mounting	any position
Connection	Flat terminals with self-lifting clamp washers
Connection properties	
single wire	2 x (1.0...1.5) mm <sup>2</sup>
flexible with end ferrules	2 x (0.75...1.5) mm <sup>2</sup>
Degree of protection, internal components (IEC 60529)	IP50
Degree of protection, terminals/with terminal covers (IEC 60529)	IP10/IP20
Screw fixing	with mounting rail
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Product standard	IEC 60255-6
Operating manual	BP301002
Weight	$\leq 170$ g

#### Ordering information

Type	Response value	Art. No.
SUA143	AC/DC 10...30 V	B 932 802
SUA143	AC/DC 20...60 V	B 932 803
SUA143	AC/DC 50...150 V	B 932 801
SUA143	AC/DC 120...300 V	B 932 800

#### Accessories

Mounting rail for screw fixing	B 974 728
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#### Dimension diagram X140 Dimensions in mm

