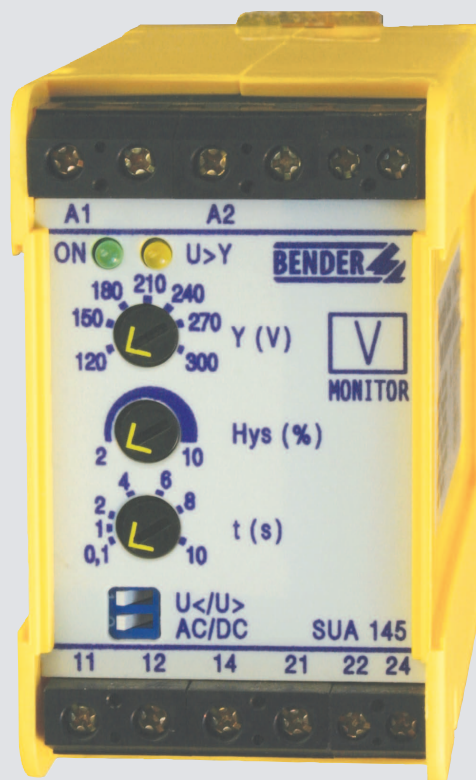


## SUA145

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





SUA145

### Device features

- Undervoltage or 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
- Response delay 0.1...10 s
- Hysteresis 2...10 %
- Power On LED, Alarm LED
- Alarm relay with two potential-free changeover contacts
- 45 mm enclosure
- Integrated energy backup
- Protective separation (supply circuit – measuring circuit)

### Note

In case of new installations refer to VME421H.

### Approvals



### Product description

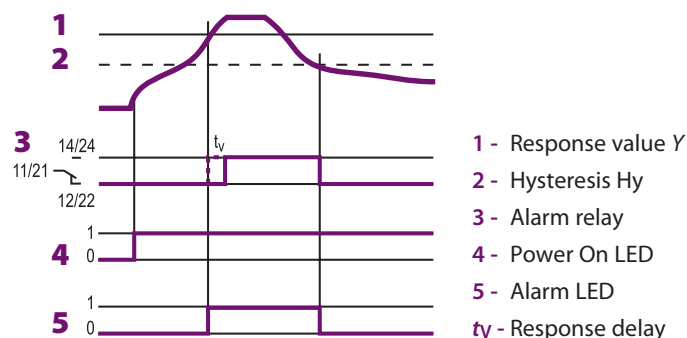
Relays of the SUA145 series are designed for voltage monitoring in single-phase AC or DC systems. The devices can be used for undervoltage or overvoltage monitoring. External supply voltage is not required. The values for voltage, hysteresis and response delay are set via potentiometers.

### Typical applications

- Voltage monitoring of the power supply of motors or electrical installations
- Earth fault monitoring in medium-voltage systems via voltage transformers
- 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 (switch U>)

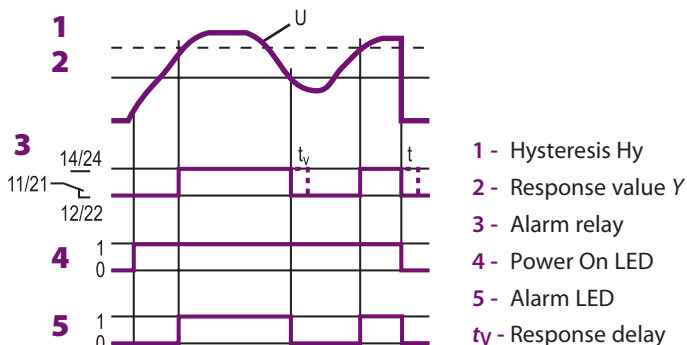
When supply voltage is applied, the alarm relay works in N/O operation (relay de-energized) and the alarm LED "U>Y" does not light. If the system voltage  $U_n$  exceeds the set response value "Y", the alarm LED "U>Y" lights and the alarm relay energizes when the set response delay " $t_v$ " has elapsed. When the measured quantity falls below the response value plus hysteresis, the relay switches back to its original state when the release time of 450 ms has elapsed and the alarm LED "U>Y" goes out.



### Function undervoltage relay (switch U<)

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 LED "U>Y" goes out and the alarm relay de-energizes once the set response delay " $t_v$ " has elapsed. When the measured quantity exceeds the response value plus hysteresis, the relay energizes when the release time of approx. 450 ms has elapsed and the alarm LED "U>Y" lights.



### Note

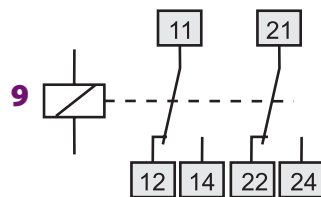
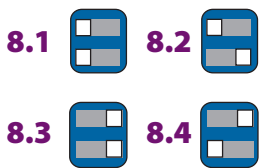
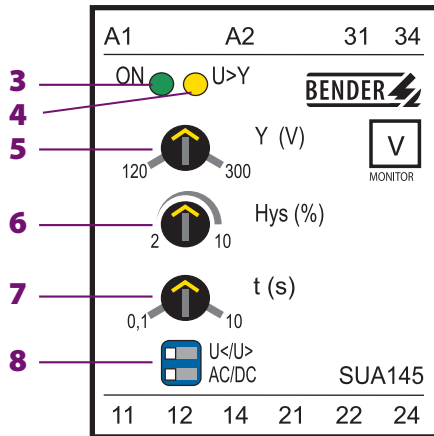
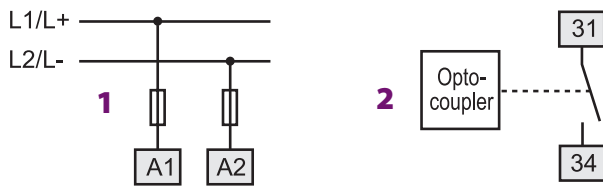
False alarms resulting from operational measurement errors can be suppressed by setting a time delay. The set response delay remains effective even in case of complete supply voltage failure.

### Standards

The SUA145 series complies with the requirements of the device standards: IEC 60255-6.



**Wiring diagram**



- 1 - 6 A fuse
- 2 - Option SUA145-1 only
- 3 - Power On LED "ON"
- 4 - Alarm LED "U>Y"
- 5 - Adjustable response value "Y(V)"
- 6 - Adjustable hysteresis "Hys (%)"
- 7 - Adjustable response delay "t (s)"
- 8.1 - Undervoltage AC
- 8.2 - Undervoltage DC
- 8.3 - Overvoltage DC
- 8.4 - Overvoltage AC
- 9 - Alarm relay

**Technical data**

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

Rated insulation voltage	AC 320 V
Rated impulse voltage/pollution degree	4 kV/3

**Supply voltage**

Supply voltage $U_s$	none
Power consumption	$\leq 3.5$ VA

**Measuring circuit**

Rated frequency $f_n$	DC, 40...400 Hz
Response values (max. permissible voltage)	10...30 V (35 V) 20...60 V (275 V) 50...150 V (275 V) 120...300 V (350 V)

Response delay $t_v$	0.1...10 s
Hysteresis	2...10 %
Recovery time $t_b$	1.5 ms
Delay on release	approx. 450 ms
Repetition accuracy	$< 1.5$ %
Temperature influence	$< 0.11$ %/°C
Integrated energy backup	min. 1 s/10...30 V min. 1.5 s/20...60 V min. 6 s/50...150 V/120...300 V

Charging time energy backup	60 s
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**Switching elements**

Number of changeover contacts	1 x 2
Operating principle undervoltage function	N/C operation
Operating principle overvoltage function	N/O operation
Electrical service life, 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
Optocoupler (31-34)	$U_{max} = AC 140 V/DC 200 V$ $U_{low}$ at 30 mA = $< 0.5$ V

**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 (during transport)	2 g/10...150 Hz
Ambient temperature (during operation)	-15...+55 °C
Ambient temperature (storage)	-40...+70 °C
Climatic class acc. to IEC 60721-3-3	3K5 (except condensation and formation of ice)

**Connection**

Connection	screw terminals
Connection properties	
single wire	0.2...4 mm <sup>2</sup>
flexible with end ferrules	0.25...2.5 mm <sup>2</sup>

**Other**

Operating mode	continuous operation
Mounting	any position
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
Screw fixing	with mounting rail
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Operating manual	BP301008
Weight	$\leq 210$ g

## Ordering information

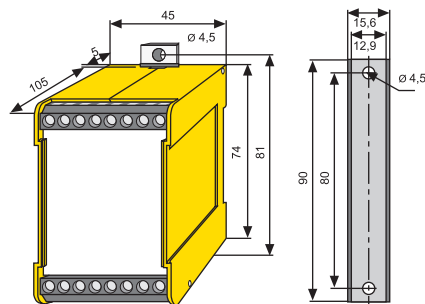
Response value	Type	Art. No.
AC/DC 10...30 V	SUA145	B 9301 5508
AC/DC 20...60 V	SUA145	B 9301 5509
AC/DC 50...150 V	SUA145	B 9301 5510
AC/DC 120...300 V	SUA145	B 9301 5511
AC/DC 20...60 V	SUA145-1	B 9301 5507

## Accessories

Type designation	Art. No.
Mounting rail for screw fixing	B 9806 0008

## Dimension diagram XM45

Dimensions in mm



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