

Undervoltage and overvoltage relay SUA143

for AC or DC systems



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.

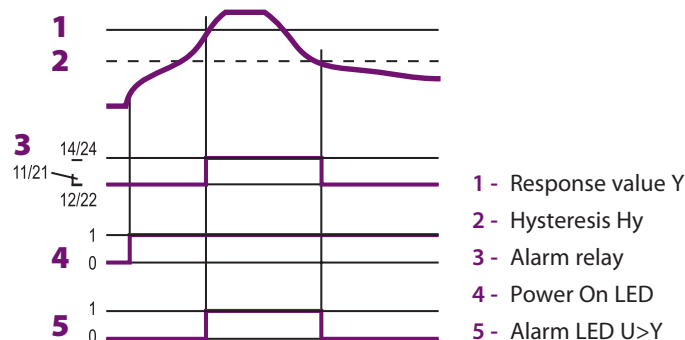
Typical applications

- 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

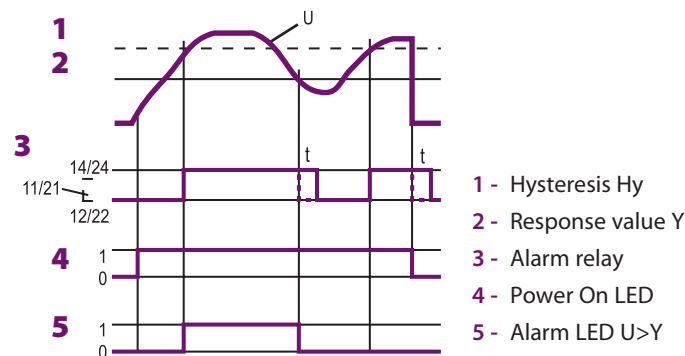


Function undervoltage relay

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

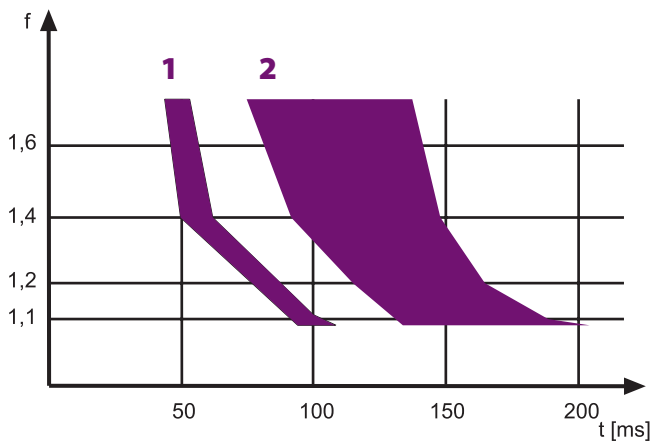


Standards

The SUA143 series complies with the requirements of the device standards: IEC 60255-6.

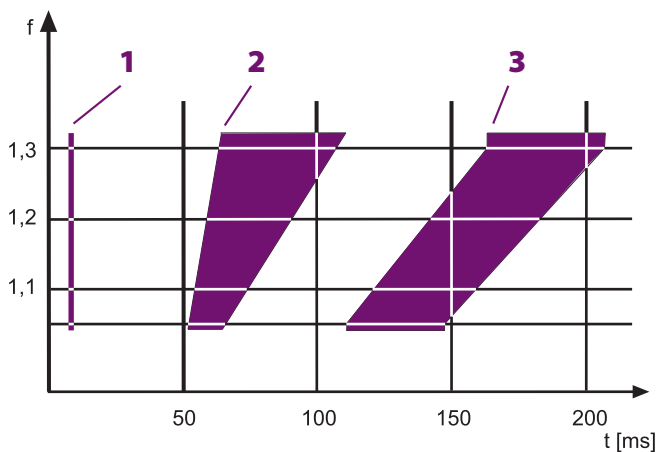


Response delay overvoltage



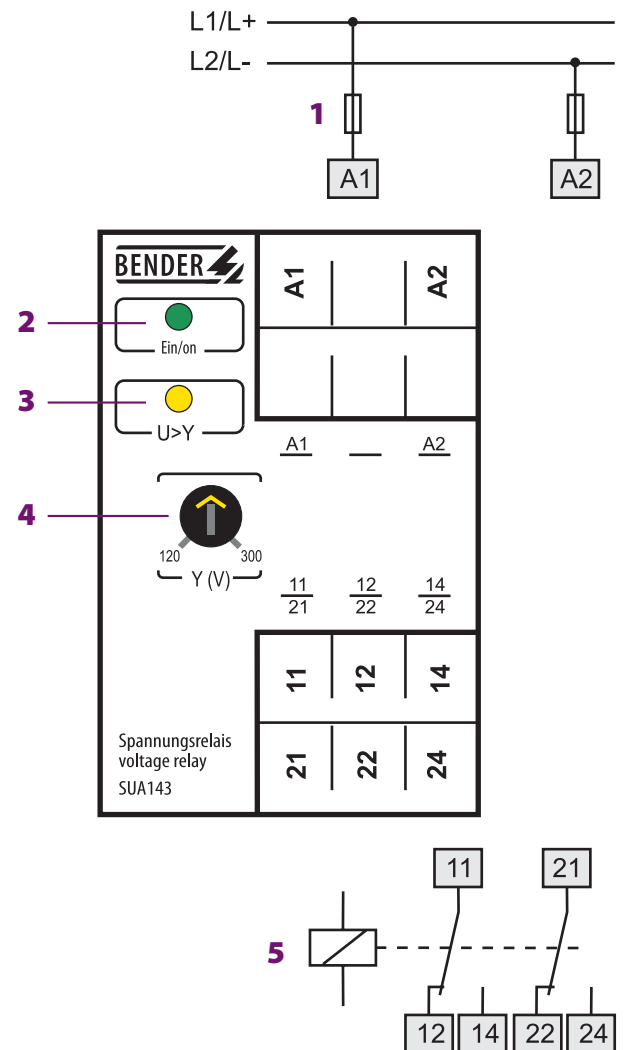
- 1 - Change from $0.8 \times Y$ to $f \times Y$
- 2 - Change from $0 \times Y$ to $f \times Y$

Response delay undervoltage



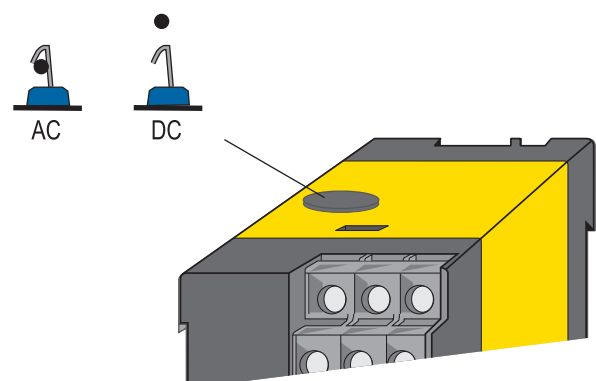
- 1 - Change from $f \times Y$ to $0 \times Y$
- 2 - Change from $f \times Y$ to $0.6 \times Y$
- 3 - Change from $f \times Y$ to $0.9 \times Y$
- Y - Set response value
- f - Factor

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

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	≤ 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	± 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)

Connection

Connection	Flat terminals with self-lifting clamp washers
Connection properties	
single wire	2 x (1.0...1.5) mm ²
flexible with end ferrules	2 x (0.75...1.5) mm ²

Other

Operating mode	continuous operation
Mounting	any position
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
Operating manual	BP301002
Weight	≤ 170 g

Ordering information

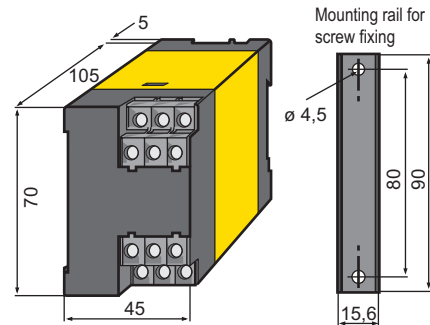
Response value	Type	Art. No.
AC/DC 10...30 V	SUA143	B 932 802
AC/DC 20...60 V	SUA143	B 932 803
AC/DC 50...150 V	SUA143	B 932 801
AC/DC 120...300 V	SUA143	B 932 800

Accessories

Type	Art. No.
Mounting rail for screw mounting	B 974 728

Dimension diagram X140

Dimensions in mm



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