

# Undervoltage relays SUD142

for 3AC systems



# SUD142

**Undervoltage relays for 3AC systems  
without external supply voltage**



SUD142

## Device features

- Undervoltage relays for 3AC systems
- Without external supply voltage
- 3 device variants with adjustable response values  
80...120 V (3AC 100...120 V)  
140...220 V (3AC 200...240 V)  
260...420 V (3AC 380...440 V)
- LEDs: Power On, Alarm
- Alarm relay with two potential-free changeover contacts
- 45 mm enclosure

## Note

In case of new installations refer to VMD421H.

## Approvals



## Product description

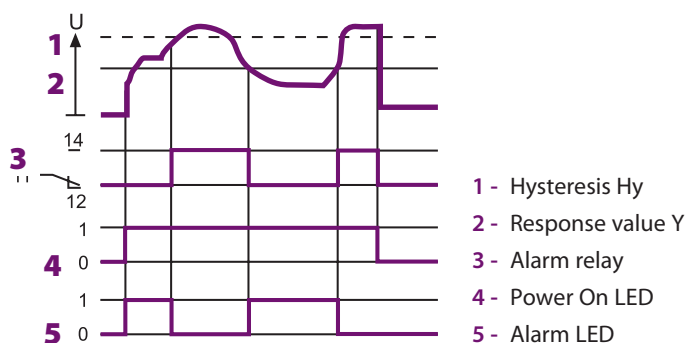
The voltage relays of the SUD142 series are designed to monitor three-phase AC systems without N conductor for undervoltage. External supply voltage is not required. The response value is set via a potentiometer.

## 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

When supply voltage is applied, the alarm relay works in N/C operation (relay energized). When the phase-to-phase voltage of one, two or all conductors drops below the set response value "Y", the alarm relay de-energizes and the alarm LED "UVW<Y" lights up. If the measured quantity exceeds the response value plus hysteresis, the alarm relay switches back to its original state.



## Standards

The SUD142 series complies with the requirements of the device standards: IEC 60255-6.

## Ordering information

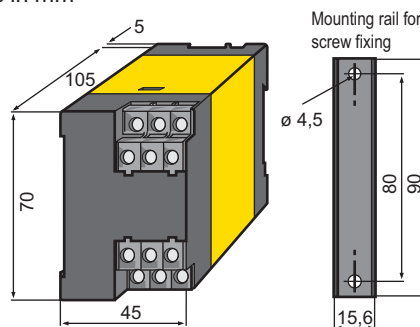
Nominal system voltage $U_N$	Response value	Type	Art. No.
3AC 100...120 V	80...120 V	SUD142	B 933 559
3AC 200...240 V	140...220 V	SUD142	B 933 558
3AC 380...440 V	260...420 V	SUD142	B 933 557

## Accessories

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

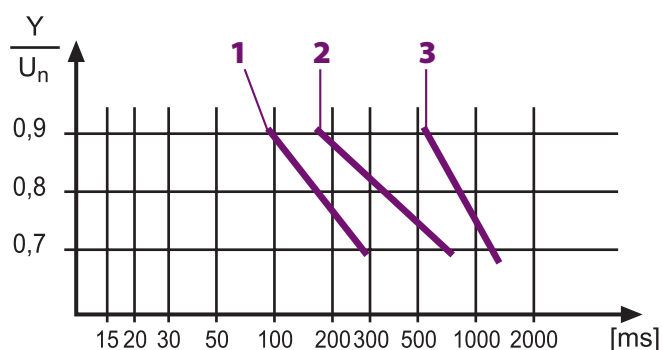
## Dimension diagram X140

Dimensions in mm



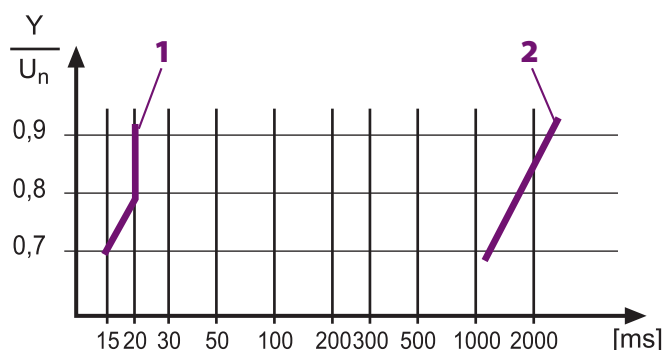


### Response delay



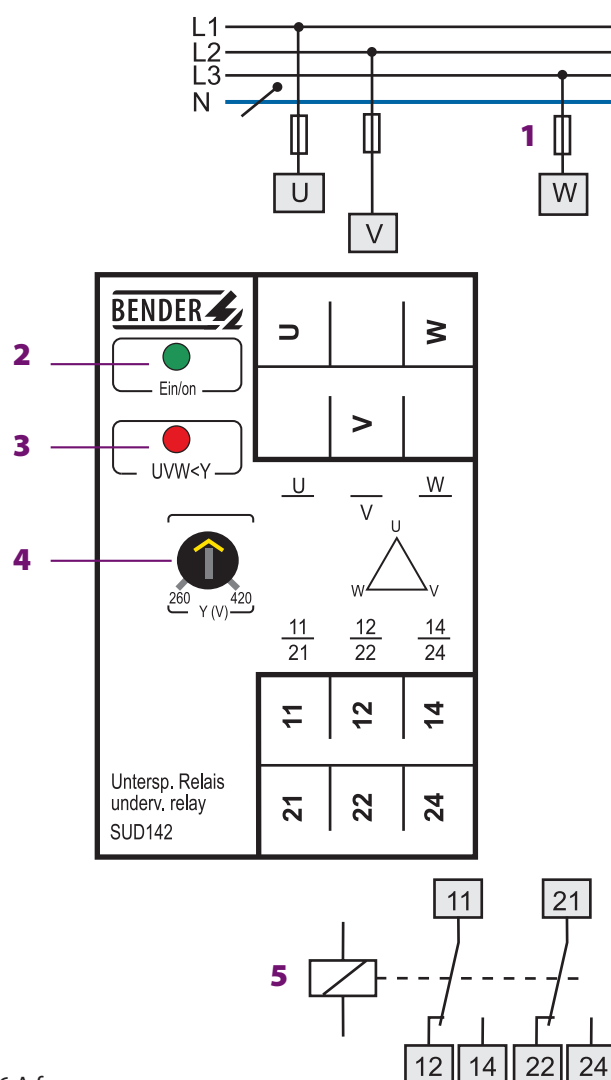
- 1 - Change from  $U_n$  to 0 V (1 phase)
- 2 - Change from  $U_n$  to 0.5 x  $U_n$  (1 phase)
- 3 - Change from  $U_n$  to 0.9 x Y (1 phase)

### Delay on release



- 1 - Change from 0 V to  $U_n$  (3 phases)
- 2 - Change from 0 V to  $U_n$  (1 phase)

### Wiring diagram



- 1 - 6 A fuse
- 2 - Power On LED "Ein/on"
- 3 - Alarm LED "UVW<Y"
- 4 - Adjustable response value "Y(V)"
- 5 - Alarm relay

## Technical data

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

Rated insulation voltage	AC 440 V
Rated impulse voltage/pollution degree	2.5 kV/3

### Supply voltage

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

### Measuring circuit

Nominal system voltage $U_n$	3AC 100...120 V 3AC 200...240 V 3AC 380...440 V
Operating range of $U_n$	0...1.15 x $U_n$
Frequency $f_n$	50...400 Hz
Response values	80...120 V 140...220 V 380...440 V

Response time $t_{an}$	see diagram
Hysteresis	approx. 5 %
Delay on release	see diagram
Repitition accuracy	$\pm 1.5$ %
Temperature influence	$< 0.05$ %/°C
Frequency influence	$< 0.1$ %/Hz

### Switching elements

Number of changeover contacts	1 x 2
Operating principle	N/C 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

### 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...+50 °C
Ambient temperature, during 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...1.5) mm <sup>2</sup>
flexible	2 x (0.75...1.5) mm <sup>2</sup>

### 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	BP301005
Weight	$\leq 300$ g



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