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Asymmetry relays SAD140

for 3NAC systems without external supply voltage

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SAD140

Asymmetry relays for 3NAC systems without external supply voltage

SAD140

Device features

- Monitoring of 3NAC systems for asymmetry and phase failure
- Without external supply voltage
- Adjustable response value 5…15 %
- Device variants for nominal system voltages:3NAC 230 V, 400 V, 440 V
- Power On LED, Alarm LED
- Alarm relay with two potential-free changeover contacts
- 45 mm enclosure

Note

In case of new installations refer to VMD420.

Product description

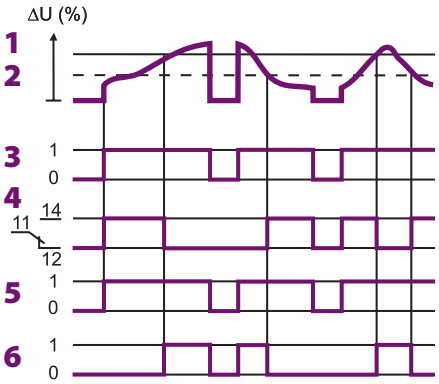
The relays of the SAD140 series monitor 3NAC systems for asymmetry and for phase failure. External supply voltage is not required.

Typical applications

- Monitoring of the power supply of motors or electrical installations
- Monitoring of asymmetrically loaded systems
- Phase failure detection

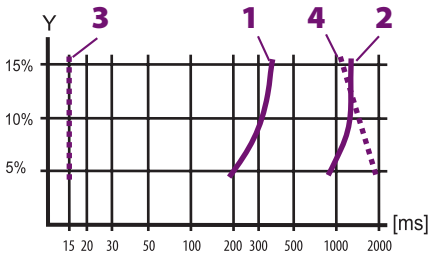
Function

When supply voltage is applied, the alarm relay works in N/C operation (relay energized). When the difference of the phase-to-phase voltage (asymmetry) exceeds the set response value, the alarm relay de-energizes and the green "%ΔUVW→N>Y" lights up. If the measured quantity drops below the release value, the alarm relay switches back to its original state. When the phase-to-phase voltage drops symmetrically below the operating range, the alarm relay de-energizes.



1 - Response value Y
2 - Hysteresis Hy
3 - U_n = System voltage
4 - Alarm relay
5 - Power On LED
6 - Alarm LED

Start-up delay and delay on release



Response delay

1 - Change from U_n to 0 V (1 phase)
2 - Change from U_n to 1.1 x Y (1 phase)

Delay on release

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

Ordering information

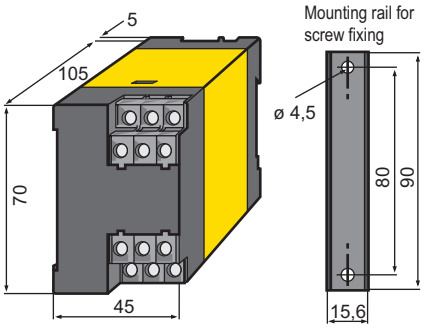
Nominal system voltage U_n 3NAC	Type	Art. No.
230/133 V	SAD140	B 935 163
400/230 V	SAD140	B 935 124
440/254 V	SAD140	B 935 510

Ordering information

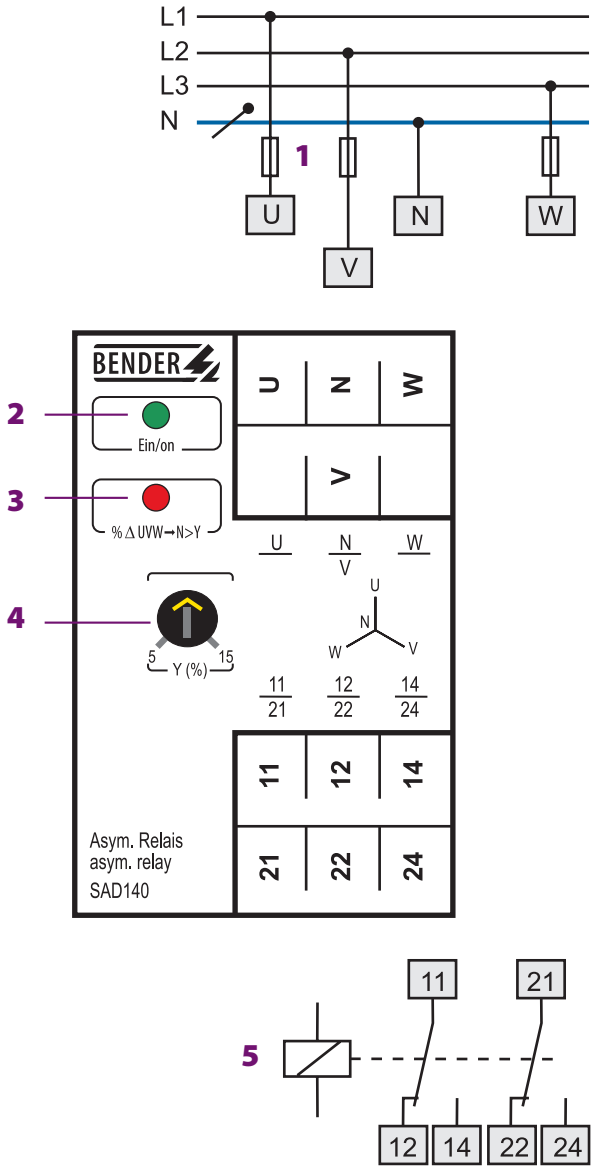
Type	Art. No.
Mounting rail for screw fixing	B 974 728

Dimension diagram X140

Dimensions in mm



Wiring diagram



1 - 6 A fuse
2 - Power ON LED “Ein/on”
3 - Alarm LED “N>Y”
4 - Adjustable response value “Y(%)”
5 - Alarm relay

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 440 V
Rated impulse voltage/pollution degree	4 kV/3

Supply voltage

Supply voltage	none
Power consumption	≤ 2.5 VA

Measuring circuit

Nominal system voltage U_n	3NAC 230/133 V 3NAC 400/230 V 3NAC 440/254 V
Operating range of U_n	0.7…1.15 x U_n
Frequency f_n	50…60 Hz
Response value asymmetry	5…15 % (L-N)
Response time t_{an}	see diagram
Hysteresis	approx. 3 %
Delay on release	see diagram
Repitition accuracy	± 2 %
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) mm²
flexible with end ferrules	2 x (0.75…1.5) mm²

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
Product standard	IEC 60255-6
Operating manual	BP302001
Weight	≤ 300 g

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