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Phase sequence relay SED140

for 3(N)AC systems without external supply voltage

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SED140

Phase sequence relay for 3(N)AC systems without external supply voltage

SED140

Device features

- Phase sequence, phase failure and undervoltage monitoring
- For 3AC or 3NAC systems
- Without external supply voltage
- 8 device variants, voltage range: 3(N)AC 100…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 SED140 measure the phase sequence of the individual phases in 3(N)AC systems. In addition, the individual phases are monitored for phase failure and undervoltage.

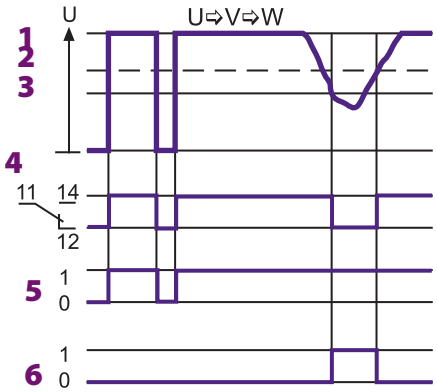
Typical applications

- Monitoring of motors
- Detection of asymmetrically loaded systems
- Detection of a phase failure even in the event of generator feedback

Function

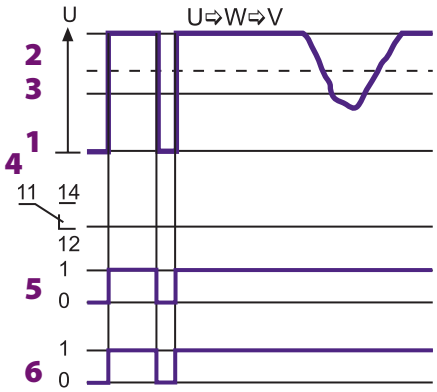
No settings are necessary during operation. If the phase sequence is correct and none of the three phases has failed resp. no undervoltage has been detected (0.65…75 x U_n), the alarm relay energizes. In the event of phase failure, undervoltage or if the phase sequence is incorrect, the alarm relay de-energizes and the alarm LED lights up.

Behaviour in the event of undervoltage



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

Behaviour in the event of phase sequence change

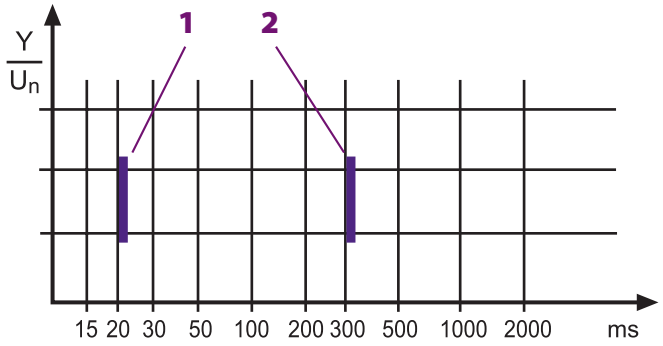


1 - Nominal voltage U_n
2 - Hysteresis Hy
3 - Response value Y
4 - Alarm relay K1
5 - Power On LED
6 - Alarm LED

Note

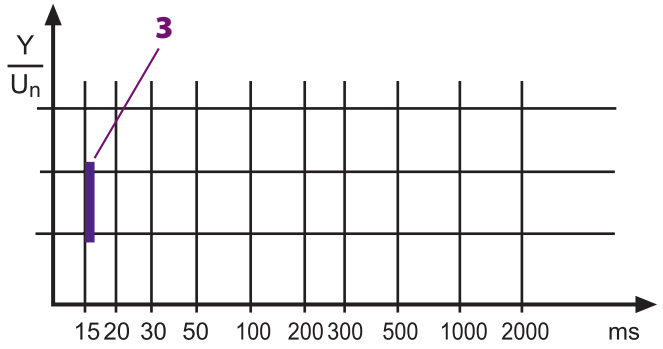
The SED140 has no feedback voltage protection. If there is the risk of motor feedback in the event of phase failure, you can use the relays of the AUR381Z series.

Response delay



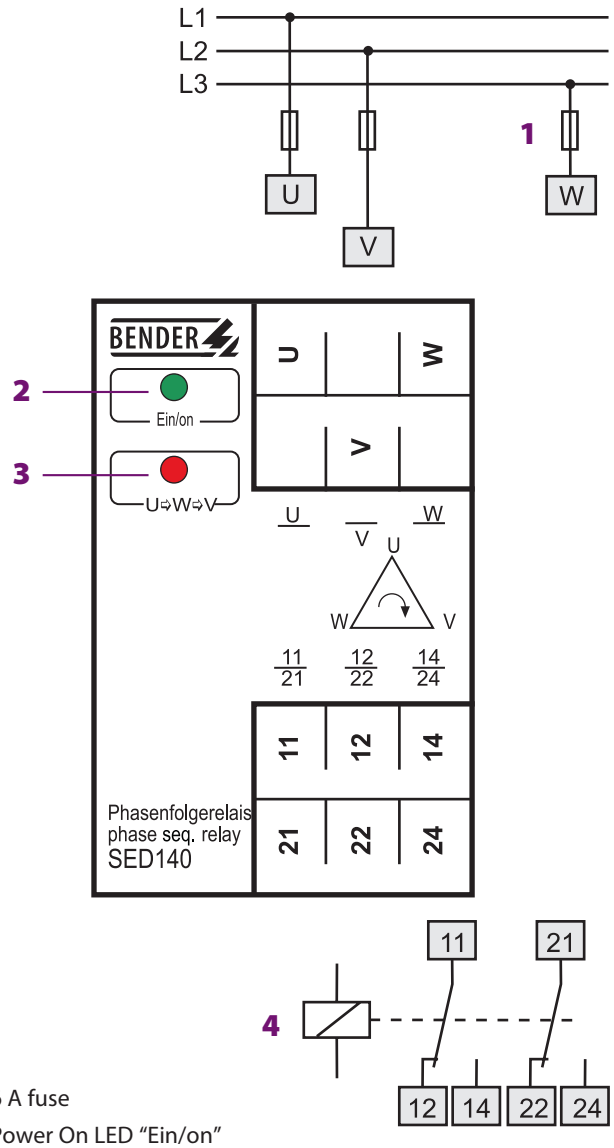
1 - Change from U_n to 0 V (3 phases)
2 - Change from U_n to 0 V (1 phase)

Delay on release



3 - Change from 0 V to U_n (3 phases)

Wiring diagram



1 - 6 A fuse
2 - Power On LED “Ein/on”
3 - Alarm LED “UWV”
4 - 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
Power consumption	≤ 3 VA

Measuring circuit

Nominal system voltage U_n	see ordering information
Operating range of U_n	0.6…1.3 x U_n
Frequency f_n	50…60 Hz
Response value undervoltage	0.65…0.75 x U_n
Response time t_{an}	refer to diagram response delay
Hysteresis	approx. 8 %
Delay on release	refer to diagram delay on release
Repitition accuracy	± 1.5 %
Temperature influence	< 0.1 % / °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 EN 55082:1992
EMC emission	acc. to EN 55011:1991
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

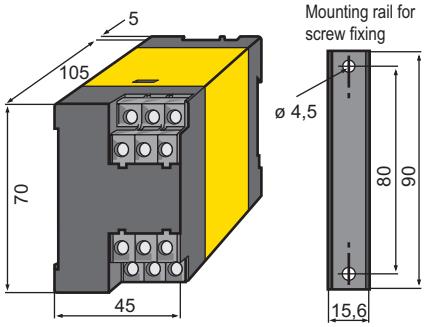
Connection	Flat terminals with self-lifting clamp washers
Connection properties	
single wire	2 x (1…1.5) mm²
flexible with end ferrules	2 x (0.75…1.5) mm²

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	UL94 V-0
Product standard	IEC 60255-6
Operating manual	TBP303001
Weight	≤ 300 g

Dimension diagram X140

Dimensions in mm



Ordering information

Nominal system voltage U_n 3(N)AC	Type	Art. No.
100/57,7 V, 50…60 Hz	SED140	B 925 617
110/63,5 V, 50…60 Hz	SED140	B 925 202
115/66,4 V, 50…60 Hz	SED140	B 925 609
208/120 V, 50…60 Hz	SED140	B 925 157
220/127 V, 50…60 Hz	SED140	B 925 156
400/230 V, 50…60 Hz	SED140	B 925 104
415/240 V, 50…60 Hz	SED140	B 925 611
440/254 V, 50…60 Hz	SED140	B 925 612

Accessories

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

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