Phase sequence monitoring
S1PN



The S1PN phase sequence monitoring relay detects the phase field of a 3-phase supply.

Approvals

	S1PN
c UL us LISTED	◆
CCC	◆

UL approval only for unit types up to 240 VAC

Unit features

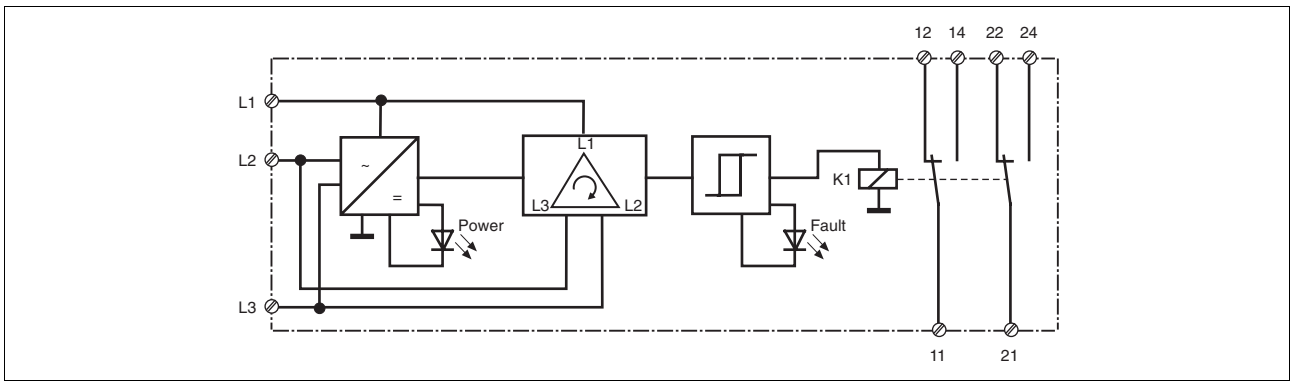
- Measuring voltage up to 690 VAC
- Phase sequence monitoring
- Phase failure monitoring
- Fuse monitoring
- LEDs
- Extensive voltage range

The phase sequence monitoring relay is enclosed in an S-95 slimline housing. Three versions are available.
Features:
- Relay outputs: 2 auxiliary contacts (C/O)
- Phase field direction monitor
- Detects fuse defect and phase failure, provided there is no voltage feedback from connected motors
- LEDs for fault and supply voltage

The phase sequence monitoring relay detects the time sequence of the individual phases in a three phase supply. In a clockwise phase sequence, contacts 11-12 and 21-22 are open, contacts 11-14 and 21-24 are closed. In an anti-clockwise phase sequence, contacts 11-14 and 21-24 are open, contacts 11-12 and 21-22 are closed.

The S1PN can safely detect phase failure when the plant is at a standstill (load isolated from the measuring inputs).

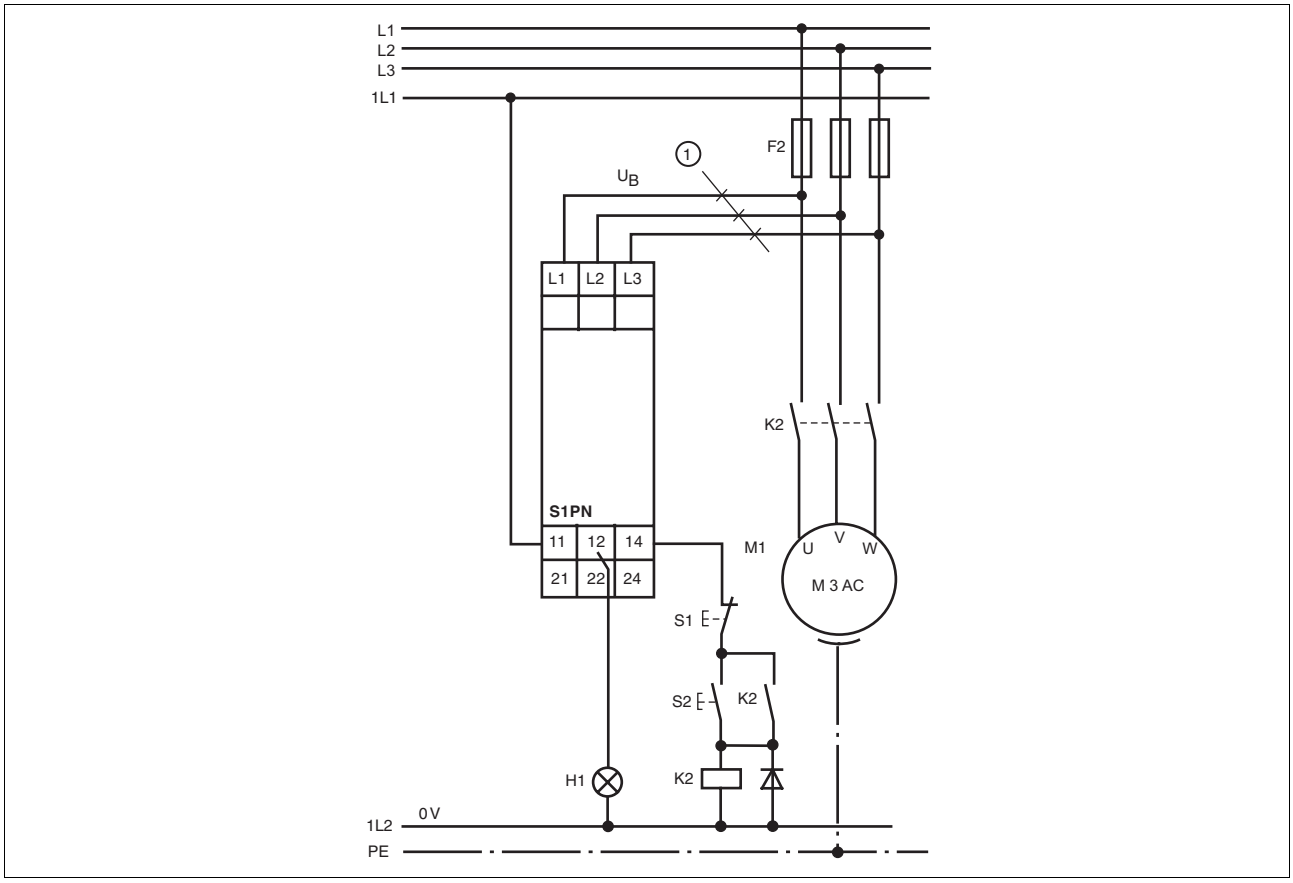
Internal wiring diagram



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Connection example



Key

- 1 = Cable cross section max. 4 mm^2, on larger motor cables the supply line should be fused!

Technical details	S1PN
Electrical data	
Supply voltage	AC: 200 ... 240, 400 ... 500, 550 ... 690 V
Tolerance	85 ... 110 %
Frequency range AC	50 ... 60 Hz
Power consumption	200 ... 240 V: 8 VA; 400 ... 500 V: 15 VA; 550 ... 690 V: 20 VA
Utilisation category in accordance with EN 60947-4-1 EN 60947-5-1	 AC1: 240 V/0.1 ... 5 A/1200 VA DC1: 24 V/0.1 ... 5 A/120 W AC15: 230 V/2 A; DC13: 24 V/1.5 A
Output contacts	2 auxiliary contacts (2 C/O)
Contact material	AgCdO, 3 µm gold plating for low load range 1-50 V/1-100 mA
Contact fuse protection to EN 60947-5-1	Max. 6 A quick or max. 4 A slow

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Times	
Delay-on energisation	Max. 300 ms (with correct phase sequence)
Delay-on de-energisation	Max. 700 ms (after phase failure)
Environmental data	
EMC	EN 50081-1, EN 50082-2
Vibration in accordance with EN 60068-2-6	Frequency: 10 ... 55 Hz Amplitude: 0.35 mm
Climatic suitability	EN 60068-2-78
Airgap creepage	EN 60947-1
Ambient temperature	-15 ... +55 °C
Storage temperature	-40 ... +85 °C
Mechanical data	
Cross section of external conductors	
1 core flexible	0.20 – 4.00 mm², 24 – 10 AWG
2 core with the same cross section, flexible	
with crimp connectors, no plastic sleeve	0.20 – 2.50 mm², 24 – 14 AWG
without crimp connectors or with TWIN crimp connectors	0.20 – 2.50 mm², 24 – 14 AWG
Torque setting for connection terminals	0.6 Nm (screws)
Mounting position	Any
Housing material	
Housing	PPO UL 94 V0
Front	ABS UL 94 V0
Protection types	Mounting: IP54 Housing: IP40 Terminals: IP20
Dimensions (H x W x D)	87 x 22.5 x 121 mm
Weight	130 g

Order reference

Type	U_B/U_M	Order no.
S1PN	200 - 240 V	890 200
S1PN	400 - 500 V	890 210
S1PN	550 - 690 V	890 220

U_B: Supply voltage
U_M: Measuring voltage