DESCRIPTION

Control relay for monitoring of correct phase sequence, phase break and undervoltage.
Connection to 3-phase mains supply with or without neutral. Fixed limits for energizing and de-energizing the single or double output relay. LED indication of supply voltage and phase failure.
Versions available for DIN rail or 11-pole plug-in base mounting.
Versions available for separate supply and measuring voltage.

OPERATION

The phase failure relay monitors phase sequence, phase break and undervoltage.
The output relay is energized when all three phase voltages are present and the phase conditions (voltage and phase sequence) are correct.
The phase failure relay has a fixed time delay to prevent faulty energization and de-energization caused by short interferences.
LED indication of supply voltage connected (green) and phase or voltage failure (red).
The phase failure relay uses L2 and L3 (6 and 7) for supply voltage. The indicators therefore only work if these phases are present.
An improvement of the measuring range is obtained by connecting neutral to the relay (see the technical data).

OPTION

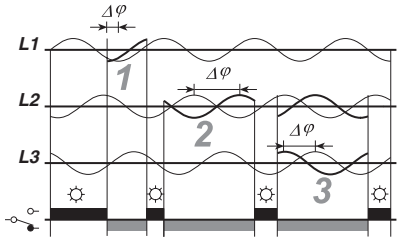
Separate supply and measuring voltage S.
The supply voltage for the internal circuit is separated from the measuring voltage which allows the measuring circuit and the LED indicators to work if one or more of the monitored phases are interrupted.

VERSIONS/ORDERING CODES

MCP-10 S 1 380 /S230

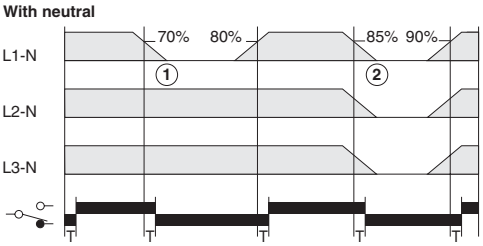
Type:	
Phase failure relay.	MCP-10
Mounting:	
11-pole plug-in.	S
DIN rail.	D
Output relay:	
SPDT.	1
DPDT[1].	2
Measuring/supply voltage: [3]	
3 x 220V AC	220
3 x 380V AC	380
3 x 400V AC	400
3 x 415V AC	415
Options: [3]	
Separate supply voltage: 220/240V AC ±10%.	/S230

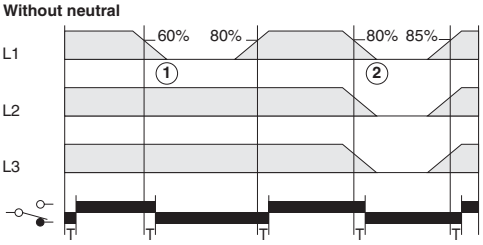
PHASE MONITORING



1. Lightly loaded 3-phase motor and L1 interrupted (φ > 20°).
2. Ohmic load or heavily loaded 3-phase motor and L2 interrupted (φ=180°).
3. Reversed order of the phases L2 and L3 i.e. incorrect phase sequence(φ=120°).

VOLTAGE MONITORING





1. Voltage drop on one phase.
2. Voltage drop on all 3 phases (symmetrical).

If one of the phases connected to an idle 3-phase motor is interrupted, no changes can be measured in the voltage and phase conditions, and the phase failure relay will not detect the failure.

34.11

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TECHNICAL DATA

Phase measuring:
With neutral: Fault: φ > 25°, typically by φ > 20°.
Without neutral: Fault: φ > 50°, typically by φ > 40°.

Voltage measuring:
With neutral:
Change on 1 phase:
Energized output relay: > 90% of Vnom., typically by > 80%.
Fault: < 65% of Vnom., typically by < 70%.
Change of 3 phases, symm.:
Energized output relay: > 90% of Vnom.
Fault: < 80% of Vnom., typically by < 85%.
Without neutral:
Change on 1 phase:
Energized output relay: > 90% of Vnom., typically by > 80%.
Fault: < 50% of Vnom., typically by < 60%.
Change on 3 phases, symm.:
Energized output relay: > 90% of Vnom., typically by > 85%
Fault: < 75% of Vnom., typically by < 80%.

Temperature drift: All specifications apply for the specified temperature range.

Output relay: SPDT or DPDT.
Load (cosφ=1): D1/S1: 8A/240V AC
10mA/24V DC
S2: 5A/240V AC
10mA/24V DC
Frequency: Max. 1000 operations per hour at max. load.
Mechanical lifetime: Min. 10 x 10^6 operations.
Electrical lifetime: Min. 100.000 operations at full load.
Time delay: 0.3-0.9 sec.

Mounting: S1/S2: 11-pole plug in.
D1: Directly on 35 mm DIN rail (EN50022).

Terminals: Max. conductor size 4mm².
Screw type terminals with self-lifting clamps shrouded in accordance with VDE0106 (finger and back of hand protection).

Supply/measuring voltage:
3 x 220V AC + 10%,
3 x 380V AC + 10%,
3 x 400V AC + 10%,
3 x 415V AC + 10%.

220V AC ±10% (option S).
240V AC ±10% (option S).

Other AC voltages on request.

Mains frequency: 45-66Hz.

Consumption: 1-3VA.

EMC: Conforming to EN 50081-1/EN 50082-2.

Isolation: 2kV AC according to EN 60950 class I.

Ambient temperature: -25 to 55°C.

Protection: S1/S2: IP40.

D1: IP20.

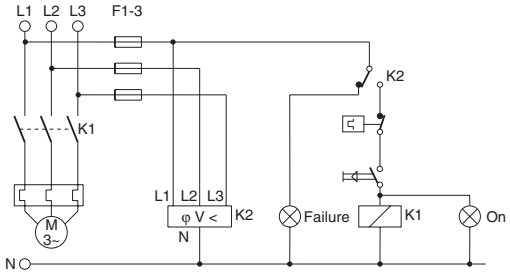
Housing: Noryl SE-1.

Weight: Typically 170 g.

NOTES/REMARKS

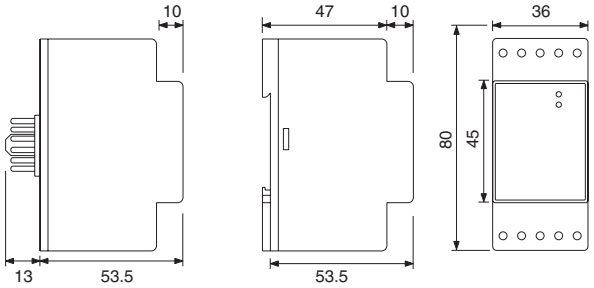
1) Double output relay only available in S2 version.
2) Terminal 2 (A1) is only used when a separate supply voltage is connected.
3) Available with user-specified voltage. Plese specify voltage.

APPLICATION

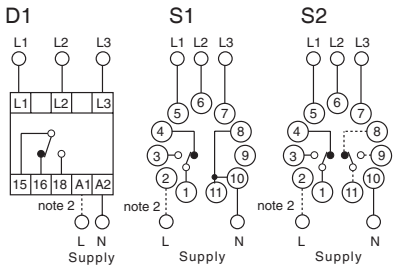


Monitoring of the supply voltage to a 3-phase motor with signal lamp indication of phase failure and motor contactor on.

MECHANICAL DIMENSIONS



WIRING DIAGRAMS



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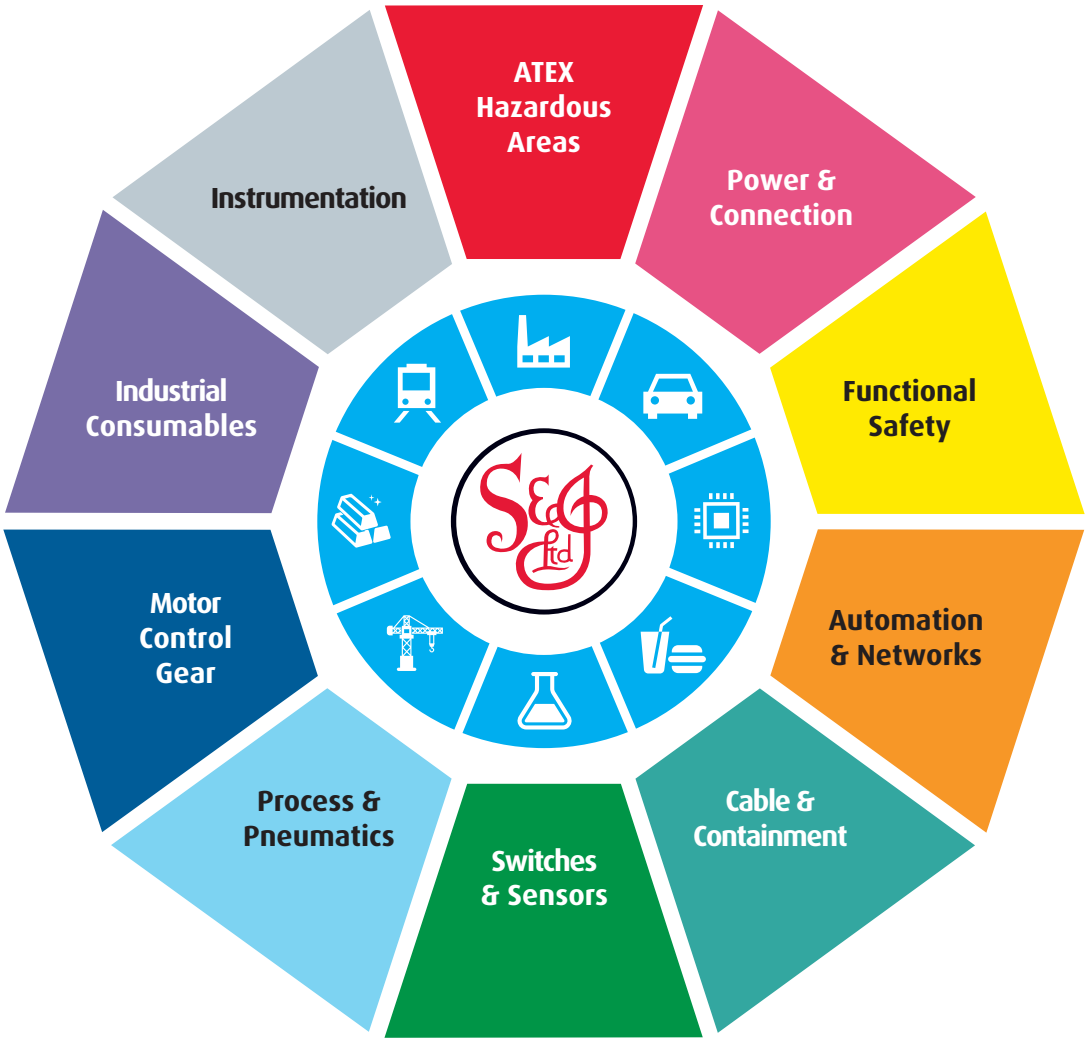

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