Features

- Phase Failure Protection
- Fixed Asymmetry
- DIN Rail Mounting
- 230VAC Operating Voltage
- 0.2 sec. fixed OFF Delay and ON Delay Time
- 1 x 8A CO or NO relay output

RS PRO Monitoring Relays

RS Stock No.: 0558897

RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Product Description

In industrial applications, one of the primary causes of three-phase motor failures is overheating and insulation damage due to phase loss or phase unbalance. Traditional thermic-magnetic protection devices, although commonly used, often fail to provide adequate protection in such scenarios. Their delayed response is attributed to electromechanical limitations and the necessity of high current threshold settings to prevent nuisance tripping during motor start-up.

To overcome these limitations, the Phase Failure Relays are designed to provide rapid and reliable protection. These devices monitor the motor's power supply and detect abnormal phase conditions. Upon detecting a phase failure, they isolate the motor from the supply within 0.2 seconds (fixed delay), minimizing the risk of thermal damage and ensuring uninterrupted system safety.

Utilization and Working Principle:

1. *Voltage Unbalance:*

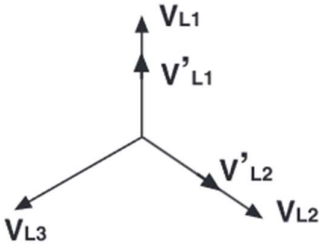
MKC-03 has neutral connection.
Unbalanced voltage for Phase- Neutral (fixed). When the value exceeds the 40% for MKC-03 and MKC-04 output relay switches-off the motor.

Voltage unbalance may occur in the following cases:

- The mains supply is unevenly loaded.
- One of the three motor phases is lost. In such cases, the remaining phases may induce voltage onto the missing phase. The magnitude of this induced voltage depends on both the motor type and the load.

The output relay activates when a phase is lost or when an unbalanced phase-to-neutral voltage—arising from any cause—falls below the device's defined asymmetrical threshold. If this unbalanced voltage exceeds the preset value, the relay operates and the motor is disconnected from the supply.

Application Note:
An appropriate protection device must be selected with consideration for the induced voltage between the remaining two phases in the event of a phase loss.



$$\text{Asymmetry \%} = \frac{\left| V'_{L1} - V'_{L2} \right|}{V_{Ref}} \times 100$$

$$V_{Ref} = 220 \text{ VAC}$$

The voltage asymmetry causes the rise in motor temperature and a reduction of the rated motor power.

2. *Phase Sequence:*

When the phase sequence is correct L1, L2, L3 in clockwise direction) the output relay is activated; however, if the sequence is changed by any reason, the output relay switches OFF immediately.

General Specifications

Operating Voltage (Un)	230VAC ±10%
Operating Frequency	50-60Hz
Voltage Unblance	40% fixed

Enclosure Specifications

Dimensions	90 x 58 x 35mm (DIN Rail Mounting)
Width	35mm
Length	58mm
Height	90mm

Output Specifications

Output Contact	1CO, 8A, 2000VA (cosφ=1)
ON Delay	0.2sec fixed
OFF Delay	0.2sec fixed

Ambient Specifications

Ambient Temperature/Humidity	-5 / +55 °C; % 90
Over Voltage Category	III

Connection Specifications

Mounting	Ral Mounting; Terminal with Screw
Connection Types	3 phase+ neutral