MOTOR (FAZ) KORUMA RÖLELERİ
MKC-01, MKS-01, MKC-03, MKS-03, MKC-04

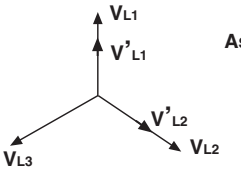
General
One of the common faults faced in industrial plants is over-heating and burning of 3 phase motors due to the phase failure. “Thermic-magnetic device” which is an essential element in motor protection is generally too slow due to both its electro-mechanical structure and the use of high current setting range to assure demarrage without tripping. Being designed to eliminate the above disadvantages, MKC-01 and MKC-03 Phase Failure Device react within 0.2 seconds (fixed) against the following faults and take the motor out of service.

1. Voltage Unbalance (Not Adjustable)
MKC-01 and MKC-03 have neutral connection.
Unbalanced voltage for Phase-Neutral (fixed). When the value exceeds the 40% for MKC-03 and MKC-04 or 20% for MKC-01 and MKS-01 output relay switches-off the motor.
- Unbalanced voltage may occured when;
- The mains are loaded with unbalanced distribution,

One of the 3-phase of motor has lost. In this case, some amount of voltage which produced by other phases will be inducted on the lost phase. Amount of this value depends on both the motor type and amount of load.

Output relay is activated when a phase has lost or an unbalanced phase-neutral value, which is occured with any reason, is smaller than the Asymetrical value which is defined for the device. If this unbalanced voltage exceeds the adjusted Asymetrical value, output will release itself and motor will be Switched-off.

In Applications; a proper device must be used regarding to the inducted voltage value in two-phase which are remained after the other one has lost.



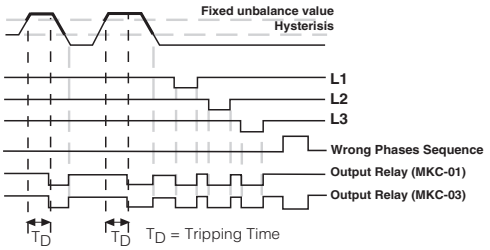
$$\text{Asymmetry \%} = \frac{|V'_{L1} - V'_{L2}|}{V_{Ref}} \times 100$$

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

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

2. Phase Sequence (MKC-03, MKS-03, MKC-04)
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.

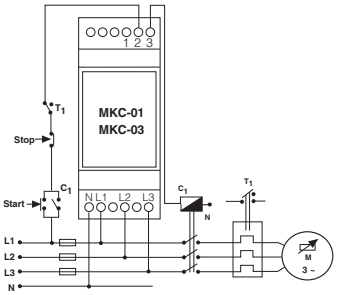
Function Diagram



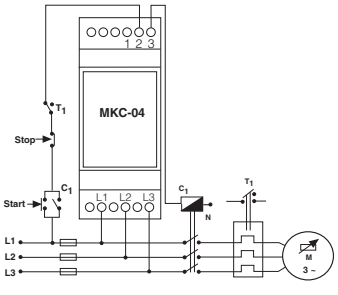
Precautions For Installation and Safe Use
Failure to follow those instructions will result in death or serious injury.
- **Disconnect all power before working on equipment.**
- **When the device is connected to the network, do not remove the front panel.**
- **Do not try to clean the device with solvent or the like. Only clean the device with a dried cloth.**
- **Verify correct terminal connections when wiring.**
- **Electrical equipment should be serviced only by your compedent seller.**
- **Mount device to the panel.**

No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.

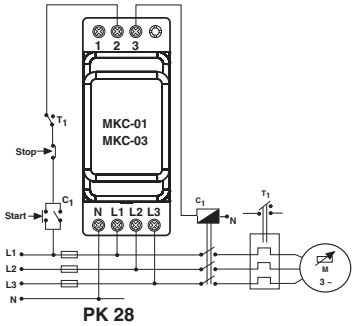
Connection Diagram



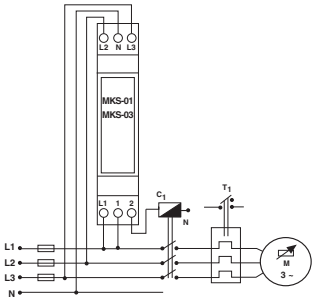
PK 25



PK 25



PK 28



PK 22

Technical Data

Rated Voltage (Un)	: Please look at labels on the device.
	: 3 phase and neutral 220-230 VAC
	4 Wires Star Connection (MKC-01, MKC-03, MKS-01, MKS-03)
	: 3 Phase 380 VAC
	3 Wires Delta Connection (MKC-04)
	: 3 Phase 220 V AC
	3 Wires Delta Connection (MKC-04)
Operating Range	: (0.9-1.1) x Un (MKC-04)
	(0.8-1.2) x Un (MKC-01, MKC-03, MKS-01, MKS-03)
Rated Frequency	: 50/60 Hz.
Output Contacts	: 1 C/O, 8A, 250 V AC, 2000 VA, Cosφ=1 (MKC-01, MKC-03, MKC-04)
	1 NO, 8A, 250 V AC, 2000 VA, Cosφ=1 (MKS-01, MKS-03)
Warning LEDs	: LED output, normally ON (OFF for any fault)
	ON LED'i : On when supply voltage is present (MKC-01, MKC-03)
Tripping Time	: 0.2 sec.
Ambient Temperature	: -5 °C ; +50 °C
Protection Class	: IP 20
Dimension	: Typ PK 22 (MKS-01, MKS-03)
	Typ PK 25 (MKC-01, MKC-03, MKC-04)
	Typ PK 28 ((MKC-01, MKC-03)
Installation	: Surface mounting or on the mounting rails.
	Panel mounting with screws and adapter is possible. (Refer to Figure 1)
Weight	: 0.08 kg. (MKS-01, MKS-03)
	0.1 kg. (MKC-01, MKC-03)
	0.2 kg. (MKC-04)

Dimensions

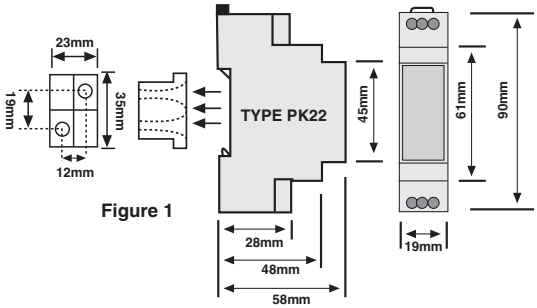
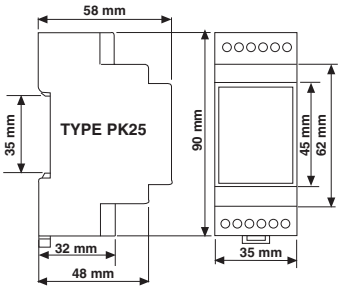
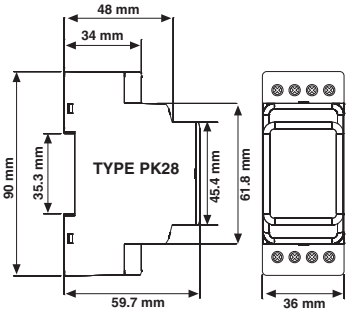


Figure 1





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