

MOTOR PROTECTION RELAYS

1. INTRODUCTION

Motor Protection Relays are designed to protect the motors against O/U voltage fluctuations, wrong phase sequencing and loss as well as over heating.

2. USAGE

MKR-02/MKR-02PF: When L1, L2, L3 voltages are normal, the relay is switched on. And motor works. When the phase-phase voltage difference is $\pm 20\%$ out of the specified range, the relay counts 3 second and after 3 second the relay is switched off and the motor stops. In case of the phase-phase voltage reaches at its nominal value, the relay is switched on and the motor starts to work.

MKR-02: No Neutral Motor Protection Relay.

MKR-02PF: No Neutral Phase Sequence and Motor Protection Relay with PTC.

MKR-02PFA / MKR-05P / MKR-05PF; Asymmetry: PTC connection is optional, when the devices are operated without PTC, these terminals must be short circuited. Asymmetry, Hysterisys and Delay Time adjustments can be done via buttons built on front. Phase to phase voltage difference can be adjustable in between 5% - 30% of the normal phase voltage. The relay and its LED are switched on when the voltage difference is in range while, in contrary, they both be turned off and the motor be switched off when it is out of range.

Hysterisys: Adjustable within the range of 20% - 30% in order to secure unwanted continual switching on/off for MKR-02PFA. Adjustable within the range of 2% - 12% in order to secure unwanted continual switching on/off for MKR-05P/05PF.

Phase Sequence: Motors can not be energized unless L1, L2 and L3 phases are connected in sequence. Interchanging two phases will be sufficient for a phase-sequencing in order.

PTC: The relay switches on when the motor winding temperature exceeds PTC temperature limit. Hence the motor will stopped.

• If PTC not used, PTC terminals should be short-circuit.

MKR-02PFA: No Neutral, Asymmetry, Hysterisys and Off Delay Adjustable Phase Sequence and Motor Protection Relay with PTC.

MKR-05P: Asymmetry, Hysterisys, Off Delay Adjustable Motor Protection Relay with PTC.

MKR-05PF: Asymmetry, Hysterisys, Off Delay Adjustable, Phase Sequence and Motor Protection Relay with PTC.

MKR-04P: The relay operates motor via a contactor being connected into relay contacts. Relay is switched on when L1, L2, L3 voltages are at their normal values. Motor starts via a contactor being connected into relay contacts. Relay switches off and then motor stops when phase voltage values are above the limits of the set voltage values. Relay switches on and motor restarts, when phase voltage reach at normal value. Relay with PTC switches off the motor when motor internal temperature exceeds the set temperature degree (relevant to PTC). Relay will switch on the motor when motor internal heat reaches at normal temperature degree.

NOTE: Custom-made devices with different standards are specified on their label.

Product Scale Information

ASM : Asimmetry Adjustment

HST : Hysterisys Adjustment

t : Delay Time Adjustment

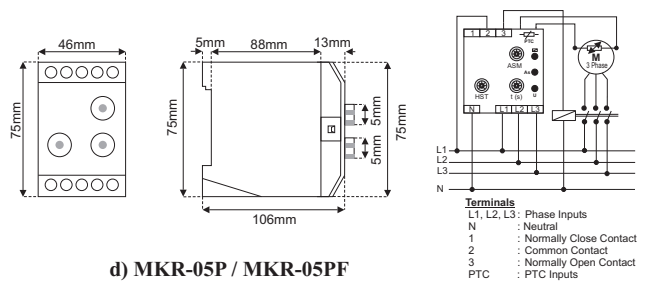
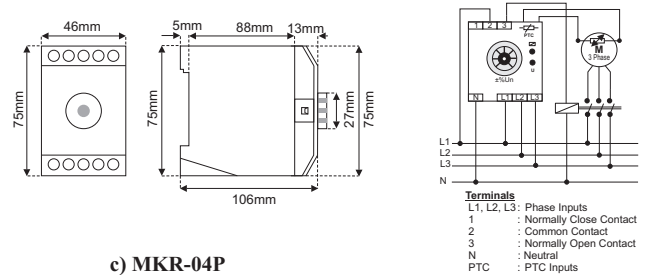
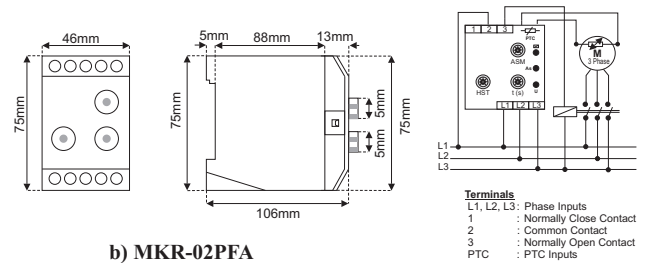
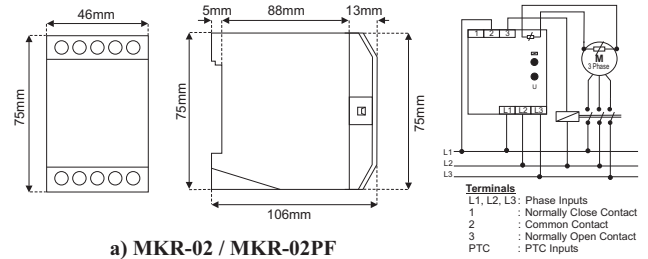
5. TECHNICAL SPECIFICATIONS

Model	Un	Operating Range	Contact Output	Asymmetry	Hysterisys	Phase Sequence	Time	PTC Resistance	Dimensions and Connection Diagrams	Mount Type	Protection Class	Plastic Material	Operating Temperature	Weight
MKR-02	3x380VAC 3Phase 50-60 Hz	(0,7-1,2)xUn	250VAC-5A	-	max. 15V	-	3 sec.(Fixed)	Turn On 1600-2000 ohm Turn Off 1000-1400 ohm	a	Rail Mounted	IP 20	V0 Nonflammable	-25°C ... +65°C	285 gr.
MKR-02PF				-		●	3 sec.(Fixed)		a					285 gr.
MKR-02PFA	(0,65-1,3)xUn	20% - 30%		●	0,2-1,5 sec. (Adjustable)	b	d		285 gr.					
MKR-05P		$\pm 5\% - \pm 30\%$		-		d	295 gr.							
MKR-05PF		2% - 12%		●		d	295 gr.							
MKR-04P	3x220VAC 3Phase + 1Neutral 50-60 Hz	(0,8-1,2)xUn	$\pm 5\% - \pm 25\%$	max. 15V	-	3 sec.(Fixed)	c	300 gr.						

3. USAGE AND SAFETY

- Turn off power during connection/wiring.
- Check correct mains voltage/wiring terminal.
- Installation shall only be performed by qualified personnel.
- Do not use any solvent or alike for cleaning.

4. MECHANICAL DIMENSIONS AND CONNECTION DIAGRAMS



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