

Phase Failure Relays

MKS - MKC Series



General

One of the common faults faced in industrial plants is overheating and damaging of 3 phase motors due to phase failure. "Thermal-magnetic relay" which is an essential element in motor protection is generally too slow due to both its electromechanical structure and the use of high current setting range, to assure demurrage without tripping. MKS-MKC Series relays have been designed to eliminate negative effects.

- Ambient Operating Temperature : -5 / +50°C
- Non-flammable enclosure
- Rail-mounted or flush mounted
- Protection Class: IP20
- EC 60255-3, EC 60255-6, EC 60870-5, EC 60529



PRODUCT SELECTION TABLE

Product Code		Phase Failure Relay	Phase Seq. Failure	PTC Protection	Fixed Asymmetry	Adjustable Asymmetry	Without Neutral	Switch On Delay	Switch Off Delay	1 C/O Contact	1 N/O Contact	DIN1 Rail Mount	DIN2 Rail Mount	Pcs / Carton
MKC-01	Phase Failure Relay	●			●					●			●	10
MKS-01	Phase Failure Relay	●			●						●	●		10
MKC-03	Phase Failure Relay	●	●		●					●			●	10
MKS-03P	Phase Failure Relay	●	●	●	●						●	●		10
MKC-04	Phase Failure Relay	●	●		●		●			●			●	10
MKC-05	Phase Failure Relay	●	●			○		●	●	●			●	10
MKC-05P	Phase Failure Relay (with PTC3)	●	●	●		○		●	●	●			●	10
MKC-06	Phase Failure Relay	●	●			○	●	●	●	●			●	10
MKC-06P	Phase Failure Relay (with PTC3)	●	●	●		○	●	●	●	●			●	10
PTC-3	Triple Thermistor Group													50
MKC-20	Phase Failure Relay	●	●			○			●	●		●		10

○ Can be switched off

Protection Features

1. Phase Failure

When the monitored 3 phase voltages are valid, the output relay is ON (i.e., activated) and if any of 3 phases fails, the output device switches OFF immediately.

2. Phase Sequence

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

3. PTC Protection

If coil temperature in motors exceed T_c, the limit temperature of PTC (please see PTC-3 below), the output relay switches off immediately.

4. Fixed Voltage Unbalance

When the neutral-phase voltage unbalance is greater than a fixed value (of 20% or 40%), the output relay is switched OFF within 0,2 seconds.

5. Adjustable Voltage Unbalance

When the phase-phase voltage unbalance is less than the user adjusted value, output relay is activated (ON).

If the unbalance value exceeds the user set limit value (5% - 15%), output relay is switched OFF at the end of user set delay time (0,1 ... 10s).

If the fault disappears within the delay time, the output relay doesn't switch OFF and motor continues to normal operation. In addition to these features, MKC-05P relays are switched on if the R-phase voltage exceeds 178 V AC. Their phase sequence and asymmetry LEDs flash simultaneously.



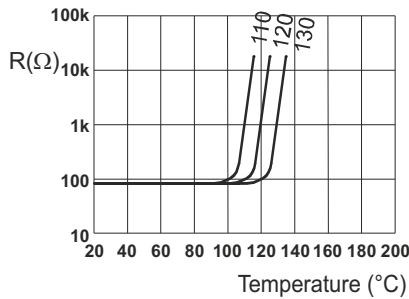
Phase Failure Relays

MKS - MKC Series

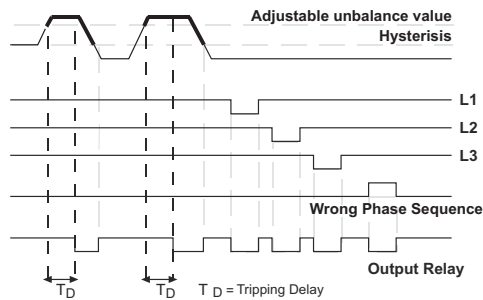
SPECIFICATIONS

	MKS-01	MKS-03	MKC-01	MKC-03	MKC-04	MKC-05	MKC-05P	MKC-06	MKC-06P	MKC-20	
ENCLOSURE											
Dimensions	PK22				PK25 - PK28				PK22		
Weight	0,1kg/24 pcs/carton				0,3kg/10 pcs/carton				0,1kg/10 pcs/carton		
MEASUREMENTS											
Voltage Unbalance	20% fixed	40% fixed	20% fixed	40% fixed	5%-15% adjustable				5%-25% adjustable		
SUPPLY											
Operating Voltage	230VAC				400VAC	230VAC	220VAC	400VAC	380VAC	230VAC	
Operating Frequency	50/60 Hz										
Operating Range	±20%Un				±10%Un	±30%Un	±10%Un	±30%Un	±10%Un	±30%Un	
OUTPUT											
Output Contact	1NO,8A,2000VA				1CO,8A,2000VA				1CO 5A,1250VA		
Delay Time	0,2 sec. fixed				0,1-10 sec. adjustable				0,1-20 sec. adjustable		
Ambient Conditions											
Ambient Temperature ; Humidity	-5 / +55°C ; 90%										
Over Voltage Category	III										
CONNECTIONS											
Mounting	Rail Mount										
Connection Types	3 phase+neutral				3 phase	3 phase+neutral		3 phase	3 phase+neutral		

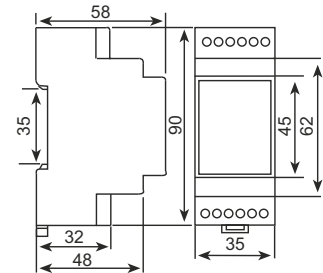
Figure for typical resistance of PTC vs temperature characteristics



Function Diagram

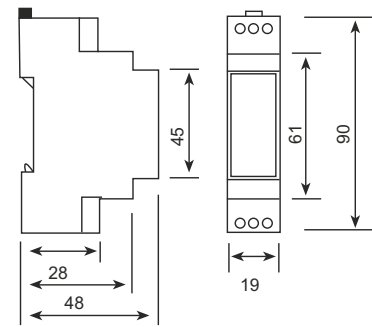
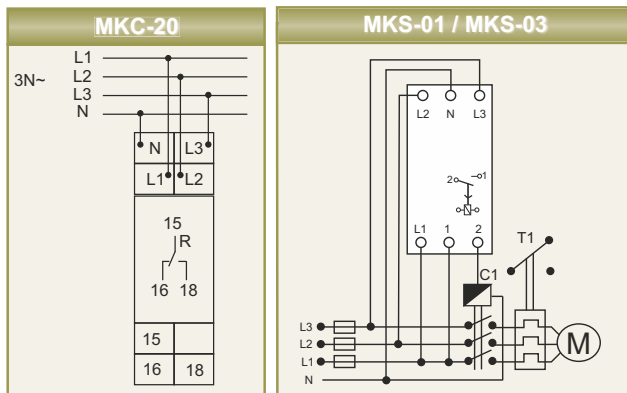


Dimensions

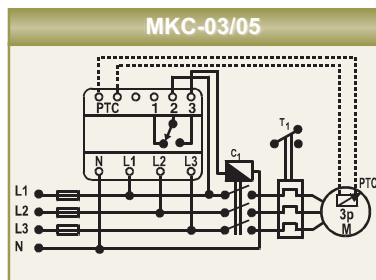


TYPE PK25

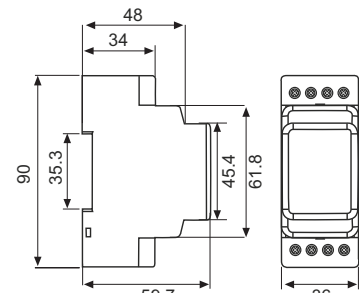
Connection Diagram



TYPE PK 22



No PTC input except MKC-05/06P



TYPE PK 28

Connection diagrams are given for reference. Please always check the latest user manual given with product or download from www.entec.com.tr

