

PHASE FAILURE RELAYS MKS - MKC SERIES



MKC-05



MKC-06



MKC-20



MKS-03



Product Code

| Product Code | Description | Phase Failure Relay | Phase Seq. Failure | PTC protection | Fixed Asymmetry | Adjustable Asymmetry | Without Neutral | 1 C/O Contact | 1 N/O Contact | DIN1 Rail Mount | DIN2 Rail Mount | pcs / carton |
|--------------|--------------------------------|---------------------|--------------------|----------------|-----------------|----------------------|-----------------|---------------|---------------|-----------------|-----------------|--------------|
| MKC-01 | Phase Failure Relay | ● | | | ● | | | ● | | | ● | 10 |
| MKC-01P | Phase Failure Relay (with PTC) | ● | | ● | ● | | | ● | | | ● | 10 |
| MKS-01 | Phase Failure Relay | ● | | | ● | | | | ● | ● | | 24 |
| MKC-03 | Phase Failure Relay | ● | ● | | ● | | | ● | | | ● | 10 |
| MKS-03 | Phase Failure Relay | ● | ● | | ● | | | | ● | ● | | 24 |
| MKC-04 | Phase Failure Relay | ● | ● | | ● | | ● | ● | | | ● | 10 |
| MKC-04P | Phase Failure Relay (with PTC) | ● | ● | ● | ● | | ● | ● | | | ● | 10 |
| MKC-05 | Phase Failure Relay | ● | ● | | | ● | | ● | | | ● | 10 |
| MKC-05P | Phase Failure Relay (with PTC) | ● | ● | ● | | ● | | ● | | | ● | 10 |
| MKC-06 | Phase Failure Relay | ● | ● | | | ● | ● | ● | | | ● | 10 |
| MKC-06P | Phase Failure Relay (with PTC) | ● | ● | ● | | ● | ● | ● | | | ● | 10 |
| PTC-3 | Triple Thermistor Group | | | | | | | | | | | 50 |
| MKC-20 | Phase Failure Relay | ● | ● | | | ● | | ● | | | ● | 10 |

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.

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.

- Ambient Operating Temperature : -5°C, +50°C
- Non-flammable enclosure
- Rail-mounted or surface mounted with clips
- Protection Degree : IP20
- IEC 60255-3, IEC 60255-6, IEC 60870-5, IEC 60529

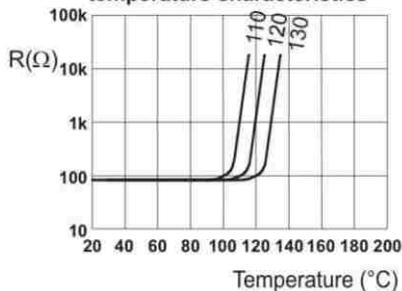
PHASE FAILURE RELAYS

MKS - MKC SERIES

MODELS

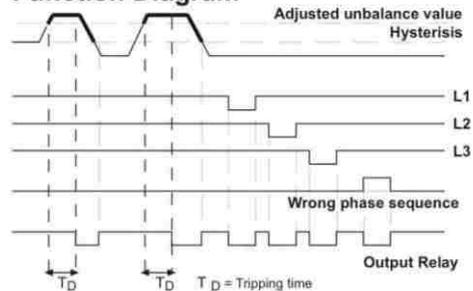
| SPECIFICATIONS | MKS-01 | MKS-03 | MKC-01 | MKC-01P | MKC-03 | MKC-03P | MKC-04 | MKC-04P | MKC-05 | MKC-05P | MKC-06 | MKC-06P | MKC-20 <i>(new)</i> | |
|------------------------------|---------------------|--------|-----------|---------|--------|---------|---------------------|---------|-------------------|------------------------|-----------------|--------------------|------------------------|----------|
| Electrical Parameters | | | | | | | | | | | | | | |
| Operating Voltage (Un) | 230 V AC, 50/60 Hz | | | | | | 400 V AC, 50/60 Hz | | | 230 V AC, 50/60 Hz | | 400 V AC, 50/60 Hz | | 230 V AC |
| Operating Range | ±20% Un | | | | | | ±10% Un | | | | | | ±%30 Un | |
| Network Type | 3-Phase + Neutral | | | | | | 3 Phase (delta) | | 3-Phase + Neutral | | 3 Phase (delta) | | 3-Faz+Nötr | |
| Voltage Unbalance | 20% fixed | | 40% fixed | | | | | | 5%-15% adjustable | | | | %5-%25 adjustable | |
| Delay Time | 0,2 sec. fixed | | | | | | | | | 0,1-10 sec. adjustable | | | 0,1-20 sec. adjustable | |
| Output Contact | 1 N/O, 8 A, 2000 VA | | | | | | 1 C/O, 8 A, 2000 VA | | | | | | 1 C/O, 5 A, 1250 VA | |
| Mechanical Parameters | | | | | | | | | | | | | | |
| Dimension | PK22 | | | | | | PK25 | | | | | | PK22 (Din1) | |
| Weight / each | 0,1 kg | | | | | | 0,3 kg | | | | | | 0,1 kg | |
| Quantity in 1 package | 24 pcs | | | | | | 10 pcs | | | | | | | |

Figure for typical resistance of PTC vs temperature characteristics

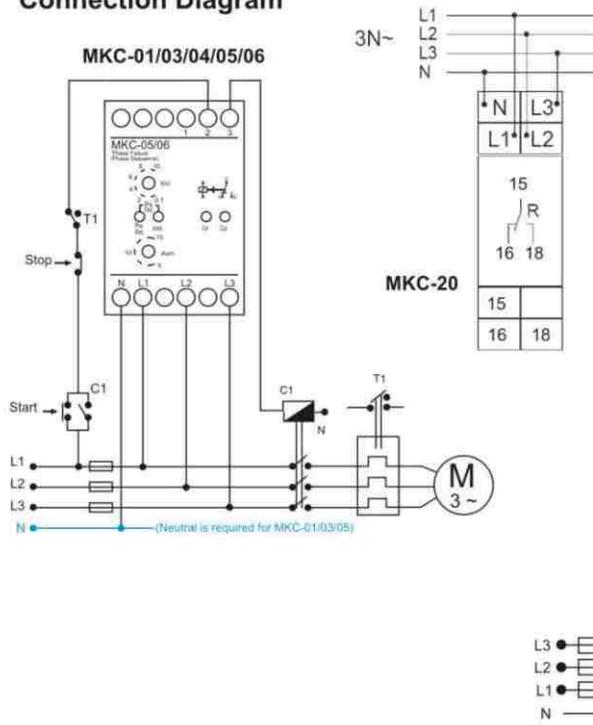


PTC-3 (110°C) Thermistance

Function Diagram



Connection Diagram



Dimensions

