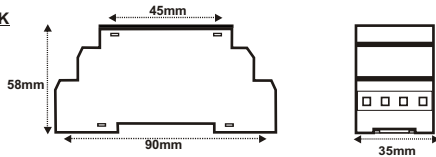


DEVICE ERROR MEANING OF LIGHTS

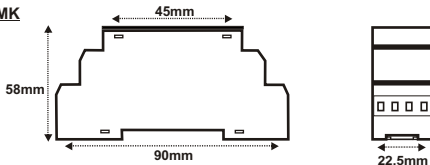
On	P.sq	Asym	Out	(● ON LED)	(⊗ OFF LED)
⊗	⊗	⊗	⊗	L1 Phase (Supply Phase) is not Present	
●	⊗	●	●	Voltages are between adjusted values (normal working)	
●	⊗	●	⊗	Temporary Excessive or Low Voltage Warning	
⊗	⊗	⊗	⊗	Continuous Excessive or Low Voltage Warning	
●	●	⊗	⊗	Phase Sequence Alarm	
●	●	●	⊗	Phase Failure Warning	

Dimensions

FMK



SFMK



KARACA®

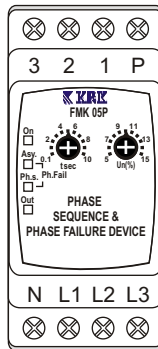
KRK®

ISO 9001
9001:2008

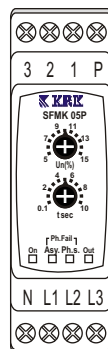


PHASE SEQUENCE & PHASE FAILURE DEVICE

FMK 05P



SFMK 05P



User Guide

UG-23/REV 00

General Specifications

The devices are protect motors from ;

- *Phase loss
- *Phase sequence failure
- *Phase asymmetry
- *Motor overheat

Protection Functions

I- Phase Loss : If the system has lost one of the phases, the output is closed without delay ("Ph. seq." and "Asym." led are lighted). In case of supply voltage loss, all of leds are off.

II-Phase Sequence Failure : If the sequence of the phases are wrong the output is closed without delay. Any case if the sequence is changed during normal operation the output is closed without delay . In this condition "Ph. seq." led is on.

III- Voltage Asymmetry: If system's phase-phase voltage values are between the adjusted asymmetry value, "out" led is on (2-3 contacts are closed). Otherwise the output is closed (1-2 contacts are closed). During normal operation, if asymmetry occurs "Asym." Led is on ad if it continues more than adjusted delay time device will cut-off the system (1-2 contact are closed). If it return normal value will continue to normal operation and all warning leds are off.

$$\text{Asymmetry (\%)} = \frac{\text{The max. deviation between Ph-Ph values}}{\text{Nominal value of Ph-Ph}} \times 100$$

IV- PTC Protection : If "PTC" protection is not desired, "PTC" inputs must be short-cut. Otherwise must be connected to the motor. It will protect motor from overheating. When PTC value over the 2K ohm, the output is closed without delay.

V- If any of phases values increases over 1.5xUn or decreases 0.5xUn device will closed the system without delay. Warning leds will light on accordingly.

*** If the supply (L1) decreases under 150V the output is closed without delay and "Ph. seq." and "Asym." leds are on

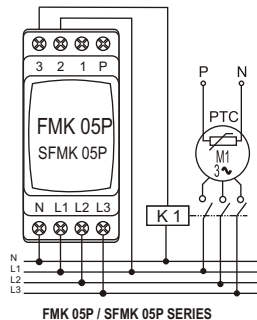
Technical Specifications

Type	Electrical Connector	Weight (kg)
SFMK 05	PCB Clamp	0,09
FMK 05	PCB Clamp	0,18

Technical Specifications

- Supply Voltage** : 220 Vac ±%30, 50/60 Hz (L1-N)
- Asymmetry Adjustment** : %5...%15
- Hysteresis** : % 20 (Adjusted value)
- Delay Time** : 0.1sec...10sec
- PTC Value** : 2K ohm
- Power Consumption** : <=3W
- Ambient Temperature** : -5°C...+55°C
- Contact Type** : 1 Inversor, Relay, 10A, 250 Vac(Omron)
- Connection** : DIN 35 rail or Vertical Installation (Installation springs behind the box should be pushed outward to enable screwing).

Connection Schemes



NOTE: fmk 05P / sfmk 05 P series P and N to cancel the PTC protection Short circuit ends.