

VARIMETER Phase Sequence Relay MK 9056, MK 9056N



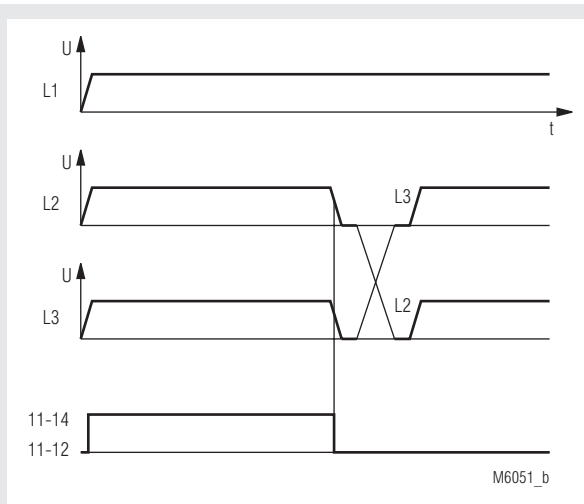
Your Advantage

- Correct sense of rotation of motors
- Simple wiring

Features

- According to IEC/EN 60 255, DIN VDE 0435-303
- Detection of wrong phase sequence
- 2 changeover contacts
- Wire connection: also 2 x 1.5 mm² stranded ferruled, or 2 x 2.5 mm² solid DIN 46 228-1/-2/-3/-4
- MK 9056N as option with pluggable terminal blocks for easy exchange of devices
 - with screw terminals
 - or with cage clamp terminals
- Width 22.5 mm

Function Diagram



Approvals and Marking



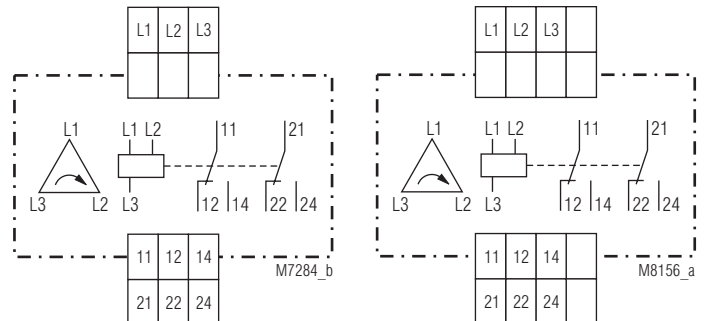
¹⁾ only MK 9056 (see variants)

²⁾ only MK 9056N

Applications

The MK 9056 and the MK 9056N detects wrong phase sequence in 3-phase systems. To monitor phase failure it is more suitable to use an Asymmetry relay e.g. MK 9040N.

Circuit Diagram



MK 9056.12

MK 9056N.12

Connection Terminals

Terminal designation	Signal designation
L1, L2, L3	Connection of the monitoring 3-phase system
11, 12, 14, 21, 22, 24	"incorrect phase sequence-signaling relays (2 changeover contacts)"

Technical Data

Input

Nominal voltage U_N:	3 AC 42 ... 60 V, 100 ... 127 V 3 AC 220 ... 240, 380 ... 500 V
Voltage range:	0.9 ... 1.1 U_N
Nominal frequency of U_N:	50 / 60 Hz
Nominal consumption:	approx. 2 W

Output

Contact	MK 9056.12, MK 9056N.12: 2 changeover contacts	
Operate / release delay:	< 100 / 50 ms	
Thermal current I_{th}:	5 A	
Switching capacity to AC 15		
NO contact:	3 A / AC 230 V	IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60 947-5-1
to DC 13		
NO contact:	1 A / DC 24 V	IEC/EN 60 947-5-1
NC contact:	1 A / DC 24 V	IEC/EN 60 947-5-1
Short circuit strength		
max. fuse rating:	4 A gL	IEC/EN 60 947-5-1
Mechanical life:	> 20 x 10 ⁶ switching cycles	

General Data

Operating mode:	Continuous operation	
Temperature range:	- 20 ... + 60°C	
Clearance and creepage distances		
rated impuls voltage / pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
HF irradiation:	10 V / m	IEC/EN 61 000-4-3
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages between wires for power supply:	2 kV	IEC/EN 61 000-4-5
between wire and ground:	4 kV	IEC/EN 61 000-4-5
Interference suppression:	Limit value class B	EN 55 011
Degree of protection		
Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94	
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60 068-2-6 20 / 060 / 04 IEC/EN 60 068-1 EN 50 005	
Climate resistance:		
Terminal designation:	DIN 46 228-1/-2/-3/-4	
Wire connection		
Screw terminals (integrated):	1 x 4 mm ² solid or 1 x 2.5 mm ² stranded ferruled or 2 x 1.5 mm ² stranded ferruled or 2 x 2.5 mm ² solid	
Insulation of wires or sleeve length:	8 mm	
Plug in with screw terminals		
max. cross section for connection:	1 x 2.5 mm ² solid or 1 x 2.5 mm ² stranded ferruled	
Insulation of wires or sleeve length:	8 mm	
Plug in with cage clamp terminals		
max. cross section for connection:	1 x 4 mm ² solid or 1 x 2.5 mm ² stranded ferruled	
min. cross section for connection:	0.5 mm ²	
Insulation of wires or sleeve length:	12 ±0.5 mm	
Wire fixing:	Plus-minus terminal screws M 3.5 box terminals with wire protection or cage clamp terminals	

Technical Data

Mounting:	DIN rail	IEC/EN 60 715
Weight:	140 g	

Dimensions

Width x height x depth:		
MK 9056:	22.5 x 82 x 99 mm	
MK 9056N:	22.5 x 90 x 97 mm	
MK 9056N PC:	22.5 x 111 x 97 mm	
MK 9056N PS:	22.5 x 104 x 97 mm	

UL-Data

Nominal voltage U_N:	3 AC 380-500 V	
Switching capacity		
NO contact:	Pilot duty B300	
NC contact:	Pilot duty B150	
Wire connection:	60°C / 75°C copper conductors only AWG 20 - 16 Sol Torque 0.8 Nm AWG 20 - 14 Str Torque 0.8 Nm	



Technical data that is not stated in the UL-Data, can be found in the technical data section.

CSA-Data

Nominal voltage U_N:	3 AC 42-60 V, 3 AC 100-127V, 3 AC 380-500 V	
Switching capacity:	5A 250Vac	
Wire connection:	60°C / 75°C copper conductors only AWG 20 - 16 Sol Torque 0.8 Nm AWG 20 - 14 Str Torque 0.8 Nm	



Technical data that is not stated in the CSA-Data, can be found in the technical data section.

CCC-Data

Auxiliary voltage U_N:		
MK9056N:	3 AC 42-60 V, 3 AC 100-127V, 3 AC 220-240 V	
Switching capacity to AC 15		
NO contact:	1,5 A / AC 230 V	IEC/EN 60 947-5-1



Technical data that is not stated in the CCC-Data, can be found in the technical data section.

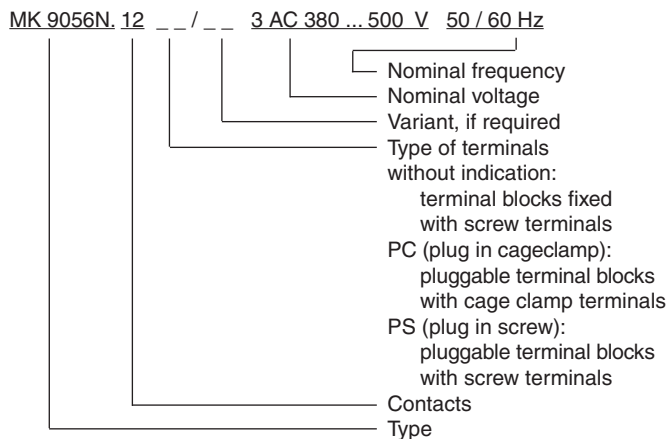
Standard Types

MK 9056.12	AC 380 ... 50 V	50 / 60 Hz	
Article number:	0028411		stock item
• Output:	2 changeover contacts		
• Nominal voltage U_N :	AC 380 ... 500 V		
• Width:	22.5 mm		
MK 9056N.12	AC 380 ... 500 V	50 / 60 Hz	
Article number:	0054183		stock item
• Output:	2 changeover contacts		
• Nominal voltage U_N :	AC 380 ... 500 V		
• Width:	22.5 mm		

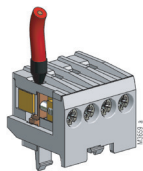
Variants

MK 9056.12/60:	with CSA approval
MK 9056.12/61:	with UL approval

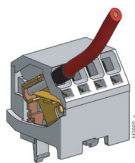
Ordering example for variant



Options with Pluggable Terminal Blocks



Screw terminal
(PS/plugin screw)



Cage clamp
(PC/plugin cage clamp)

Notes

Removing the terminal blocks with cage clamp terminals

1. The unit has to be disconnected.
2. Insert a screwdriver in the side recess of the front plate.
3. Turn the screwdriver to the right and left.
4. Please note that the terminal blocks have to be mounted on the belonging plug in terminations.

