

# Monitoring technique

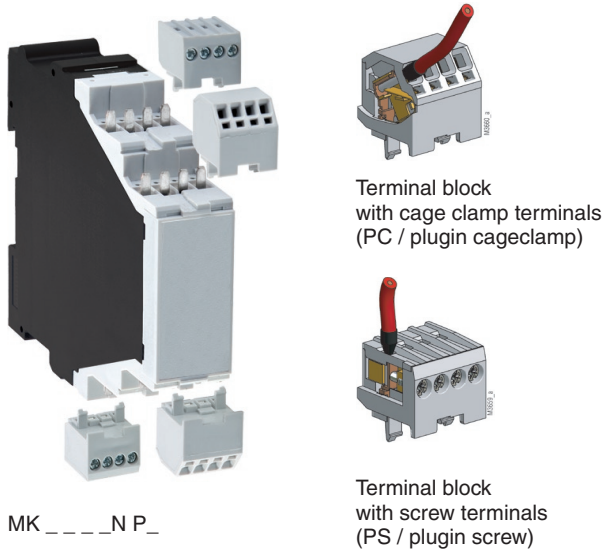
## Phase sequence relay MK 9056, MK 9056N varimeter

Now with selectable Plug-in technology



- 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 mm<sup>2</sup> stranded ferruled, or 2 x 2.5 mm<sup>2</sup> 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

### Options with pluggable terminal blocks

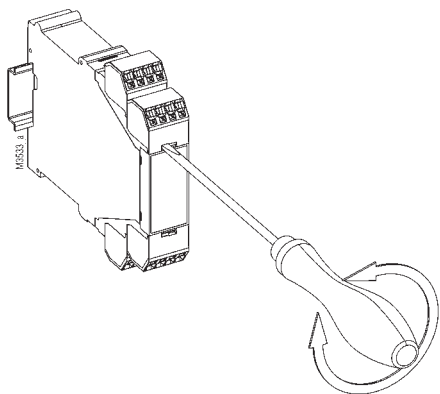


MK \_\_\_N P\_

### 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.



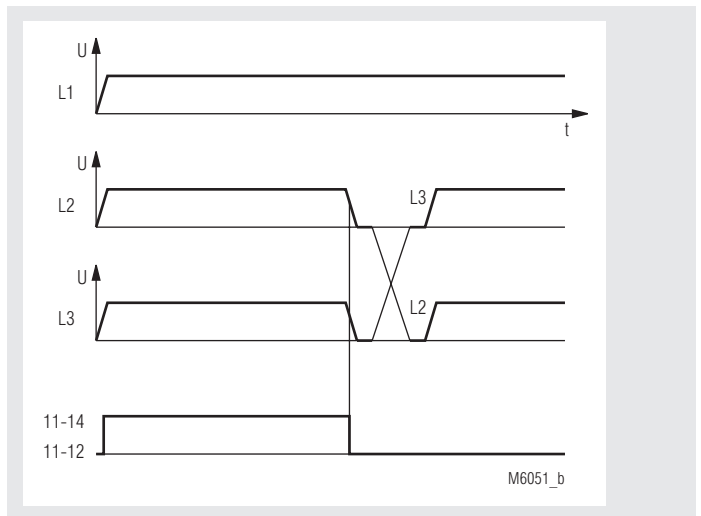
### Approvals and marking



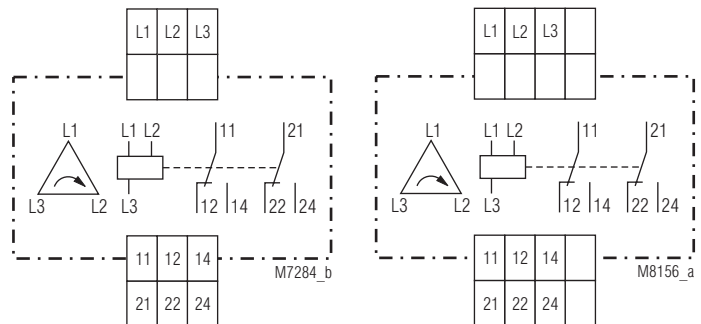
### Applications

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.

### Function diagram



### Circuit diagram



MK 9056.12

MK 9056N.12

## Technical Data

### Input

<b>Nominal voltage <math>U_N</math>:</b>	3 AC 42 ... 60 V, 100 ... 127 V 3 AC 230 ... 240, 380 ... 500 V
<b>Voltage range:</b>	0.9 ... 1.1 $U_N$
<b>Nominal frequency of <math>U_N</math>:</b>	50 / 60 Hz
<b>Nominal consumption:</b>	approx. 2 W

### Output

<b>Contact</b>	MK 9056.12, MK 9056N.12: 2 changeover contacts	
<b>Operate / release delay:</b>	< 100 / 50 ms	
<b>Thermal current <math>I_{th}</math>:</b>	5 A	
<b>Switching capacity to AC 15:</b>		
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
<b>Short circuit strength max. fuse rating:</b>	4 A gL	IEC/EN 60 947-5-1
<b>Mechanical life:</b>	> 20 x 10 <sup>6</sup> switching cycles	

### General Data

<b>Operating mode:</b>	Continuous operation	
<b>Temperature range:</b>	- 20 ... + 60°C	
<b>Clearance and creepage distances</b>		
rated impuls voltage / pollution degree:	4 kV / 2	IEC 60 664-1
<b>EMC</b>		
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
<b>Degree of protection</b>		
Housing:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
<b>Housing:</b>	Thermoplastic with V0 behaviour according to UL subject 94	
<b>Vibration resistance:</b>	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60 068-2-6	
<b>Climate resistance:</b>	20 / 060 / 04 IEC/EN 60 068-1	
<b>Terminal designation:</b>	EN 50 005	
<b>Wire connection</b>	DIN 46 228-1/-2/-3/-4	
<b>Screw terminals (integrated):</b>	1 x 4 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled or 2 x 1.5 mm <sup>2</sup> stranded ferruled or 2 x 2.5 mm <sup>2</sup> solid	
Insulation of wires or sleeve length:	8 mm	
<b>Plugin with screw terminals</b>		
max. cross section for connection:	1 x 2.5 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled	
Insulation of wires or sleeve length:	8 mm	
<b>Plugin with cage clamp terminals</b>		
max. cross section for connection:	1 x 4 mm <sup>2</sup> solid or 1 x 2.5 mm <sup>2</sup> stranded ferruled	
min. cross section for connection:	0.5 mm <sup>2</sup>	
Insulation of wires or sleeve length:	12 <sup>+0.5</sup> mm	

## Technical Data

<b>Wire fixing:</b>	Plus-minus terminal screws M 3.5 box terminals with wire protection or cage clamp terminals	
<b>Mounting:</b>	DIN rail	IEC/EN 60 715
<b>Weight:</b>	140 g	

### Dimensions

<b>Width x height x depth:</b>		
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	

### Standard type

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	

### Variant

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

### Ordering example for Variant

MK 9056N.12	PS /	3 AC 380 ... 500 V	50/60 Hz	
				Nominal frequency
				Nominal voltage
				Variant, if required
				Type of terminals without indication:
				terminal blocks fixed, with screw terminals
				PC (plugin cage clamp):
				pluggable terminal blocks with cage clamp terminals
				PS (plugin screw):
				pluggable terminal blocks with screw terminals
				Contacts
				Type