

Monitoring Technique

VARIMETER Phase Sequence Relay MK 9059

Translation
of the original instructions



Your Advantages

- Detection of wrong phase sequence
- Detection of phase failure (with N-connection)

Features

- According to IEC/EN 60255-1, DIN VDE 0435-303
- Suitable for voltage systems with:
 - 3 AC 100 ... 750 V
 - 15 ... 150 Hz
- With auxiliary voltage
- With 1 changeover contact
- Width 22.5 mm

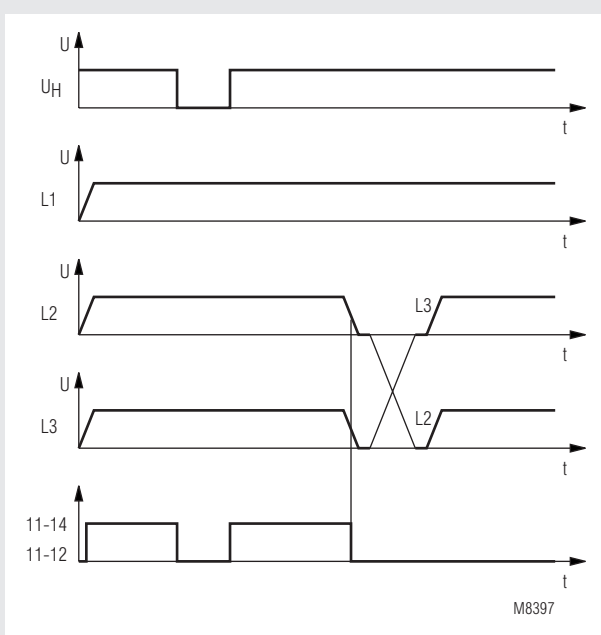
Product Description

The phase sequence relay MK 9059 monitors compliance with the correct phase sequence L1 - L2 - L3 in 3-phase systems.

Approvals and Markings



Function Diagram



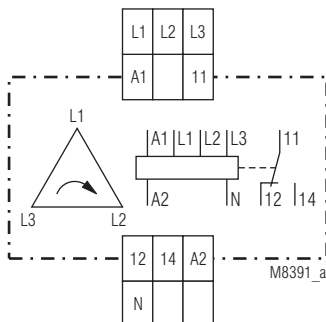
Application

To prevent incorrect directions of rotation of motors

Notes

The unit can be connected with or without neutral.
If the neutral is connected, the unit also detects failure (below approx. 50 V_{eff} between phase and neutral).

Circuit Diagram



MK 9059.11

Connection Terminals

Terminal designation	Signal description
A1, A2	Supply voltage auxiliary circuit
L1, L2, L3, N	Connection of the monitoring 3-phase system
11, 12, 14	Incorrect phase sequence-signaling relays (changeover contact)

Technical Data

Input

Nominal voltage U_N:	3 AC 150 ... 750 V
Voltage range:	0.9 ... 1.1 U_N
Nominal frequency of U_N:	15 ... 150 Hz
Nominal consumption:	Approx. 2 W

Auxiliary Circuit

Auxiliary voltage U_H:	AC/DC 24 V
Voltage range of U_H:	0.9 ... 1.1 U_N
Nominal frequency of U_H:	50 / 60 Hz
Nominal consumption:	< 1 VA

Output

Contact:	1 changeover contact
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 60947-5-1
NC contact:	1 A / AC 230 V IEC/EN 60947-5-1
Short circuit strength	
Max. fuse rating:	4 A gG / gL IEC/EN 60947-5-1
Mechanical life:	> 20 x 10 ⁶ switching cycles

General Data

Operating mode:	Continuous operation
Temperature range:	
Operation:	- 20 ... + 60 °C
Storage:	- 20 ... + 60 °C
Altitude:	≤ 2000 m
Clearance and creepage distances	
Rated impulse voltage / pollution degree:	4 kV / 2 IEC 60664-1
EMC	
Electrostatic discharge:	8 kV (air) IEC/EN 61000-4-2
HF-irradiation	
80 MHz ... 2.7 GHz:	10 V / m IEC/EN 61000-4-3
Fast transients:	2 kV IEC/EN 61000-4-4
Surge voltages	
Between	
wires for 24 V power supply	
wire and ground:	1 kV IEC/EN 61000-4-5
Between	
wires for power supply:	2 kV IEC/EN 61000-4-5
Between wire and ground:	4 kV IEC/EN 61000-4-5
HF wire guided:	10 V IEC/EN 61000-4-6
Interference suppression:	Limit value class B EN 55011
Degree of protection	
Housing:	IP 40 IEC/EN 60529
Terminals:	IP 20 IEC/EN 60529
Housing:	Thermoplastic with V0-behaviour according to UL subject 94
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60068-2-6
Climate resistance:	20 / 060 / 04 IEC/EN 60068-1
Terminal designation:	EN 50005
Wire connection:	2 x 2.5 mm ² solid or 2 x 1.5 mm ² stranded wire with sleeve DIN 46228-1/-2/-3/-4
Insulation of wires or sleeve length:	8 mm
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60999-1
Fixing torque:	0,4 Nm
Mounting:	DIN rail IEC/EN 60715
Weight:	140 g

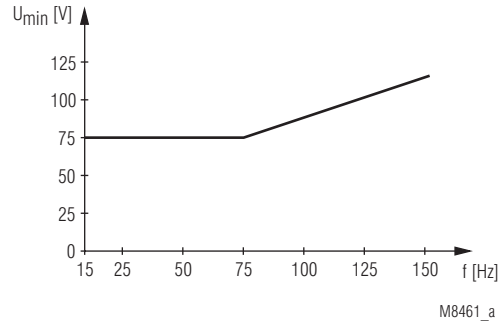
Dimensions

Width x height x depth:	22.5 x 82 x 99 mm
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Standard Type

MK 9059.11 AC 150 ... 750 V AC/DC 24 V	
Article number:	0035833
• Output:	1 changeover contact
• Nominal voltage U_N :	AC 150 ... 750 V
• Auxiliary voltage U_H :	AC/DC 24 V
• Width:	22.5 mm

Characteristic



Min. required phase voltage U_{min} depending on frequency f.