

VARIMETER Phase Sequence Relay BA 9041

Translation
of the original instructions



Your Advantages

- Correct sense of rotation of motors
- Simple wiring

Features

- According to IEC/EN 60255-1
- Detection of wrong phase sequence
- With 2 changeover contacts
- Width: 45 mm

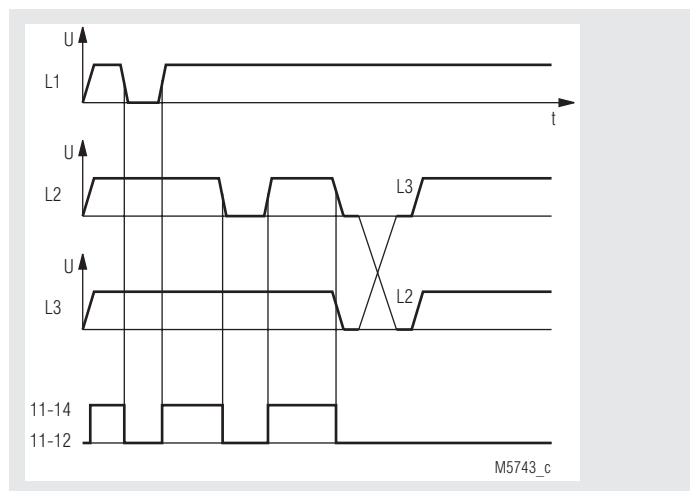
Product Description

The phase sequence relay BA 9041 monitor the right order of the phases in a 3-phase system.

Approvals and Markings



Function Diagram



Applications

Monitoring three-phase mains for incorrect phase sequence

Function

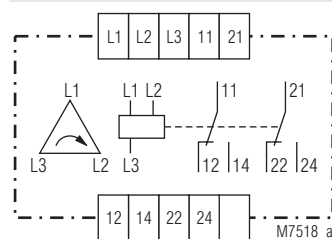
When all 3 phases are connected to the device and the phase sequence is correct the output contacts are activated, 11-14 and 21-24 close and a green LED comes on.

When the voltage in one phase drops below 60 % of the nominal voltage the relay is de-energized. If a load feeds back a voltage that is higher than 60 % U_N the fault is not detected. To avoid this problem an asymmetry relay (e. g. BA 9040) should be used.

In systems with commutation peaks (thyristor controlled drives) the device can falsely detect a phase failure.

In this case it is helpful to know as much as possible about the actual conditions in the system.

Circuit Diagram



Connection Terminals

Terminal designation	Signal description
L1, L2, L3	Connection of the monitoring 3-phase system
11, 12, 14	1. changeover contact
21, 22, 24	2. changeover contact

Technical Data**Input**

Nominal voltage U_N:	3 AC 220, 380, 400, 415, 440, 500 V
Voltage range:	0.8 ... 1.1 U_N
Nominal frequency of U_N:	50 Hz (60 Hz on request)
Frequency range:	± 5 %
Nominal consumption:	< 3.5 VA

Output

Contacts:	2 changeover contacts
Operate delay:	< 100
Release delay:	< 50 ms
Thermal current I_{th}:	5 A
Switching capacity	
To AC 15	
NO contact:	2 A / AC 230 V IEC/EN 60947-5-1
NC contact:	1 A / AC 230 V IEC/EN 60947-5-1
Electrical life	IEC/EN 60947-5-1
At 3 A, AC 230 V $\cos \varphi = 1$:	2.5 x 10 ⁵ switching cycles
Short-circuit strength	
max. fuse rating:	4 A gG / gL IEC/EN 60947-5-1
Mechanical life:	≥ 50 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
Overvoltage category:	III up to 3 AC 480 V
Overvoltage category:	II for 3 AC 500 V
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 power supply:	1 kV IEC/EN 61000-4-5
Between wire and ground:	2 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, IEC/EN 60068-2-6 frequency 10 ... 55 Hz
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
Stripping length:	10 mm
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60999-1
Fixing torque:	0.8 Nm
Mounting:	DIN rail IEC/EN 60715
Weight:	310 g

Dimensions

Width x height x depth:	45 x 73,2 x 119,8 mm
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Standard Type

BA 9041 AC 400 V 50 Hz	
Article number:	0041732
• Output:	2 changeover contacts
• Nominal voltage U_N :	AC 400 V
• Width:	45 mm