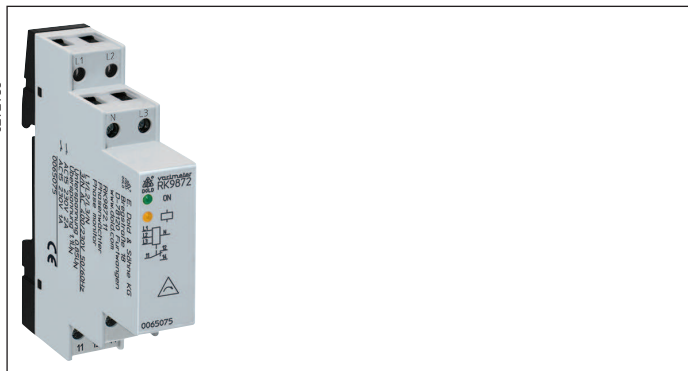


## VARIMETER Phase Monitor RK 9872



### Your Advantages

- Reliability monitoring of 3- or 1-phase voltage systems on:
  - Undervoltage
  - Overvoltage
  - Phase sequence (at 3-phase voltage system)
- Fast fault location
- Preventive maintenance
- Space saving

### Features

- According to IEC/EN 60255-1
- Detection of under-/overvoltage and phase sequence in 3-phase voltage systems
- Without separate auxiliary voltage
- LED-Indication for operation voltage and contact position
- De-energized on trip
- With fixed response value for undervoltage
- With fixed response value for overvoltage
- Width: 17,5 mm

### Product Description

The space saving phase monitor RK9872/800 from the Varimeter family monitors under- and overvoltage as well as phase sequence in 3-phase systems.

The response values are fixed. When connecting the measuring voltage to the inputs L1-L2-L3 and fault free system the relay switches on.

When the measuring voltage is connected the unit checks a clockwise phase sequence. If this is not the case the yellow LED flashes. The output relay will not energise. After detection of under- or overvoltage on one or more phases for more than 5 sec. the relay switches off. The relay stays off for at least 2 seconds. The phase monitor measures the arithmetic mean value of the 3 phases against neutral.

### Approvals and Markings



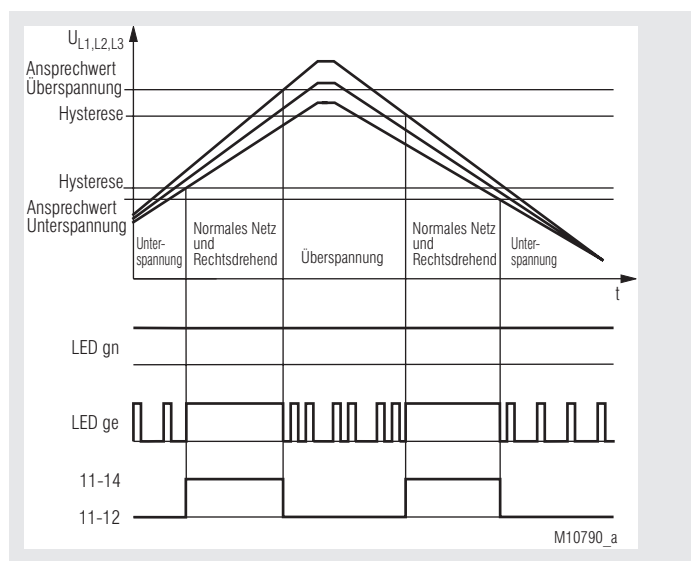
### Application

Monitoring of voltage systems on undervoltage, overvoltage and phase sequence, e. g. for applications with squirrel cage motors and -machines, cranes, elevator, escalator, pumps, aircondition.

### Indicators

- green LED: on, when nominal voltage connected
- yellow LED: on, when corresponding output relay is active
- yellow LED: flashes at failure with code:
  - 1 x at undervoltage
  - 2 x at overvoltage
  - 3 x at phase reversal

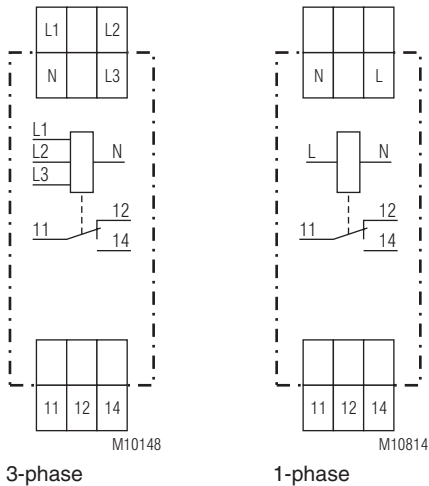
### Function Diagramm



### Safety Notes

- Faults must only be removed when the relay is disconnected.
- The user has to make sure that the device and corresponding components are installed and wired according to the local rules and law (TUEV, VDE, Health and safety).
- Settings must only be changed by trained staff taking into account the safety regulations. Installation work must only be done when power is disconnected.
- If the connected system creates a reverse voltage above the undervoltage response value the failure cannot be detected.

## Circuit Diagram



## Connection Terminals

Terminal designation	Signal designation
L1	Phase voltage L1
L2	Phase voltage L2
L3	Phase voltage L3
L	Phase voltage L
N	Neutral
11, 12, 14	Changeover contact (output relay)

## Technical Data

### Input

#### Measuring voltage = supply voltage

Nominal voltage $U_N$ :	3/N AC 400/230V
Max. overload:	1.15 $U_N$ continuously
Nominal consumption:	approx. 6 VA
Nominal frequency:	50 / 60 Hz
Measuring frequency range:	45 ... 65 Hz

Response value*):	3-phase		1-phase	
	3N AC 400 / 230 V	AC 400 V	AC 110 V	
Undervoltage:	195.5 V	360 V	99 V	
Overvoltage:	253 V	440 V	121 V	
Hysteresis:	2.5 %	1.5 %	2.0 %	
Accuracy:				± 3%
Repeat accuracy:				< 2%
Temperature influence:				< 1%

\*) the response values are fixed and measured against N

Reaction time:	≤ 50 ms
Overvoltage category:	III (according to IEC 60664-1)

### Output

Contacts:	1 changeover contact	
Thermal current $I_{th}$ :	4 A	
Switching capacity to AC 15:		
NO contacts:	2 A / AC 230 V	IEC/EN 60 947-5-1
NC contacts:	1 A / AC 230 V	IEC/EN 60 947-5-1
Electrical life to AC 15 at 1 A, AC 230 V:	1 x 10 <sup>5</sup> switch. cycl. IEC/EN 60 947-5-1	
Mechanical life:	1 x 10 <sup>6</sup> switching cycles	

## Technical Data

### General Data

Nominal operating mode: continuous operation

#### Temperature range:

Operation:	- 25 ... + 60°C
Storage:	- 25 ... + 70°C

#### Clearance and creepage distance

contact / measuring voltage		
rated impuls voltage / pollution degree:	6 kV / 2	IEC 60 664-1

#### EMC

Electrostatic discharge (ESD):	8 kV (air)	IEC/EN 61 000-4-2
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge voltages		
between power supply:	1 kV	IEC/EN 61 000-4-5
between wire and ground:	2 kV	IEC/EN 61 000-4-5
HF-wire guided:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class B	EN 55 011

#### Degree of protection

Enclosure:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529

#### Housing:

thermoplastic with VO behaviour acc. to UL subject 94

Vibration resistance:	Amplitude 0.35 mm, Frequency 10 ... 55 Hz	IEC/EN 60 068-2-6
Climate resistance:	25 / 060 / 04	IEC/EN 60 068-1
Terminal designation:	EN 50 005	

#### Wire connection:

#### Fixed screw terminals

Cross section:	0.34 ... 2.5 mm <sup>2</sup> (AWG 22 - 14) solid or 0.34 ... 2.5 mm <sup>2</sup> (AWG 22 - 14) stranded wire with and without ferrules
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Stripping length:

7 mm

#### Fixing torque:

0.5 Nm EN 60 999-1

#### Wire fixing:

Captive slotted screw / M2.5

#### Mounting:

DIN-rail IEC/EN 60 715

#### Weight:

approx. 70 g

## Dimensions

Width x height x depth: 17.5 x 90 x 66 mm

## Standard Type

RK 9872.11	3/N AC 400/230 V	50 / 60 Hz
Article number::	0065075	
• Output:	1 changeover contact	
• Nominal voltage $U_N$ :	3/N AC 400/230 V	
• Width:	17.5 mm	

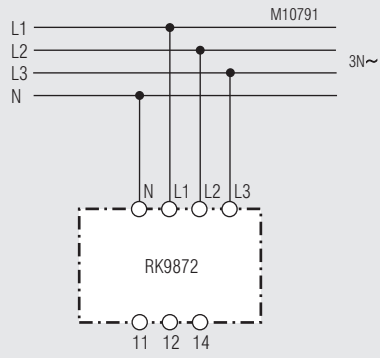
## Variant

RK 9872.11/100: Undervoltage / overvoltage monitoring

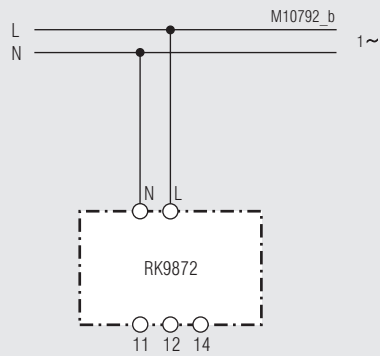
## Ordering example for variant

RK 9872 / _ _ 0	
0 Standard	
0 without time delay	
1 with time delay 0.5 s	
0 Function	undervoltage overvoltage phase sequence
1 Function	undervoltage overvoltage

## Connection Examples



3-phase



1-phase

