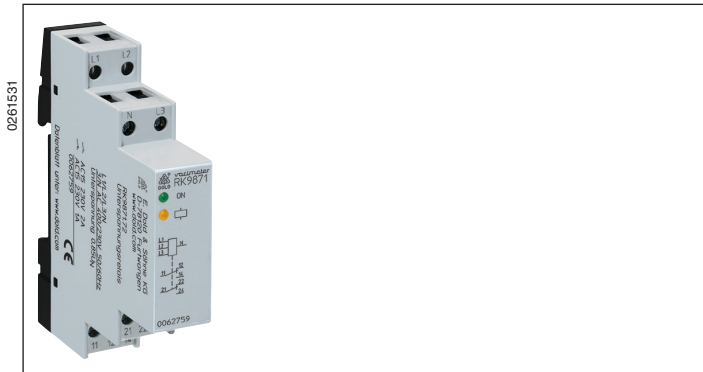


VARIMETER
Undervoltage Relay
RK 9871

Translation
of the original instructions



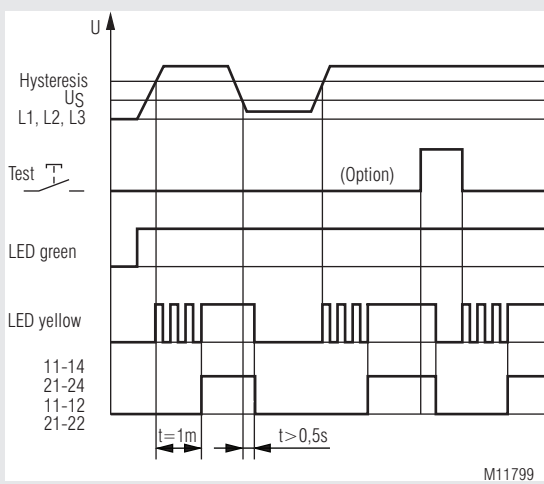
Your Advantages

- Higher safety in buildings

Features

- According to IEC/EN 60255-1
- For installations according to DIN VDE 0100-718:2005-10 and DIN VDE 0108-100:2005-01
- Detection of undervoltage in 3-phase systems
- Without separately auxiliary voltage (internal supply from all 3 phases)
- LED indication for für operation voltage and contact position
- Independent of phase sequence
- De-energised on trip
- RK 9871.71: 1 changeover contact
- RK 9871.72: 2 changeover contacts
- With fixed time delay of 0.5 s for fault indication
- With fixed time delay of 1 min for reset
- With fixed response value at AC 195.5 V
- As option with test-button for function control
- Width 17.5 mm

Function Diagramm



Approvals and Markings



Application

Monitoring of undervoltage in 3 phase voltage systems and switch over to emergency supply

For installations according to

- DIN VDE 0108-100:2005-01 (Emergency lightings)
- DIN VDE 0100-718:2005-10 (Locations for a larger number of people)

Function

When connecting the measuring voltage to the measuring inputs L1-L2-L3 at healthy voltage the output relay switches on after the voltage is healthy for at least 1 min.

During this time delay of 1 min the yellow led flashes. After detection of an undervoltage on one or several phases for at least 0.5 sec the output relay de-energizes.

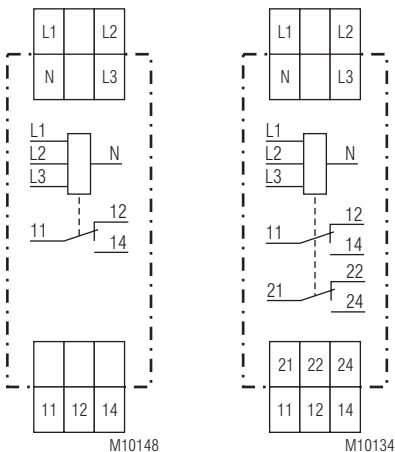
The undervoltage relay measures the arithmetic mean value of each of the three phases against neutral.

To measure single-phase voltage terminals L1, L2, L3 have to be linked together.

To measure two-phase voltage terminals L2 and L3 have to be linked together.

If a feed back voltage is generated by the load, that is higher then the setting value U_s , the unit will not detect phase failure.

Circuit Diagrams



RK 9871.71

RK 9871.72

Connection Terminals

Terminal designation	Signal description
L1, L2, L3, N	Supply voltage
11, 12, 14	Output relay 1
21, 22, 24	Output relay 2

Indication

- | | |
|-------------|----------------------------------------|
| LED green: | On, when supply connected |
| LED yellow: | On, when the output relay is energized |
| LED yellow: | Flashes during 1 min reset delay time |

Safety Notes

- Never clear a fault when the device is switched on.
- The user must ensure that the device and the necessary components are mounted and connected according to the locally applicable regulations and technical standards.
- Adjustments may only be carried out by instructed specialist staff, while the applicable safety rules must be observed.

Technical Data

Input

Measuring voltage = supply voltage

Nominal voltage U_N :	3/N AC 400/230V
Max. overload:	1.15 U_N continuous
Nominal consumption:	Approx. 6 VA
Nominal frequency:	50 / 60 Hz
Measuring frequency range:	45 ... 65 Hz
Response value:	195.5 V fixed
Hysteresis:	Approx. 5 %
Overvoltage category:	III (according to IEC 60664-1)
Accuracy:	$\pm 5 \%$
Repeat accuracy:	$< 2 \%$
Temperature influence:	$< 1 \%$

Output

Contacts

RK 9871.71:	1 changeover contact
RK 9871.72:	2 changeover contacts
Thermal current I_{th} :	4 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	
at 1 A, AC 230 V $\cos \varphi$:	1 x 10^6 switching cycles IEC/EN 60947-5-1
Short circuit strength	
Max. fuse rating:	4 A gG / gL IEC/EN 60947-5-1
Mechanical life:	1 x 20^6 switching cycles

General Data

Nominal operating mode:	Continuous operation
Temperature range:	
Operation:	- 25 ... + 55 °C
Storage:	- 25 ... + 70 °C
Altitude:	≤ 2000 m
Clearance and creepage distance	
Rated impulse voltage / pollution degree:	4 kV / 2 IEC 60664-1
EMC	
Electrostatic discharge (ESD):	8 kV (air) IEC/EN 61000-4-2
Fast transients:	2 kV IEC/EN 61000-4-4
Surge voltage	
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 acc. to UL subject 94
Vibration resistance:	Amplitude 0.35 mm, Frequency 10 ... 55 Hz, IEC/EN 60068-2-6
Climate resistance:	25 / 060 / 04 IEC/EN 60068-1
Terminal designation:	EN 50005
Wire connection:	1 x 0,34 ... 2,5 mm ² solid or 1 x 0,34 ... 2,5 mm ² flexible with sleeve DIN 46228-1/-2/-3/-4
Insulation of wires or sleeve length	7 mm
Wire fixing:	Captive plus-minus terminal screws M2,5
Mounting:	DIN-rail IEC/EN 60715
Weight:	Approx. 70 g

Dimensions

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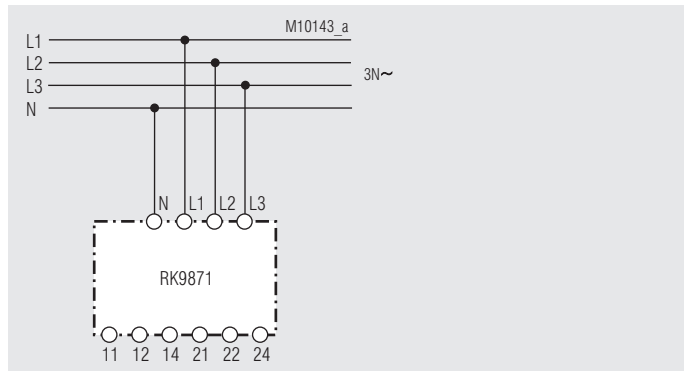
Standard Type

RK 9871.72	3/N AC 400/230V	50 / 60 Hz
Article number:	0062759	
• Output:	2 changeover contact	
• Nominal voltage U_N :	3/N AC 400/230V	
• Width:	17.5 mm	

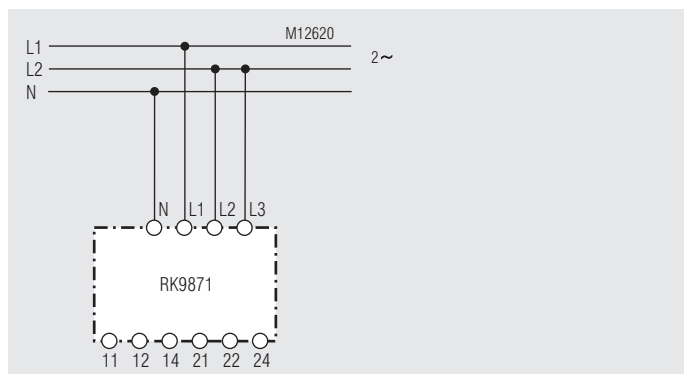
Variant

RK 9871.72/100:	With test-button for simulation of undervoltage
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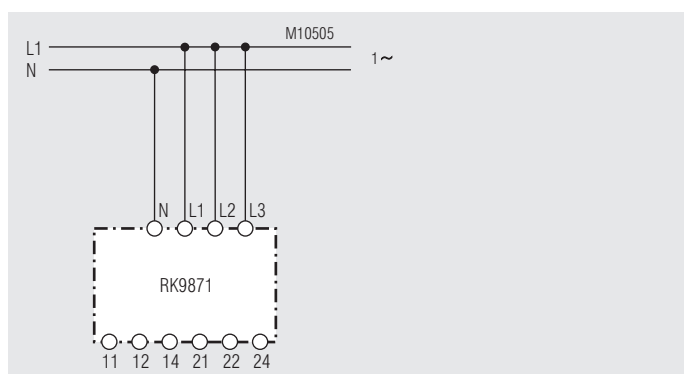
Connection Examples



3-phase



2-phase



1-phase