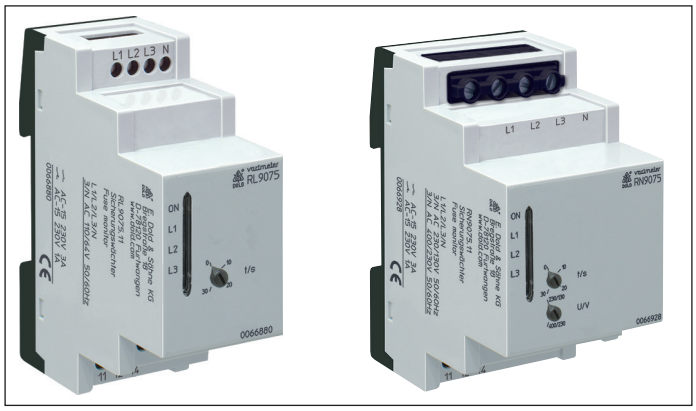
VARIMETER
Fuse Monitor
RL 9075, RN 9075

Translation of the original instructions

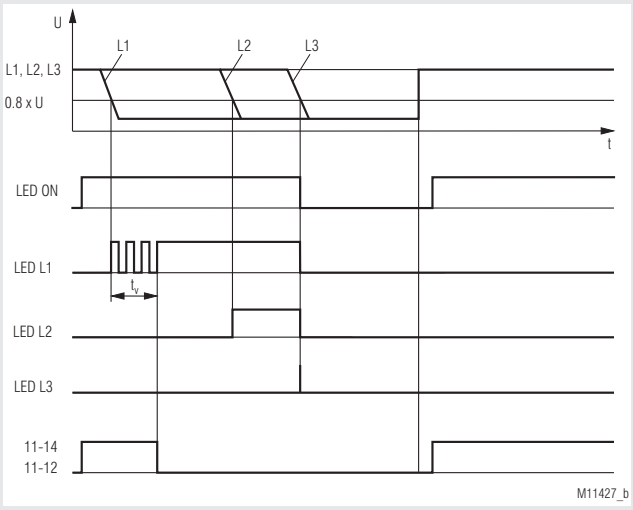
0273488



Product Description

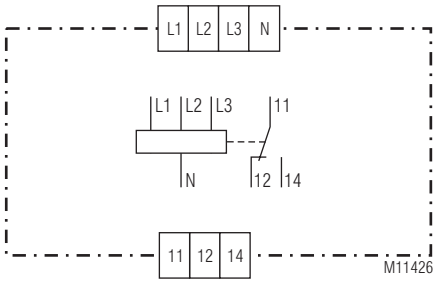
The fuse monitors RL 9075 and RN 9075 of the varimeter series monitor up to 3 fuses. The measurement is very simple and without extensive wiring, as no separate auxiliary supply is necessary. The fast detection of a defective fuse protects against expensive damages and the user has the benefit of high operational performance and availability of the plant.

Function Diagram



3-phase connetion to monitor 3 fuses

Circuit Diagram



Your Advantages

- Increasing the availability of plants by early detection of blown fuses, that may cause damage if undetected
- Fast detection of blown fuses also with disconnected load availability of your plant on request
- Reliable detection of blown fuses inspite of:
  - Asymmetric mains
  - Harmonic content

Features

- According to IEC/EN 60255-1
- To monitor fuses in single and 3-phase AC voltage systems with neutral
- Adjustable operating voltages: 400 V / 230 V and 230 V / 130 V and 110 V / 64V
- Undervoltage detection below 0.8 x U_B
- Fast detection of a blown fuse
- No separate auxiliary necessary
- Output: 1 changeover contact
- De-energized on trip
- Adjustable switching delay
- Width:
  - RL 9075: 35 mm
  - RN 9075: 52.5 mm

Approvals and Markings

CE c UL US LISTED
Canada / USA

Application

Monitors the state of 1-3 fuses in single- or 3-phase voltage systems with neutral, e.g. for automatic disconnection and lockout in the case of a fuse failure.

Indication

Green LED „ON“:	On, when supply connected
Red LED „L1, L2, L3“:	Shows that the voltage is dropped under 0.8 x U_B after the fuse which indicates a blown fuse

Connection Terminals

Terminal designation	Signal description
L1	Phase voltage L1
L2	Phase voltage L2
L3	Phase voltage L3
N	Neutral
11, 12, 14	Changeover contacts (outputrelays)

All technical data in this list relate to the state at the moment of edition. We reserve the right for technical improvements and changes at any time.

Function

When monitoring fuses in a 3-phase system all the phases are measured against N. The recognition of a blown fuse is done by monitoring the voltage at the fuse input terminals L1, L2 and L3. A voltage drop on one of these input terminals below 0.8 x U_B is an indication for a blown fuse. In case an undervoltage condition on any of the three terminals has been recognized the LED of the corresponding terminal starts blinking red. After the switching delay time has expired, the LED switches on red continuously. At the same time the relay, which works in open circuit alarm mode, switches its state. After the terminal voltage exceeds the switching level again e.g. by replacing the blown fuse, the corresponding LED immediately turns off and at the same time the relay switches back into idle mode.

When monitoring fuses in a 1-phase system, up to 3 fuses can be connected to the same phase and being monitored.

If less than 3 fuses are monitored at 3- or single-phase monitoring, the unused terminals LX have to be bridged (see connection examples).

Via rotary switch the both operating ranges 400 V / 230 V or 230 V / 130 V at RN 9075 can be selected. At RL 9075 the operating voltage is fixed.

Notes

During initialisation the fuse monitor recognises the mains frequency (50 Hz or 60 Hz).

For reliable detection of fuse failure with large inductive loads we recommend to have symmetric loads.
When using the fuse monitor with motor loads it could happen, due to feedback voltage, that the failed fuse is only detected after the motor is switched off.

Adjustable operating voltages via rotary swich:

Device	Function Lx/N	Voltages 0.8 x Lx/N
RN 9075	230 V	184 V
	130 V	104 V
RL 9075	-	51 V

Technical Data

Input

Operating voltage U_B:
RL 9075: 3/N AC 77 ... 121 V / 44 ... 70 V
1- or 3-phase without / with neutral
RN 9075: 3/N AC 138 ... 440 V / 78 ... 253 V
1- or 3-phase without / with neutral

Voltage rated operating U_e:
RL 9075: 3/N AC 90 ... 110 V / 52 ... 64 V
RN 9075: 3/N AC 162 ... 400 V / 92 ... 230 V

Voltage range:
RL 9075: 0.7 ... 1.1 U_B
RN 9075: 0.6 ... 1.1 U_B

Nominal frequency: 50 / 60 Hz
Frequency range: 45 … 65 Hz
Nominal consumption: Approx. 7 VA

Output

Contacts: 1 changeover contact
Contact material: AgNi
Switching voltage: AC 250 V
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
Electrical life
To AC 15 at 1 A, AC 230 V: Typ. x 10^5 switching cyles
Short circuit strength IEC/EN 60947-5-1
Max. fuse rating: 5 A gG / gL
Mechanical life: > 30 x 10^6 switching cyles

Technical Data

Measuring circuit

Monitoring voltage
RL 9075: Lx/N = 51 V (0.8 x 64 V)
RN 9075: Lx/N = 184 V (0.8 x 230 V) +
Lx/N = 104 V (0.8 x 130 V)

Monitoring range:
RL 9075: 0.7 … 1.1 U_B
RN 9075: 0.6 … 1.1 U_B
Nomber of monitored fuse: 1 .. 3
Switching delay t_v: Infinite adjustable
instantaneuos, 2 … 30 s
Repeat accuracy: ± 2 %
Temperature influence: ± 1 %

General Data

Operating mode: Continuous operation
Temperature range
Operation: - 20 ... + 55 °C
Storage: - 25 ... + 60 °C
Relative air humidity: 93 % at 40 °C
Altitude: < 2000 m
Clearance and creepage distances
Rated impuls voltage/
Pollution degree: 6 kV / 2 IEC 60664-1
EMC
Electrostatic discharge (ESD): 8 kV (air) IEC/EN 61000-4-2
HF irradiation
80 MHz ... 1 GHz: 12 V / m IEC/EN 61000-4-3
1 GHz ... 2,7 GHz: 10 V / m IEC/EN 61000-4-3
Fast transients: 2 kV IEC/EN 61000-4-4
Surge
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
Enclosure: Thermoplastic with V0 behaviour acc. to UL subject 94
Vibration resistance: Amplitude 0,35 mm
Class I IEC/EN 60255-21
Climate resistance: 20 / 055 / 04 IEC/EN 60068-1
Terminal designation: EN 50005
Wire connection: DIN 46228-1/-2/-3/-4
Fixed screw terminals
Cross section: 0.2 ... 4 mm² (AWG 24 - 12) solid or
0.2 ... 2.5 mm² (AWG 24 - 12)
stranded wire with and without ferrules
Stripping length: 7 mm
Fixing torque: 0.6 Nm EN 60999-1
Wire fixing: Captive slotted screw / M2.5
Fixed
High-voltage terminals
Cross section: 0.2 ... 6 mm² (AWG 24 - 10) massiv oder
0.2 ... 4 mm² (AWG 24 - 10)
stranded wire without ferrules
0.25 ... 4 mm² (AWG 24 - 10)
stranded wire with ferrules
Stripping length: 8 mm
Fixing torque: 0.7 Nm EN 60999-1
Wire fixing: Captive slotted screw / M3
Mounting: DIN rail IEC/EN 60715
Weight:
RL 9075: Approx. 105 g
RN 9075: Approx. 125 g

Dimensions

Width x height x depth:
RL 9075: 35 x 90 x 71 mm
RN 9075: 52.5 x 90 x 71 mm

UL-Data

ANSI/UL 60947-1, 5th Edition
ANSI/UL 60947-5-1, 3rd Edition

CAN/CSA-C22.2 No. 60947-1-13, 2nd Edition
CAN/CSA-C22.2 No. 60947-5-1-14, 1st Edition

Switching capacity:	Pilot duty B300 5A 240Vac Resistive, G.P. 5A 30Vdc Resistive or G.P. 5A 250Vac G.P.
Wire connection:	60°C / 75°C copper conductors only
RL 9075:	AWG 24 - 12 Sol/Str Torque 0.6 Nm
RN 9075	
For terminals 11, 12, 14:	AWG 24 - 12 Sol/Str Torque 0.6 Nm
For terminals L1, L2, L3, N:	AWG 30 - 10 Sol/Str Torque 0.7 Nm

Technical data that is not stated in the UL-Data, can be found in the technical data section

Standard Types

RL 9075.11/61 3/N AC 110 V / 64 V 0 ... 30 s

Article number:	0066880
• Output:	1 changeover contact
• Operating voltage:	3/N AC 110 V / 64 V
• Switching delay:	0 ... 30 s
• Width:	35 mm

RN 9075.11/61 3/N AC 230 V / 130 V + 3/N AC 400 V / 230 V 0 ... 30 s

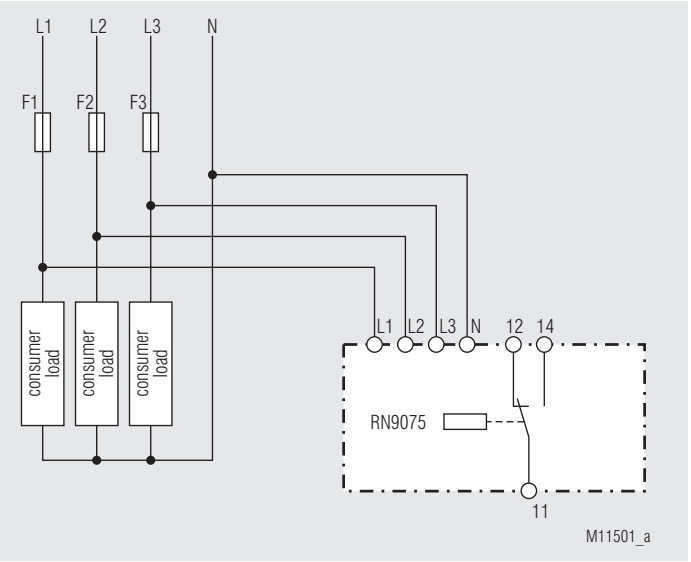
Article number:	0066928
• Output:	1 changeover contact
• Operating voltage:	3/N AC 230 V / 130 V + 3/N AC 400 V / 230 V
• Switching delay:	0 ... 30 s
• Width:	52,5 mm

Ordering Examples

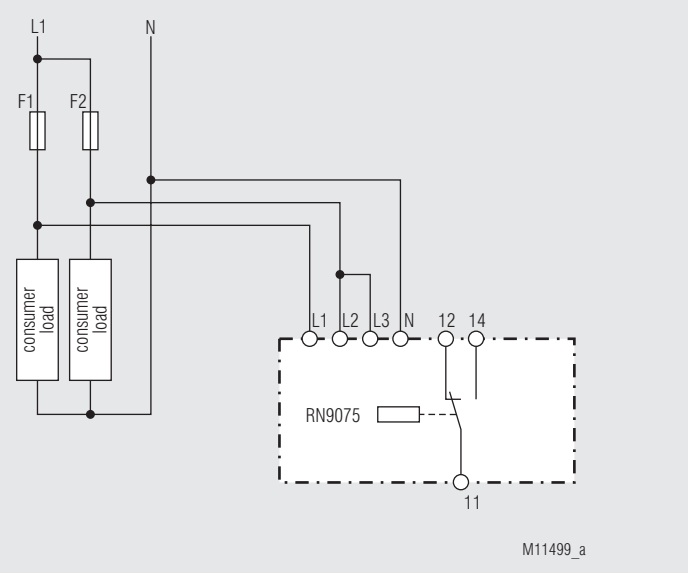
R_ 9075 .11 /00_ /61 3/N AC 110 V / 64 V 0 ... 30 s

- Switching delay
- Operating voltage
  RL 9075:
  3/N AC 110 V / 64 V
  RN 9075:
  3/N AC 230 V / 130 V+
  3/N AC 400 V / 230 V
- UL approval
- Operation mode/Outputs
  0: De-Energized on trip
  1: Energized on trip
- Contacts
- Type
  L: 35 mm Width
  N: 52.5 mm Width

Connection Examples



3-phase connection to monitor 3 fuses



1-phase connection to monitor 2 fuses