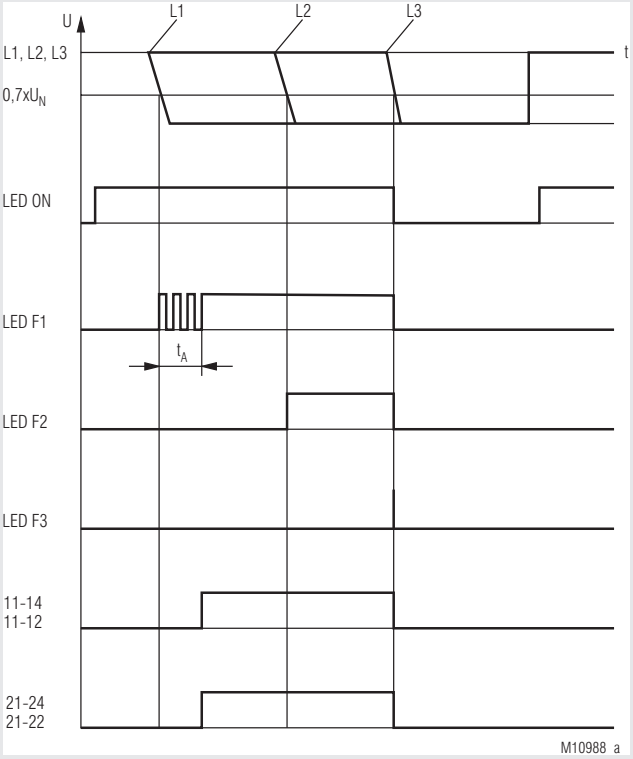
VARIMETER
Fuse monitor
UG 9075

0268831

Function Diagram



3-phase connetion to monitor 3 fuses

LED F1	LED F2	LED F3	Relay output
1	1	1	off
0	1	1	on
1	0	1	on
1	1	0	on
0	0	1	on
0	1	0	on
1	0	0	on
0	0	0	off

Logic table for 3 fuses
1: fuse OK, 0: fuse blown

LED F1	LED F2	LED F3	Relay output
1	1	1	off
0	1	1	on
1	0	0	on
0	0	0	off

Logic table for monitoring of 2 fuses
in a single-phase a.c. system
1: fuse OK, 0: fuse blown

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 60 255-1
- To monitor fuses in single and 3-phase AC voltage systems
- Undervoltage detection below 0.7 x U_N
- No separate auxiliary necessary
- 2 changeover contacts
- 2 nominal voltages adjustable:
  3/N AC 240 V / 140 V or 3/N AC400 V / 230 V or
  fixed nominal voltage: 3/N AC 110 V / 64 V
- Adjustable operate delay
- Energized on trip
- Automatic adjustment to 50 Hz and 60 Hz mains frequency
- Width 22.5 mm

Approvals and Markings

CE

Application

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

Function

During initialisation the fuse monitor recognises the mains frequency (50 Hz or 60 Hz). 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 F1, F2 and F3. A voltage drop on one of these input terminals below 0.7 x U_N 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 adjusted response 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.

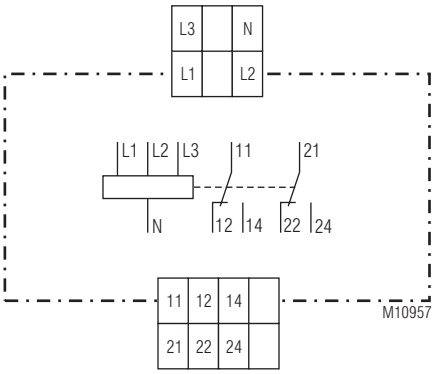
At Variant for 3/N AC 240 V / 140 V and 3/N AC 400 V / 230 V are both voltage ranges via potentiometer settable.

Notes

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.

Circuit Diagrams



Connection Terminals

Terminal designation	Signal designation
L1, L2, L3, N	Connection for fuses
11, 12, 14, 21, 22, 24	Blown fuse-indicatior relay (2 changeover contacts)

Indicators

green LED "ON"	on when supply connected
red LED "F1, F2, F3"	shows that the voltage is dropped under 0.7 U_N after the fuse which indicates a blown fuse

Technical Data

Input

Nominal voltage U_N:	3/N AC 240 V / 140 V 3/N AC 400 V / 230 V 3/N AC 110 V / 64 V
Voltage range:	0.7 … 1.1 U_N
Nominal frequency:	50 / 60 Hz
Nominal consumption:	approx. 2 W

Measuring circuit

Monitoring voltage U_N:	3/N AC 240 V / 140 V 3/N AC 400 V / 230 V 3/N AC 110 V / 64 V
Monitoring range:	0.7 … 1.1 U_N
Response value:	0.7 x U_N
Hysteresis:	10 %
Nomber of monitored fuse:	1 ... 3
On delay:	infinite adjustable instantaneuos (< 200 ms), 2 … 25 s
Release delay:	instantaneuos
Accuracy:	± 3 %
Repeat accuracy:	± 1 %

Output

Contacts:	2 changeover contacts	
Switching capacity		
to AC 15		
NO contact:	3 A / AC 120 V	IEC/EN 60 947-5-1
NC contact:	1.5 A / AC 240 V	IEC/EN 60 947-5-1
to DC 13		
NO contact:	0.22 A / DC 120 V	IEC/EN 60 947-5-1
NC contact:	0.1 A / DC 250 V	IEC/EN 60 947-5-1
Electrical life		
to AC 1 at 8 A, AC 250 V:	> 10^5 switching cyles	IEC/EN 60 947-5-1
Shortcircuit protection		
max. fuse:	3 A gL	IEC/EN 60 947-5-1
Mechanical life:	> 3 x 10^7 switching cyles	

Technical Data

General Data

Operating mode:	continuous operation	
Temperature range		
Operation:	0 ... + 55 °C	
Storage:	- 25 ... + 60 °C	
Relative air humidity:	93 % at 40 °C	
Altitude:	< 2.000 m	
Rated impulse voltage/		
Pollution degree:	4 kV/ 2	IEC 60 664-1
EMC		
Electrostatic discharge (ESD):	8 kV (Luftentladung)	IEC/EN 61 000-4-2
HF irradiation		
80 MHz ... 2,7 GHz:	10 V / m	IEC/EN 61 000-4-3
Fast transients:	2 kV	IEC/EN 61 000-4-4
Surge		
between		
wires for power supply:	1 kV	IEC/EN 61 000-4-5
between wire and ground:	2 kV	IEC/EN 61 000-4-5
HF-wire bound:	10 V	IEC/EN 61 000-4-6
Interference suppression:	Limit value class B	EN 55 011
Protection degree:		
Enclosure:	IP 40	IEC/EN 60 529
Terminals:	IP 20	IEC/EN 60 529
Enclosure:	Thermoplastic with V0 behaviour acc. to UL Subj. 94	
Vibration resistance:	Amplitude 0.35 mm, Frequency 10 .. 55 Hz	IEC/EN 60 068-2-6
Climate resistance:	0 / 055 / 04	IEC/EN 60 068-1
Terminal designation:	EN 50 005	
Wire connection:		DIN 46 228-1/-2/-3/-4
Plugin with screw terminals (PS)		
max. cross section for connection:	1 x 0,25 ... 2,5 mm² solid or stranded ferruled (isolated) or 2 x 0,25 ... 1,0 mm² solid or stranded ferruled (isolated)	
Insulation of wires or sleeve length:	7 mm	
Wire fixing:	captive slotted screw	
Fixing torque:	0,5 ... 0,6 Nm	
Mounting:	DIN rail	
Weight:	approx. 190 g	

Dimensions

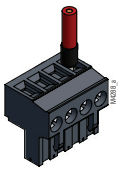
Width x height x depth:	22.5 x 109 x 120.3 mm

Standard Types

UG 9075.12 PS 3/N AC 240 / 140 V + 3/N AC 400 / 230 V
Article number: 0065531
- 2 nominal voltages adjustable:
  3/N AC 240 / 140 V + 3/N AC 400 / 230 V
- Output: 2 changeover contacts
- Width: 22,5 mm

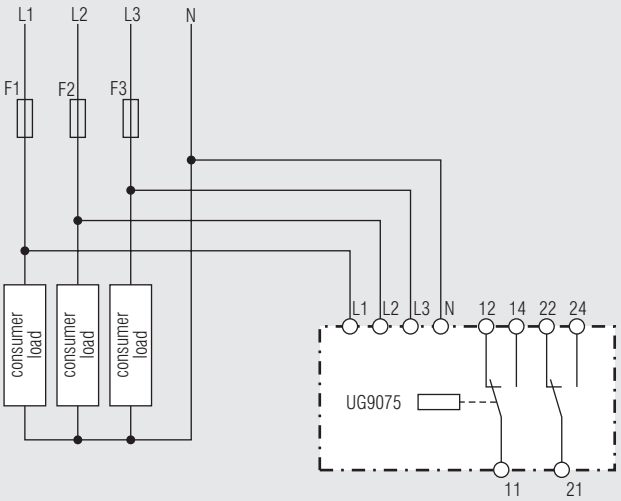
UG 9075.12PS 3/N AC 110 / 64 V
Article number: 0065532
- fixed nominal voltage: 3/N AC 110 / 64 V
- Output: 2 changeover contacts
- Width: 22,5 mm

Options with Pluggable Terminal Blocks

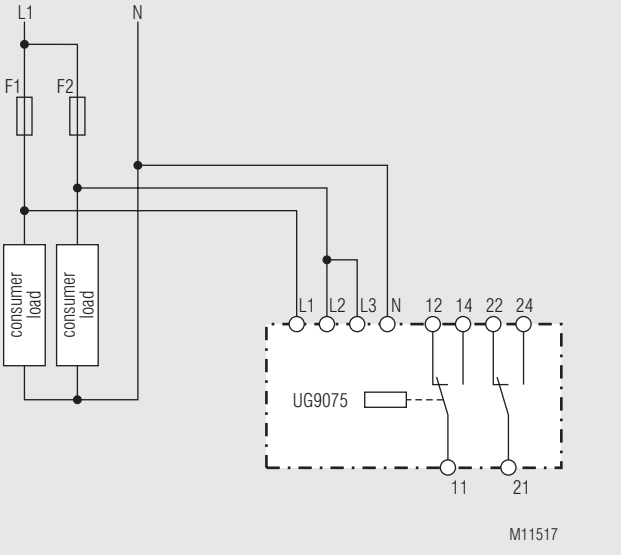


Screw terminal
(PS/plugin screw)

Application Examples



3-phase connection to monitor 3 fuses



1-phase connection to monitor 2 fuses