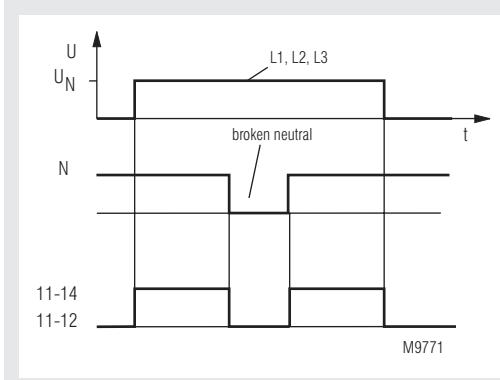
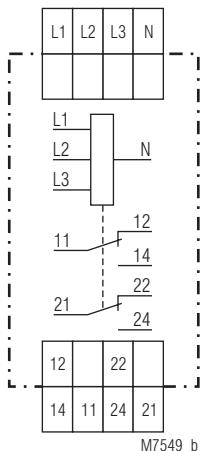




Function Diagram



Circuit Diagram



IL 9069.12, SL 9069.12

- According to IEC/EN 60 255, DIN VDE 0435-303
- Detection of
 - missing neutral in the system
 - broken neutral on IL/SL 9069
 - neutral exchanged against phase
- Detection of phase failure also with disconnected load
- For 3-phase systems
- De-energized on trip
- LED indicator for operation/state of output contacts
- Single phase connection possible
- Without auxiliary voltage
- 2 changeover contacts
- Optionally with adjustable asymmetry detection and on delay
- **Devices available in 2 enclosure version:**

IL 9069: depth 59 mm with terminals at the bottom for installations systems and industrial distribution systems according to DIN 43 880

SL 9069: depth 98 mm with terminals at the top for cabinets with mounting plate and cable duct

- Width 35 mm

Approval and Marking



Application

Neutral monitoring in 3-phase systems

In 3-phase systems with neutral often also single phase loads are connected between phase and neutral. If the neutral is missing in a system like this, unsymmetric voltages occur, that could damage single phase consumers, if the voltage rises to high. Also consumers can stop to work if the phase-neutral voltage gets too low. The IL 9069 detects this problem and can switch off the system immediately.

To monitor mobile systems that are connected via plug connectors. On mobile systems that are connected by a very long cable, voltage drop can cause a significant asymmetry also during normal operation. For this case we recommend the variant IL/SL 9069.12/500 with an adjustable asymmetry setting (approx. 5 ... 15%) and an additional response delay.

Function

All 3 phase voltages are measured between phase input L1, L2, L3 and the neutral N. If all 3 phases and the neutral are connected correctly and the asymmetry is good state, the green LED is on and the output relay is energized. If the neutral or one phase is missing or the neutral is exchanged with a phase or the asymmetry exceeds the setting value, the output relay de-energises immediately or after the adjusted time delay (with IL/SL 9069.12/500) and the green LED goes off. The time delay on IL/SL 9069.12/500 is only active when the voltage on terminals L3-N is at least 0,7 U_N as the unit is supplied from these terminals.

Indication

LED green: on when output relay activated (contact 11-14 and 21-24 are closed)

Technical Data

Input

Nominal voltage U_N:	3/N AC 400 / 230 V
Max. overload:	AC 440 V on all measuring inputs
Voltage range:	0.7 ... 1.2 U_N
Permissible asymmetry of the phase	max. 5 %
IL/SL 9069.12:	adjustable approx. 5 ... 15 %
IL/SL 9069.12/500:	approx. 6 VA (L3-N)
Nominal consumption	50 / 60 Hz
Nominal frequency:	45 ... 65 Hz
Frequency range:	L1-N, L2-N: approx. 1.5 mA L3-N: approx. 25 mA
Input current at U_N:	
On delay	approx. 100 ms
IL/SL 9069.12:	approx. 0.1 ... 20 s, adjustable
IL/SL 9069.12/500:	

Output

Contact	
IL 9069.12, SL 9069.12:	2 changeover contacts
Thermal current I_{th}:	4 A
Switching capacity	
according to AC 15:	
NO contact:	3 A / AC 230 V IEC/EN 60 947-5-1
NC contact:	2 A / AC 230 V IEC/EN 60 947-5-1
Electrical life	
to AC 15 at 1 A, AC 230 V:	$\geq 5 \times 10^5$ switch. cycl. IEC/EN 60 947-5-1
Short circuit strength	
max. fuse:	4 A gL IEC/EN 60 947-5-1
Mechanical life:	$\geq 30 \times 10^6$ switch. cycles

General Data

Operating mode:	Continuous operation
Temperature range:	-20 ... + 60°C
Clearance and creepage distances	
rated impuls voltage / pollution degree:	4 kV / 2 IEC 60 664-1
EMC	
Electrostatic discharge:	8 kV (air) IEC/EN 61 000-4-2
HF irradiation:	10 V / m IEC/EN 61 000-4-3
Fast transients:	2 kV IEC/EN 61 000-4-4
Surge voltages between wires for power supply:	2 kV IEC/EN 61 000-4-5
between wire and ground:	2 kV IEC/EN 61 000-4-5
Interference suppression:	Limit value class B EN 55 011
Degree of protection	
Housing:	IP 40 IEC/EN 60 529
Terminals:	IP 20 IEC/EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04 IEC/EN 60 068-1
Terminal designation:	EN 50 005
Wire connection:	2 x 2.5 mm ² solid or 2 x 1.5 mm ² stranded ferruled DIN 46 228-1/-2/-3/-4
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1 DIN rail IEC/EN 60 715
Mounting:	
Weight	
IL 9069:	110 g
SL 9069:	137 g

Dimensions

Width x height x depth

IL 9069:	35 x 90 x 59 mm
SL 9069:	35 x 90 x 98 mm

Standard Types

IL 9069.12, 3/N AC 400 / 230 V, 50 / 60 Hz	Article number: 0048730	stock item
• Output: 2 changeover contacts		
• Nominal voltage U_N : 3/N AC 400 / 230 V		
• Width: 35 mm		

SL 9069.12, 3/N AC 400 / 230 V, 50 / 60 Hz	Article number: 0054750
• Output: 2 changeover contacts	
• Nominal voltage U_N : 3/N AC 400 / 230 V	
• Width: 35 mm	

Variant

IL/SL 9069.12/500:	with adjustable asymmetry detection and adjustable on delay
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Order example for variant

