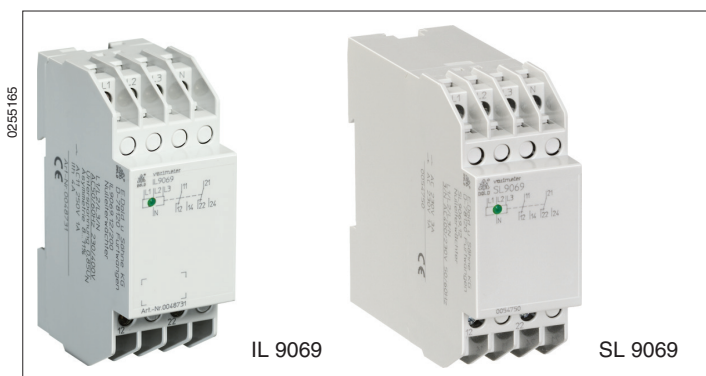


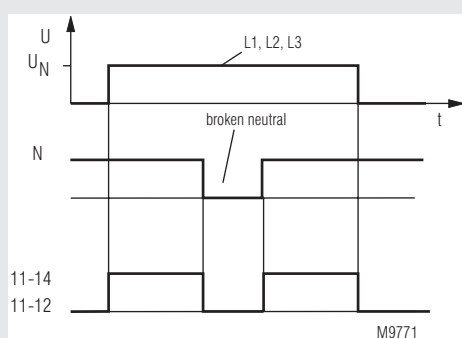
VARIMETER Neutral Monitor IL 9069, SL 9069

Translation
of the original instructions

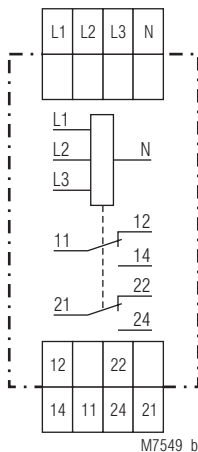


- According to IEC/EN 60255-1
- Detection of
 - Missing neutral in the system
 - Broken neutral on IL/SL 9069
 - Neutral exchanged against phase
- Detection of phase failure also with disconnected load
- For 3-phase systems
- De-energized on trip
- LED indicator for operation/state of output contacts
- 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 43880
 - SL 9069: Depth 98 mm with terminals at the top for cabinets with mounting plate and cable duct
- Width 35 mm

Function Diagram



Circuit Diagram



IL 9069.12, SL 9069.12

Connection Terminals

Terminal designation	Signal description
L1, L2, L3, N	Voltage supply / Measuring inputs
11, 12, 14	Changeover contact (output relay)
21, 22, 24	Changeover contact (2nd output relay)

Approval and Markings



* only for IL 9069

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 in 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 ... 1.1 U_N
Permissible asymmetry of the phase	
IL/SL 9069.12:	Max. 5 %
IL/SL 9069.12/500:	Adjustable approx. 5 ... 15 %
Nominal consumption	Approx. 6 VA (L3-N)
Nominal frequency:	50 / 60 Hz
Frequency range:	45 ... 65 Hz
Input current at U_N:	L1-N, L2-N: Approx. 1.5 mA L3-N: Approx. 25 mA

On delay

IL/SL 9069.12:	Approx. 100 ms
IL/SL 9069.12/500:	Approx. 0.1 ... 20 s, adjustable

Output

Contact

IL 9069.12, SL 9069.12:	2 changeover contacts
Contact material:	AgNi 90/10
Measured nominal voltage:	AC 250 V
Thermal current I_{th}:	4 A
Switching capacity	
To AC 15:	3 A / AC 230 V IEC/EN 60947-5-1
To DC 13:	2 A / DC 24 V IEC/EN 60947-5-1
Electrical life	
To AC 15 at 1 A, AC 230 V:	$\geq 5 \times 10^5$ switch. cycl. IEC/EN 60947-5-1
Short circuit strength max. fuse:	4 A gG / gL IEC/EN 60947-5-1
Mechanical life:	$\geq 30 \times 10^6$ switch. cycles

General Data

Operating mode:	Continuous operation
Temperature range	
Operation	- 25 ... + 60°C
Storage:	- 25 ... + 80°C
Relative air humidity:	93 % at 40°C
Altitude:	< 2000 m
Clearance and creepage distances	
Rated impulse voltage / pollution degree:	4 kV / 2 IEC 60664-1
EMC	
Electrostatic discharge:	8 kV (air) IEC/EN 61000-4-2
HF irradiation	
80 MHz ... 1 GHz:	10 V / m IEC/EN 61000-4-3
1 GHz ... 2.5 GHz:	3 V / m IEC/EN 61000-4-3
2.5 GHz ... 2.7 GHz:	3 V / m IEC/EN 61000-4-3
Fast transients:	4 kV IEC/EN 61000-4-4
Surge voltages	
Between	
wires for power supply:	2 kV IEC/EN 61000-4-5
Between wire and ground:	2 kV IEC/EN 61000-4-5
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 according to UL subject 94
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60068-2-6
Climate resistance:	20 / 060 / 04 IEC/EN 60068-1
Terminal designation:	EN 50005
Wire connection:	2 x 2.5 mm ² solid or 2 x 1.5 mm ² stranded ferruled DIN 46228-1/-2/-3/-4
Stripping length:	10 mm
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60999-1
Fixing torque:	0.8 Nm
Mounting:	DIN rail IEC/EN 60715
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

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Standard Type

IL 9069.12, 3/N AC 400 / 230 V, 50 / 60 Hz	
Article number:	0048730
• 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

