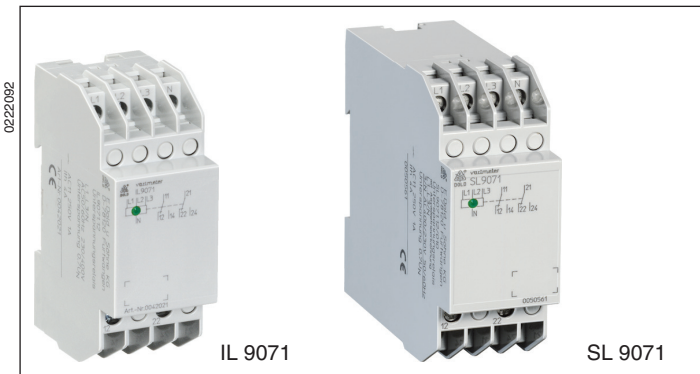
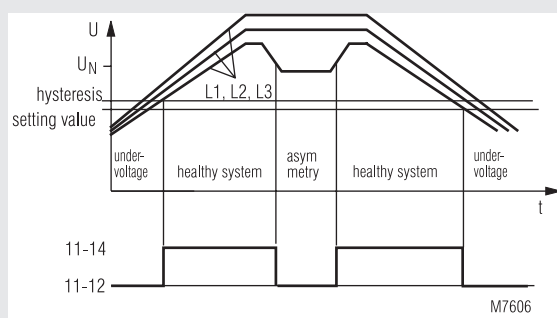


## VARIMETER Undervoltage Relay IL 9071, SL 9071



- According to IEC/EN 60 255-1
- Identification of
  - undervoltage
  - phase failure
  - asymmetry also with reverse voltage
  - missing neutral in the system
  - broken neutral on IL/SL 9071
  - neutral exchanged against phase
- Single phase connection possible
- According to DIN VDE 0100-710 (for rooms used for medical purposes) as an option
- Fixed setting value (variable as an option)
- De-energized on trip
- LED indicator
- With safe disconnection according to IEC/EN 61 140, IEC/EN 60 947-1 between the Measuring Circuit and the contacts
- Independant of phase sequence
- 2 changeover contacts
- Devices available in 2 enclosure version:
  - IL 9071: depth 61 mm with terminals at the bottom for installations systems and industrial distribution systems according to DIN 43 880
  - SL 9071: depth 98 mm with terminals at the top for cabinets with mounting plate and cable duct
- Width 35 mm

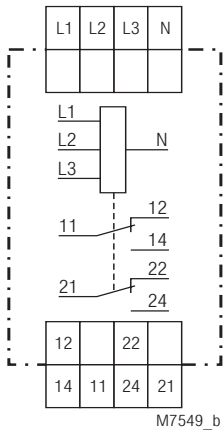
### Function Diagram



### Additional Information about this topic

- Datasheet undervoltage relay IK/IL 9171
- Relay workshop No. 15 and No. 16:  
The meaning of asymmetry in 3 phase systems (only in German)

### Circuit Diagram



IL 9071.12, SL 9071.12

### Approvals and Markings



\*) only IL 9071

### Applications

Monitoring of three-phase voltage systems to identify undervoltage, asymmetry or phase failure and switching-on of safety lighting in accordance with DIN VDE 0108.

Neutral monitoring in 3-phase systems. In 3-phase systems with neutral often also single phase load 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 too high. Also consumers can stop to work if the phase-neutral voltage gets too low. The IL 9071 detects this problem and can switch of the system immediately.

### Indicators

green LED: on, when the mains system is working properly (contact 11-14 and 21-24 closed)

### Notes

For single phase operation the terminals L1, L2 and L3 have to be bridged

## Technical Data

### Input

<b>Nominal voltage <math>U_N</math>:</b>	
single-phase connection:	AC 100 V, 115 V, 220 V, 230 V, AC 400 V, 415 V, 440 V, 500V
3-phase without neutral connection:	3AC 100 V, 115 V, 220 V, 230 V, 3AC 400 V, 415 V, 440 V, 500 V
3-phasing with neutral connection:	3/N AC 100 V / 58 V; 3/N AC 110 V / 64 V; 3/N AC 200 V / 115 V; 3/N AC 220 V / 127 V; 3/N AC 230 V / 133 V; 3/N AC 400 V / 230 V; 3/N AC 415 V / 240 V; 3/N AC 440V / 254 V; 3/N AC 500 V / 290 V
<b>Overload:</b>	AC 440 V on all measuring inputs, for at least 1 h
<b>Voltage range:</b>	0.7 ... 1.1 $U_N$
<b>Nominal consumption</b>	approx. 6 VA (L3-N)
<b>Nominal frequency:</b>	50 / 60 Hz
<b>Frequency range:</b>	45 ... 65 Hz
<b>Input current at <math>U_N</math>:</b>	L1-N, L2-N: approx. 1.5 mA L3-N: approx. 25 mA

### Setting Ranges

<b>Setting value <math>U_{off}</math></b>	
IL 9071/010, SL 9071/010:	0.7 $U_N$ or 0.85 $U_N$ (hysteresis approx. 4 %)
IL 9071/117, SL 9071/117:	0.7 ... 0.95 $U_N$ (hysteresis approx. 4 %)

### Asymmetry identification

IL 9071/117, IL 9071/010, SL 9071/117, SL 9071/010:	approx. 5 ... 10 % phase asymmetry
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### Output

<b>Contacts</b>	
IL 9071.12, SL 9071.12:	2 changeover contacts
<b>Contact material:</b>	AgNi
<b>Switching voltage:</b>	AC 250 V
<b>Thermal current <math>I_{th}</math>:</b>	4 A
<b>Switching capacity</b>	IEC/EN 60 947-5-1
AC 15	
NO contact:	3 A / AC 230 V
NC contact:	2 A / AC 230 V
<b>Electrical life</b>	IEC/EN 60 947-5-1
AC 15 at 1 A, AC 230 V:	5 x 10 <sup>5</sup> switching cycles
<b>Short circuit strength</b>	
<b>max. fuse rating:</b>	4 A gL IEC/EN 60 947-5-1
<b>Mechanical life:</b>	30 x 10 <sup>6</sup> switching cycles

### General Data

<b>Operating mode:</b>	Continuous operation	
<b>Temperature range:</b>		
Operation:	- 20 ... + 60 °C	
Storage:	- 25 ... + 60 °C	
Relative air humidity:	93 % at 40 °C	
<b>Altitude:</b>	< 2,000 m	
<b>Clearance and creepage distances</b>		
rated rated impulse voltage /		
pollution degree:	4 kV / 2	IEC 60 664-1
between Measuring Circuit and contacts	6 kV / 2	
<b>EMC</b>		
Electrostatic discharge:	8 kV (air)	IEC/EN 61 000-4-2
HF irradiation		
80 MHz ... 1 GHz:	10 V / m	IEC/EN 61 000-4-3
1 GHz ... 2 GHz:	10 V / m	IEC/EN 61 000-4-3
2 GHz ... 2.7 GHz:	10 V / m	IEC/EN 61 000-4-3
Fast transients:	4 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

## Technical Data

### 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<sup>2</sup> solid or  
2 x 1.5 mm<sup>2</sup> stranded ferruled  
DIN 46 228-1/-2/-3/-4

### Wire fixing:

Flat terminals with self-lifting  
clamping piece IEC/EN 60 999-1

### Fixing torque:

0.8 Nm

### Mounting:

DIN rail

IEC/EN 60 715

### Weight

IL 9071/010:

122 g

SL 9071/010:

168 g

### Dimensions

#### Width x height x depth

IL 9071:	35 x 90 x 61 mm
SL 9071:	35 x 90 x 98 mm

### Standard Types

IL 9071.12/010 3/N AC 400 / 230 V	0.85 $U_N$
Article number:	0047074
SL 9071.12/010 3/N AC 400 / 230 V	0.85 $U_N$
Article number:	0051006
• with asymmetry detection	
• 2 changeover contacts	
• Nominal voltage $U_N$ :	AC 230 / 3 AC 400 V
• Setting value:	0.85 $U_N$
• Width:	35 mm

### Variants

IL 9071/117, SL 9071/117:	according to DIN VDE 0100-710, rooms used for medical purposes, variable setting value
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### Ordering example for variants

IL 9071 .12 / \_ \_ \_ 3/N AC 400 / 230 V 50/60 Hz 0.7  $U_N$

