VARIMETER
Undervoltage Relay
IL 9071, SL 9071

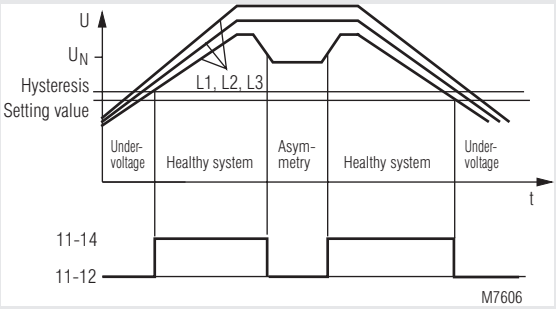
Translation of the original instructions

0222092

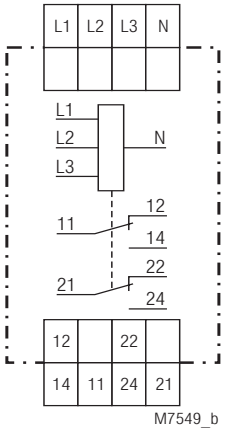
IL 9071

SL 9071

Function Diagram



Circuit Diagram



IL 9071.12, SL 9071.12

- According to IEC/EN 60255-1
- 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
- Fixed setting value (variable as an option)
- De-energized on trip
- LED indicator
- With safe disconnection according to IEC/EN 61140, IEC/EN 60947-1 between the Measuring Circuit and the contacts
- Independant of phase sequence
- 2 changeover contacts
- According to DIN VDE 0100-710 (for rooms used for medical purposes) as an option
- 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 43880
  SL 9071: Depth 98 mm with terminals at the top for cabinets with mounting plate and cable duct
- Width 35 mm

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)

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

Nominal voltage U_N:		
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-phasig 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	
Overload:	AC 440 V on all measuring inputs, for at least 1 h	
Voltage range:	0.7 ... 1.1 U_N	
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

Setting Ranges

Setting value U_{off}	
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

Output

Contacts		
IL 9071.12, SL 9071.12:	2 changeover contacts	
Contact material:	AgNi	
Switching voltage:	AC 250 V	
Thermal current I_{th}:	4 A	
Switching capacity		IEC/EN 60947-5-1
AC 15		
NO contact:	3 A / AC 230 V	
NC contact:	2 A / AC 230 V	
Electrical life		IEC/EN 60947-5-1
AC 15 at 1 A, AC 230 V:	5 x 10^5 switching cycles	
Short circuit strength		
max. fuse rating:	4 A gG / gL	IEC/EN 60947-5-1
Mechanical life:	30 x 10^6 switching cycles	

General Data

Operating mode:	Continuous operation	
Temperature range:		
Operation:	- 20 ... + 60 °C	
Storage:	- 25 ... + 60 °C	
Relative air humidity:	93 % at 40 °C	
Altitude:	< 2000 m	
Clearance and creepage distances		
Rated rated impulse voltage / pollution degree:	4 kV / 2	IEC 60664-1
Between Measuring Circuit and contacts	6 kV / 2	
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 GHz:	10 V / m	IEC/EN 61000-4-3
2 GHz ... 2.7 GHz:	10 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

Technical Data

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 mm² solid or 2 x 1.5 mm² stranded ferruled DIN 46228-1/-2/-3/-4	
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 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

Ordering example for variants

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

- Setting value
- Nominal frequency
- Nominal voltage
- Variant, if required
- Contacts
- Type