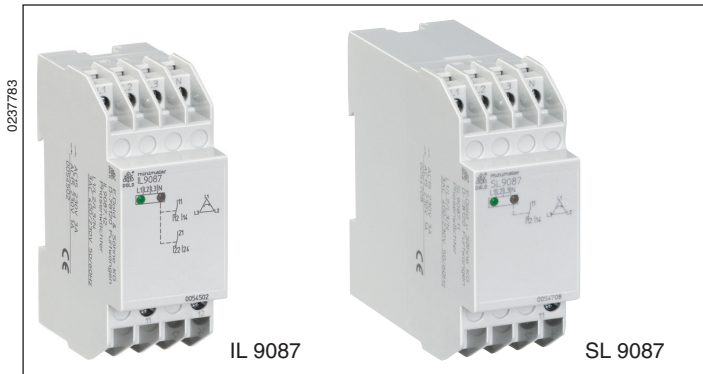
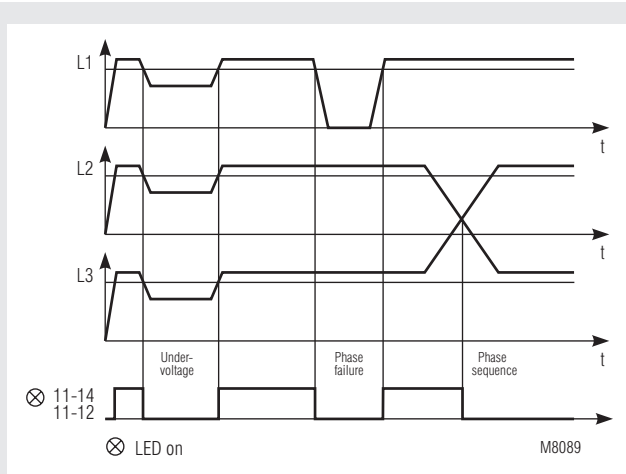


VARIMETER PRO Phase Monitor IL 9087, SL 9087



- According to IEC/EN 60 255, VDE 0435, DIN VDE 0660 part 302 (pr EN 60 947-8) and part 303
- Monitoring of phase failure
 - Undervoltage 3-phase 3 or 4 wire
 - Phase failure
 - Phase sequence
 - Loss of neutral
 - Phase asymmetry
- Without auxiliary supply
- De-energized on trip
- LED indication
 - Supply voltage
 - Phase failure
- 1 or 2 changeover contacts
- Devices available in 2 enclosure versions:
 - IL 9087: depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43 880
 - SL 9087: depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- Width 35 mm

Function Diagram



Voltage

Approvals and Markings



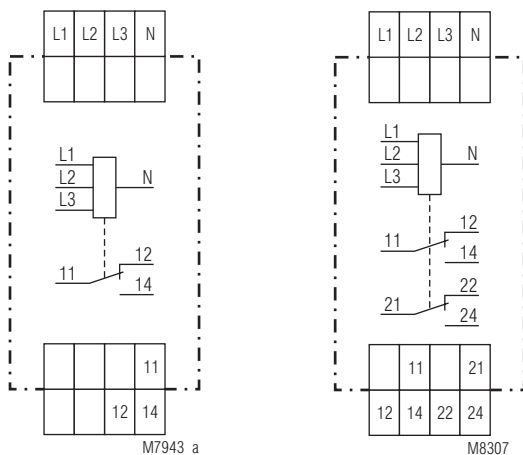
Applications

Monitoring of 3-phase systems with motors.

Function

On a healthy voltage system both LEDs are on. If a voltage failure occurs the contact 11-14, 21-24 opens. In 3-phase voltage systems with unbalanced load the unit can also detect the loss of neutral on the input line of the system. If a neutral is not used the N-terminal remains unconnected.

Circuit Diagram



IL 9087.11,
SL 9087.11

IL 9087.12,
SL 9087.12

Indicaton

left green LED:
right green LED:

on when voltage connected
on when measuring voltage correct

Technical Data

Input

Nominal voltage U_N:	3 / N AC 400 / 230 V (other voltages on request)
Voltage range:	0.8 ... 1.1 U_N
Nominal frequency:	50 / 60 Hz
Frequency range:	45 ... 65 Hz
Undervoltage detection:	approx. $0.7 \pm 0.15 \times U_N$
Asymmetry detection:	approx. 20° phase asymmetry
Hysteresis:	$\leq 6\% \times U_N$
Response delay:	100 ... 300 ms
Operate delay:	15 ... 30 ms ($0V \Rightarrow U_N$)

Output

Contacts	
IL/SL 9087.11:	1 changeover contact
IL/SL 9087.12:	2 changeover contacts
Contact material:	AgNi 0.15 + 0.3 μm AU
Thermal current I_{th}:	2 x 4 A
Switching capacity	
to AC 15	
NO contact:	3 A / AC 230 V IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V IEC/EN 60 947-5-1
Electrical life:	IEC/EN 60 947-5-1
to AC 15 at 1 A, AC 230 V:	6 x 10 ⁵ switching cycles
Switching voltage:	min. 10 V ; max. DC 120 V / AC 250 V
Switching current:	min. 0.1 A ; max. 5 A
Switching capacity:	min. 1 W, 1 VA; max. 120 W, 1250 VA
Mechanical life:	> 10 ⁸ switching cycles

General Data

Operating mode:	Continuous operation
Temperature range:	- 20 ... + 60°C
Input current	
L1:	approx. 7 mA
L2:	approx. 7 mA
L3:	approx. 1.5 mA
Nominal consumption:	approx. 3.5 VA
Clearance and creepage distances	
Rated rated impulse voltage voltage /	
Pollution degree:	4 kV / 2 IEC 60 664-1
Input/Output:	AC 2.5 kV 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:	4 kV IEC/EN 61 000-4-4
Surge voltages	
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
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 Subj. 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
Wire connection:	2 x 2.5 mm ² solid DIN 46 228-1/-2/-3/-4 2 x 1.5 mm ² stranded wire with sleeve
Fixing torque:	0.8 Nm
Mounting:	DIN-rail IEC/EN 60 715
Weight	
IL 9087:	185 g
SL 9087:	230 g

Dimensions

Width x height x depth

IL 9087:	35 x 90 x 59 mm
SL 9087:	35 x 90 x 98 mm

Classification to DIN EN 50155 for SL 9087

Vibration and

shock resistance:	Category 1, Class B	IEC/EN 61 373
Protective coating of the PCB:	No	

Standard Types

IL 9087.12	3 AC 400 V and 3 / N AC 400 / 230 V
Article number:	0054502
• Output:	2 changeover contacts
• Nominal voltage U_N :	3 AC 400 V and 3 / N AC 400 / 230 V
• Width:	35 mm

SL 9087.12	3 AC 400 V and 3 / N AC 400 / 230 V
Article number:	
• Output:	2 changeover contacts
• Nominal voltage U_N :	3 AC 400 V and 3 / N AC 400 / 230 V
• Width:	35 mm

Ordering example

IL 9087	.11	3/N AC 400 / 230 V	50 / 60 Hz	
				Nominal frequency
				Measuring voltage
				Contacts
				Type

Connection example

