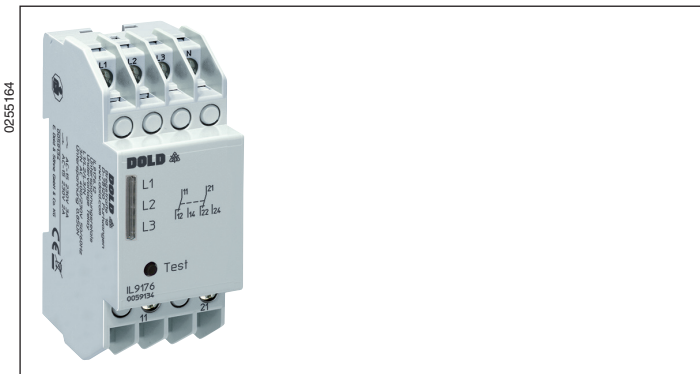


VARIMETER

Undervoltage Relay, 3-Phase With Test Key
IL 9176

Translation
of the original instructions



Your Advantages

- Preventive maintenance
- For better productivity
- Quicker fault locating

Features

- According to IEC/EN 60255-1
- Detection of
 - Undervoltage 1 up to 3-phase, $0.85 \times U_N$
 - Phase failure
- Without auxiliary voltage
- De-energized on trip
- LED indicator for L1, L2, L3 with test key to simulate failure
- 2 changeover contacts
- Width 35 mm

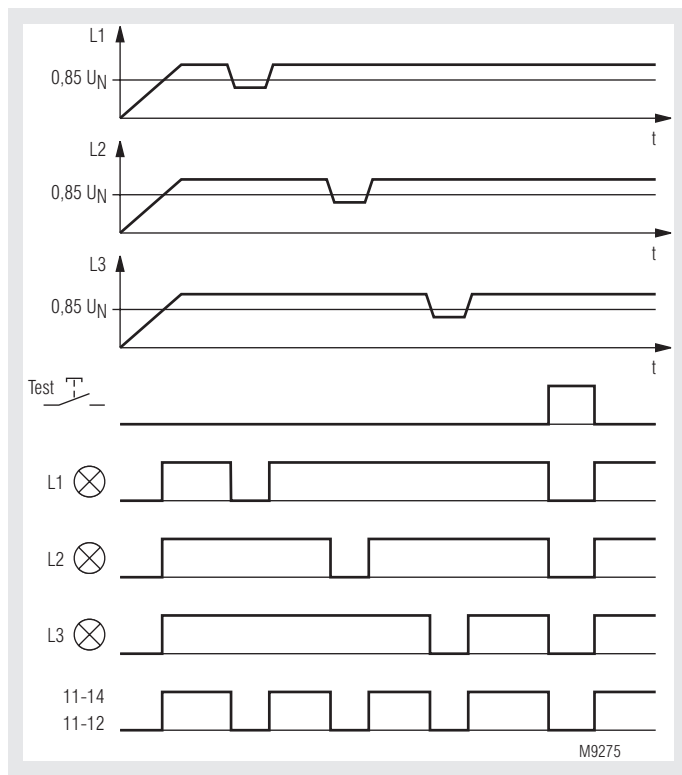
Product Description

The undervoltage relay IL 9176 of the VARIMETER series monitors 3-phase alternative current mains. The measurement is very simple and without extensive wiring, as no separate auxiliary supply is necessary. With the help of the test button on the front of the device, a fault is simulated and the relay contacts de-energized.

Approvals and Markings



Function Diagram



Application

Voltage monitoring of 3-phase systems

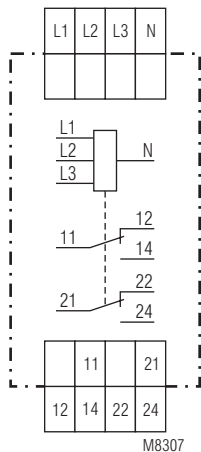
Function

On a healthy voltage system all 3 LEDs are on. The output contacts 11-14 and 21-24 are closed. By pressing the test button a failure is simulated and the relay contacts de-energize. This allows to test the circuit. When having asymmetric loads in the circuit the unit detects also a broken neutral wire. If the voltage drops below $0.85 \times U_N$ in one phase, the corresponding LED and the relay contacts switch off.

Indication

- Green LED L1: On, when phase voltage L1 correct
- Green LED L2: On, when phase voltage L2 correct
- Green LED L3: On, when phase voltage L3 correct

Circuit Diagram



Connection Terminals

Terminal designation	Signal description
L1, L2, L3, N	Connection of the monitoring 3-phase system
11, 12, 14	1. changeover contact
21, 22, 24	2. changeover contact

Technical Data

Input (L1, L2, L3, N)

Nominal voltage U_N:	3/N AC 400 / 230 V 3/N AC 110 / 63.5 V
Max. overload:	1.1 U_N , continuously
Nominal frequency:	50 / 60 Hz
Frequency range:	45 ... 65 Hz
Input current	
L1:	25 mA / AC 230 V
L2:	1 mA / AC 230 V
L3:	1 mA / AC 230 V
Nominal consumption:	2 W
Response value:	0.85 U_N , fixed
Hysteresis:	Approx. 5 % U_N
Start up delay ($0_V \rightarrow U_N$):	Approx. 500 ms
Release delay ($U_N \rightarrow 0_V$):	Approx. 70 ms

Output

Contact:	2 changeover contacts
Thermal current I_{th}:	2 x 4 A
switching capacity According to AC 15:	
NO contact:	3 A / AC 230 V IEC/EN 60947-5-1
NC contact:	2 A / AC 230 V IEC/EN 60947-5-1
Electrical life at 1 A, AC 230 V $\cos \varphi = 1$:	6 x 10 ⁶ 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

Technical Data

General Data

Operating mode:	Continuous operation
Temperature range	
Operation:	- 20 ... + 60 °C
Storage:	- 25 ... + 60 °C
Altitude:	≤ 2000 m
Clearance and creepage distance	
Rated impulse voltage / pollution degree:	4 kV / 2 IEC 60664-1
Overvoltage category:	III
EMC	
Electrostatic discharge (ESD):	8 kV (air) IEC/EN 61000-4-2
HF-irradiation	
80 MHz ... 6 GHz:	10 V / m IEC/EN 61000-4-3
Fast transients:	4 kV IEC/EN 61000-4-4
Surge voltage	
Between	
wires for power supply:	1 kV IEC/EN 61000-4-5
Between wire and ground:	2 kV IEC/EN 61000-4-5
HF wire guided:	10 V IEC/EN 61000-4-6
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 VO 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
Wire connection:	2 x 2.5 mm ² solid or 2 x 1.5 mm ² stranded wire with sleeve DIN 46228-1/-2/-3
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:	105 g

Dimensions

Width x height x depth: 35 x 90 x 59 mm

Standard Type

IL 9176.12	3/N AC 400/230V	50/60 Hz
Article number:		0059134
• Nominal voltage U_N :	3/N AC 400/230 V	
• Output:	2 changeover contacts	
• Width:	35 mm	