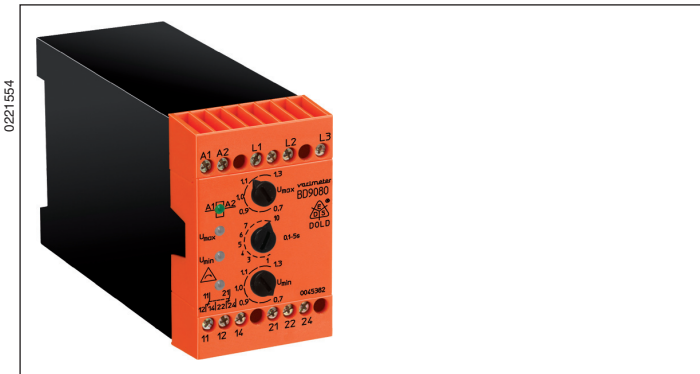
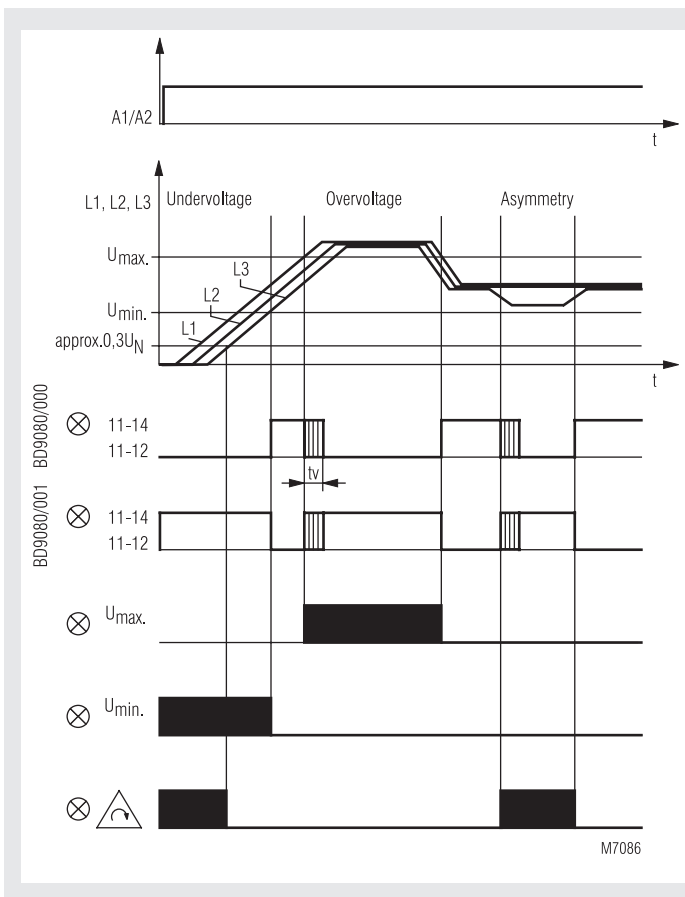


VARIMETER PRO Phase Monitor BD 9080



- According to IEC/EN 60 255, DIN VDE 0435-303
- Monitoring of
 - Under- and overvoltage
 - Asymmetry
 - Phase failure
 - Phase sequence
- Release time adjustable between 0.1 ... 5 s
- One LED in each case for
 - Auxiliary voltage A1/A2
 - Overvoltage U_{max}
 - Undervoltage U_{min}
 - Asymmetry / Phase sequence / Power failure
 - Contact position
- Closed circuit operation
- 2 changeover contacts
- As option available with open circuit operation
- Width 45 mm

Function Diagram



Approvals and Marking



*) see Variants

Applications

For mounting three-phase networks for undervoltage, overvoltage, phase sequence, asymmetry, power failure.

Indication

1. LED A1 / A2: on, when operating voltage present
2. LED U_{max} : on, in event of overvoltage
3. LED U_{min} : on, in event of undervoltage
4. LED Δ : on, in event of:
 - asymmetry
 - incorrect phase sequence
 - power failure
5. LED: on, when output relay activated

Notes

Measurement procedures: arithmetical mean value measurement over several half-waves of rectified phase voltages L1/L2 and L2/L3. Reference phase is L3. Networks with or without neutral can be monitored. The auxiliary voltage to be applied to A1/A2 can also be taken from the three-phase network which is to be monitored. This reduces to 0.8 - 1.1 U_H the permitted range of voltage of the network to be monitored.

Technical Data

Input Circuit

Nominal voltage U_N

L1 / L2 / L3: 3 AC 230, 400, 690 V
(other voltages on request)

Setting range:

0.7 ... 1.3 U_N

Overload capacity of U_N :

1.5 U_N / 2 U_N (10 s) max. 1 000 V

Nominal frequency of U_N :

50 / 60 Hz

Frequency range of U_N :

45 ... 65 Hz

Accuracy:

$\leq \pm 0.5\%$ of U_N

Power consumption with U_N :

L1 approx. 0.5 mA

L2 approx. 0.5 mA

L3 approx. 0.8 mA

$\leq 5\% \times U_A$ (U_A = response value)

Hysteresis:

$U_A \pm 8 \dots 20\%$

Asymmetry detection

approx. $120^\circ \pm 15^\circ$

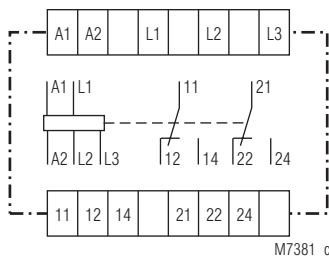
Fault angle:

$\leq 0.08\% / K$

Temperature influence:

$\leq 0.08\% / K$

Circuit Diagram



Technical Data

Auxiliary Circuit

Auxiliary voltage U_H

A1 / A2: AC 110, 230, 400 V
AC/DC 24 ... 60 V,
AC/DC 110 ... 230 V
(other voltages on request)

Voltage range of U_H : 0.8 ... 1.1 U_H
Nominal frequency of U_H : 50 / 60 Hz
Frequency range of U_H : 45 ... 500 Hz
Nominal consumption: 2.4 VA

Output Circuit

Contacts

BD 9080.12: 2 changeover contacts
Response-/Release time: approx. 900 / 150 ms
Time delay t_v : 0.1 ... 5 s
Thermal current I_{th} : 6 A
(see continuous current limit curve)

Switching capacity

to AC 15
NO contact: 2 A / AC 230 V IEC/EN 60 947-5-1
NC contact: 1 A / AC 230 V IEC/EN 60 947-5-1
to DC 13
NO contact: 1 A / DC 24 V IEC/EN 60 947-5-1
NC contact: 1 A / DC 24 V IEC/EN 60 947-5-1
Electrical life: IEC/EN 60 947-5-1
to AC 15 at 1 A, AC 230 V:

NO contact: 2.5 x 10⁵ switching cycles

Permissible switching frequency:

20 switching cycles / s

Short circuit strength

max. fuse rating: 4 A gL IEC/EN 60 947-5-1

Mechanical life:

≥ 50 x 10⁶ switching cycles

General Data

Operating mode:

Continuous operation

Temperature range:

- 20 ... + 60°C

Clearance and creepage distances

rated impuls voltage / pollution degree
auxiliary voltage: 6 kV / 2 IEC 60 664-1
Contact / contact: 4 kV / 2 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: 2 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 subject 94

Vibration resistance:

Amplitude 0.35 mm IEC/EN 60 068-2-6
frequency 10 ... 55 Hz,

Climate resistance:

20 / 060 / 04 IEC/EN 60 068-1

Wire connection:

2 x 2.5 mm² solid
DIN 46 228-1/-2/-3/-4 or
2 x 1.5 mm² stranded wire with sleeve
DIN 46 228-1/-2/-3/-4

Wire fixing:

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

Mounting:

DIN rail IEC/EN 60 715

Weight:

325 g

Dimensions

Width x height x depth: 45 x 74 x 133 mm

Standard Type

BD 9080.12 3 AC 400 V AC 230 V

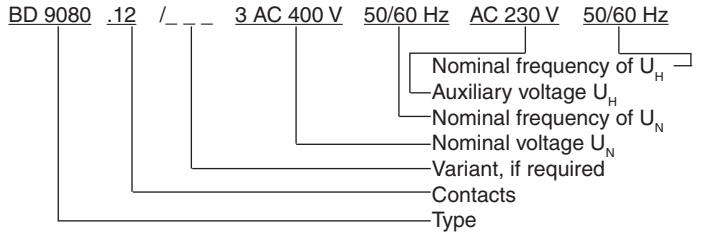
Article number: 0045382 stock item

- Output: 2 changeover contacts
- Nominal voltage U_N : 3 AC 400 V
- Auxiliary voltage U_H : AC 230 V
- Closed circuit operation
- Width: 45 mm

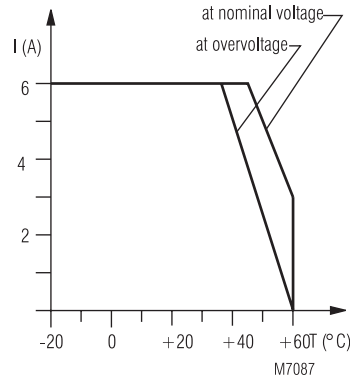
Variants

BD 9080.12/61
3 AC 400 AC 400 V, with UL-approval
3 AC 480 AC 480 V: open circuit operation
BD 9080.12/001: output relay
BD 9080.12/020: indicates only under- and overvoltage

Ordering example for variant



Characteristic



Continuous current limit curve

Connection Examples

