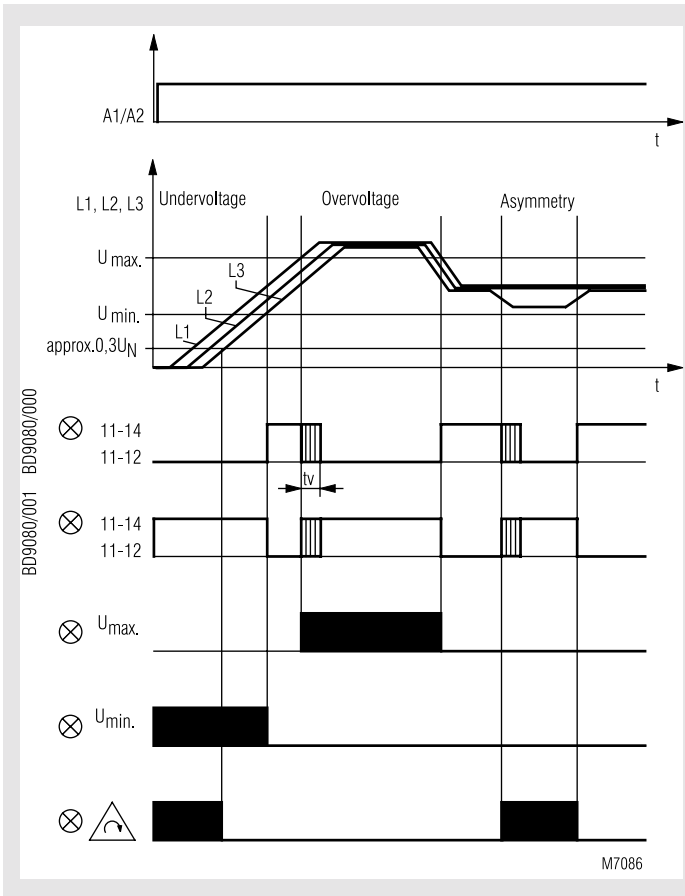


02211554



- According to IEC 255, EN 60 255, VDE 0435 part 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
- Available open circuit operation
- 2 changeover contacts
- Width 45 mm

### Function diagram



### Approvals and marking



### 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  $\Delta$ : 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  $U_N$  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)

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

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

#### Hysteresis:

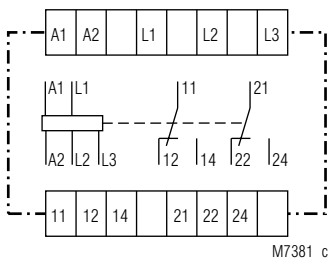
#### Asymmetry detection

Voltage:  $U_A \pm 10 \dots 20 \%$

Fault angle: approx.  $120^\circ \pm 15^\circ$

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

### Setting ranges

$U_{max.}$ : 0,7 ... 1,3  $U_N$   
 $U_{min.}$ : 0,7 ... 1,3  $U_N$   
Setting range:  $\leq \pm 10\%$  of  $U_N$

### 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: 3 A / AC 230 V EN 60 947-5-1

NC contact: 1 A / AC 230 V EN 60 947-5-1

Electrical life: EN 60 947-5-1

to AC 15 at 1 A, AC 230 V:

NO contact: 2,5 x 10<sup>5</sup> switching cycles

Permissible switching frequency: 20 switching cycles / s

#### Short circuit strength

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

Mechanical life:  $\geq 50 \times 10^6$  switching cycles

## General data

Operating mode: Continuous operation

Temperature range: -20 ... +60°C

#### Clearance and creepage distances

overvoltage category /  
contamination level: 4 kV / 2 IEC 60 664-1

#### EMC

Electrostatic discharge: 8 kV (air) EN 61 000-4-2

HF irradiation: 10 V/m EN 61 000-4-3

Fast transients: 2 kV EN 61 000-4-4

Surge voltages  
between

wires for power supply: 1 kV EN 61 000-4-5

between wire and ground: 2 kV EN 61 000-4-5

Interference suppression: Limit value class B EN 55 011

Degree of protection: Housing: IP 40 EN 60 529

Terminals: IP 20 EN 60 529

Housing: Thermoplastic with V0 behaviour  
according to UL subject 94

Vibration resistance: Frequency 10 ... 55 Hz,  
Amplitude 0,35 mm EN 60 068-2-6

20 / 060 / 04 EN 60 068-1

Climate resistance: 2 x 2,5 mm<sup>2</sup> solid DIN 46 288 or

Wire connection: 2 x 1,5 mm<sup>2</sup> stranded wire with sleeve  
DIN 46 228-1/-2/-3/-4

Wire fixing: Flat terminals with self-lifting  
clamping piece EN 60 999

Mounting: DIN rail EN 50 022

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

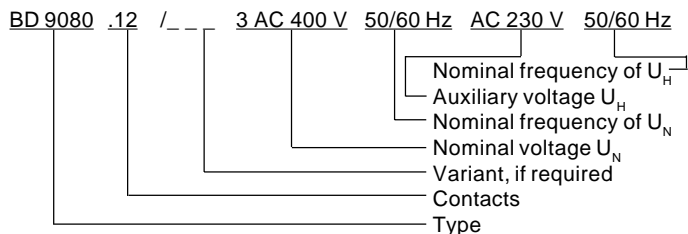
Article number: 0045382 stock item

- 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

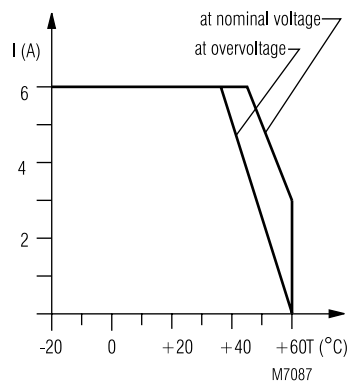
## Variant

BD 9080.12/001 Open circuit operation

## Ordering example for Variant



## Characteristic



Continuous current limit curve

## Connection examples

