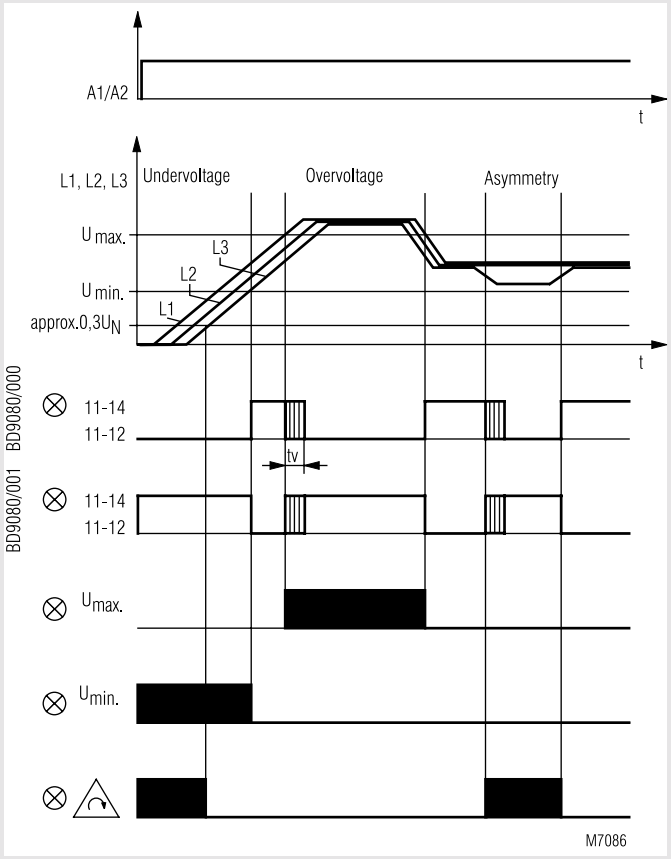
Phase monitor BD 9080
varimeter

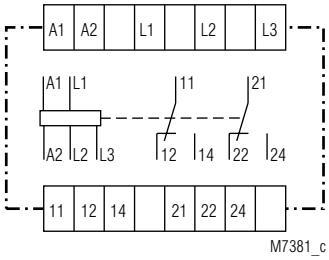
0221554

- 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
- Available open circuit operation
- 2 changeover contacts
- Width 45 mm

Function diagram



Circuit diagram



Approvals and marking

Canada / USA

*) 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)
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:	≤ ± 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
Hysteresis:	≤ 5 % x U_A (U_A = response value)
Asymmetry detection	
Voltage:	U_A ± 10 ... 20 %
Fault angle:	approx. 120° ± 15°
Temperature influence:	≤ 0,08 % / K

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:	≤ ± 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	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:		
NO contact:	2,5 x 10^5 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 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)	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:	Frequency 10 ... 55 Hz, Amplitude 0,35 mm	IEC/EN 60 068-2-6
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

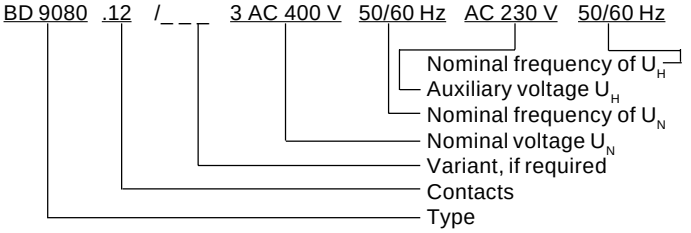
BD 9080.12 3 AC 400 V AC 230 V

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	

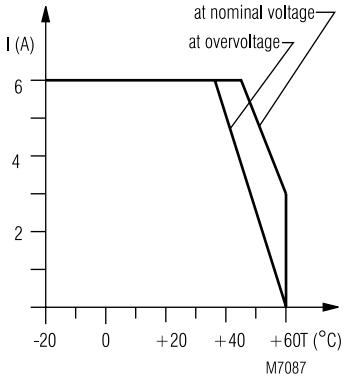
Variant

BD 9080.12/61:	with UL-approval
BD 9080.12/001	Open circuit operation

Ordering example for Variant



Characteristic



Continuous current limit curve

Connection examples