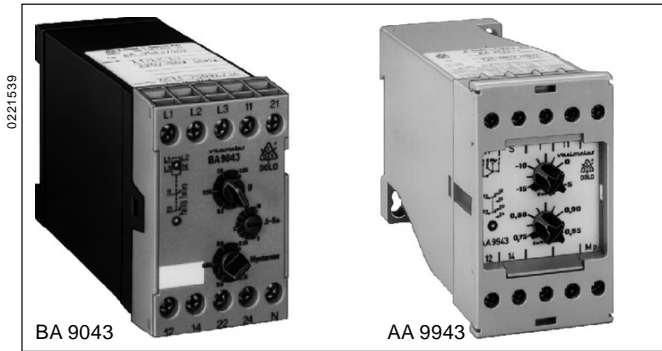
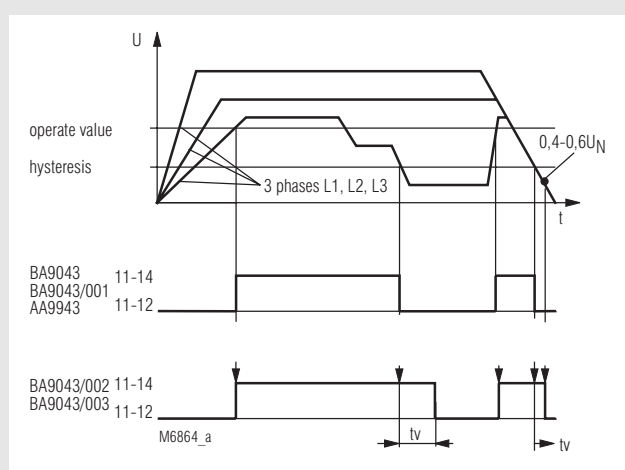


Undervoltage relay BA 9043, AA 9943 varimeter

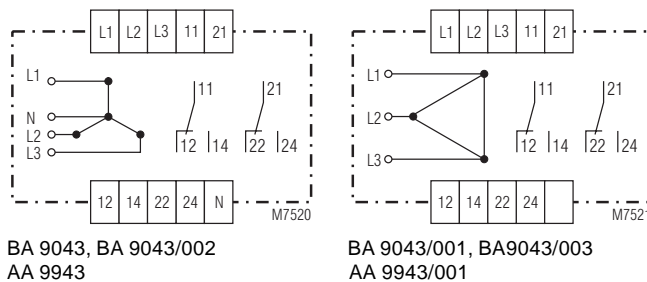


- According to IEC 255, EN 60 255, VDE 0435 part 303
- 3-phase
- For nominal voltage of 3 AC 100 / 57 to 690 / 400 V
- Measures arithmetic mean value
- Adjustable operate and release value
- For 3p3w or 3p4w systems
- BA 9043 optionally with adjustable time delay
- Closed circuit operation
- LED indicator for operation and state of contact
- Insensitive to harmonics
- Frequency up to 400 Hz
- Width 45 mm

Function diagram



Circuit diagram



Approvals and marking



Application

Undervoltage detection in 3 phase systems

Indicators

upper LED: on, when voltage connected
(only BA 9043)
lower LED: on, when output contact activated

Notes

In units with time delay the delay is only active at $> 0,4 U_N$. At $< 0,4 U_N$ the relay switches without delay.

Technical data

Input

Nominal voltage U_N

BA 9043, BA 9043/002
AA 9943: 3/N AC 100/57 V; 230/127 V; 400/230 V
415/240 V; 440/254 V; 500/290 V
50 ... 400 Hz

BA 9043, BA 9043/002:
BA 9043/001, BA 9043/003
AA 9943/001: 3 AC 50 / 60 Hz 400 / 690 V

BA 9043/001, BA 9043/003: 3 AC 50 / 60 Hz 690 V

Max. overload

BA 9043: 1,2 U_N continuously
AA 9943: 1,1 U_N continuously

Nominal consumption:

AC 4 VA

Nominal frequency:

50 ... 400 Hz

Frequency range:

± 5 %

Temperature influence:

< 0,05 % / K

Setting ranges

Response value: 0,85 ... 1,05 U_N; infinite variable with upper potentiometer

Hysteresis: 0,75 ... 0,95 of operate value

Setting accuracy: ≤ ± 10 %

Switching delay t_m: see diagram switching delay

Time delay t_v: infinite variable from 0,5 ... 10 sec for BA 9043/002, BA 9043/003
Between 0,4 and 0,6 U_N the contacts fall back according to the diagram without additional delay

Technical data

Output

Contacts

BA 9043:	2 changeover contacts
AA 9943.11:	1 changeover contact
AA 9943.12:	2 changeover contacts
Thermal current I_{th}:	6 A; see diagramm
	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 3 A, AC 230 V: 3 x 10⁵ switching cycles

Short circuit strength

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

Mechanical life: > 30 x 10⁶ 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

HF wire guided: 10 V IEC/EN 61 000-4-6

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

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

Climate resistance: DIN EN 50 005

Terminal designation: 2 x 2,5 mm² solid 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

DIN rail IEC/EN 60 715

Mounting:

Weight

BA 9043: 310 g

AA 9943: 300 g

Dimensions

Width x height x depth

BA 9043: 45 x 73 x 132 mm

AA 9943: 45 x 77 x 127 mm

Standard type

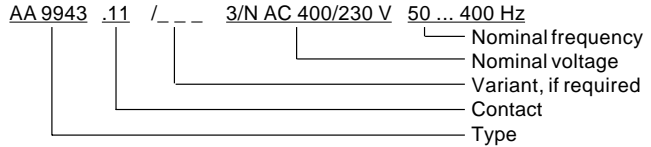
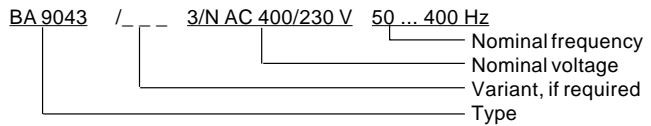
BA 9043 3/N AC 400 / 230 V	50 ... 400 Hz	
Article number:	0039676	stock item
• for 3p4w systems		
• Nominal voltage U_N :	3/N AC 400 / 230 V	
• Output:	2 changeover contacts	
• Width:	45 mm	

Variants

AA 9943/001:	without neutral
AA 9943/175:	earth quake proof
BA 9043/001:	without neutral
BA 9043/002:	with neutral, adjustable time delay
	$t_M = 0,5 \dots 10$ sec
BA 9043/003:	without neutral, adjustable time delay
	$t_M = 0,5 \dots 10$ sec

Variants

Ordering example for Variants



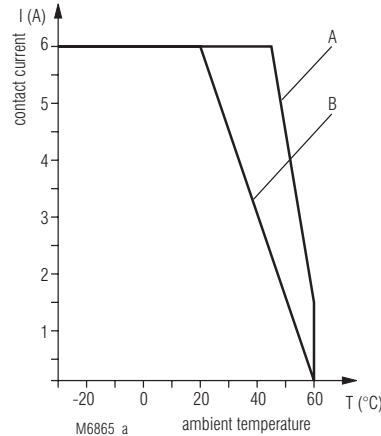
Accessories

AA 9943:

K 70-34

Cover

Characteristics



Continuous current limit curve

A = Devices mounted with 2 cm distance

B = Devices mounted without distance

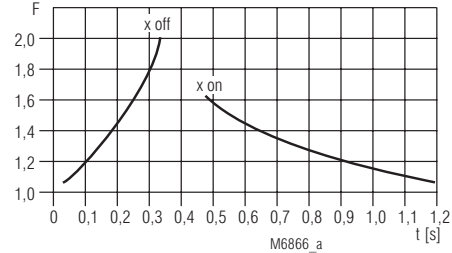


Diagram switching delay

Switching delay t_M :

When the voltage changes fast on the measuring input, the arithmetic mean value can only adjust after a short delay.

Example:

$$F = \frac{U_{\text{applied}}}{U_{\text{setting}}} \quad F = \frac{240 \text{ V}}{190 \text{ V}} = 1,26$$

$U_{\text{applied}} = 190 \text{ V}$

$U_{\text{setting}} = 240 \text{ V}$

according to diagram:

$t_{M\text{on}} = \text{approx. } 800 \text{ ms}$

$t_{M\text{off}} = \text{approx. } 100 \text{ ms}$

Specification for tender for BA 9043

Undervoltage relay according to IEC 255, VDE 0435 for nominal voltage of 3 AC 100/57 to 500/290 V. Adjustable operate and release value, for 3p4w systems
Width 45 mm
Type BA 9043
Manufactured by E. DOLD & SÖHNE KG

Undervoltage relay according to IEC 255, VDE 0435 for nominal voltage of 3 AC 100/57 to 500/290 V. Adjustable operate and release value, for 3p4w systems, adjustable time delay up to 10 s.
Width 45 mm
Type BA 9043/002
Manufactured by E. DOLD & SÖHNE KG

Undervoltage relay according to IEC 255, VDE 0435 for nominal voltage of 3 AC 100/57 to 500/290 V. Adjustable operate and release value, for 3p3w systems
Width 45 mm
Type BA 9043/001
Manufactured by E. DOLD & SÖHNE KG

Undervoltage relay according to IEC 255, VDE 0435 for nominal voltage of 3 AC 100/57 to 500/290 V. Adjustable operate and release value, for 3p3w systems, adjustable time delay up to 10 s.
Width 45 mm
Type BA 9043/003
Manufactured by E. DOLD & SÖHNE KG

