

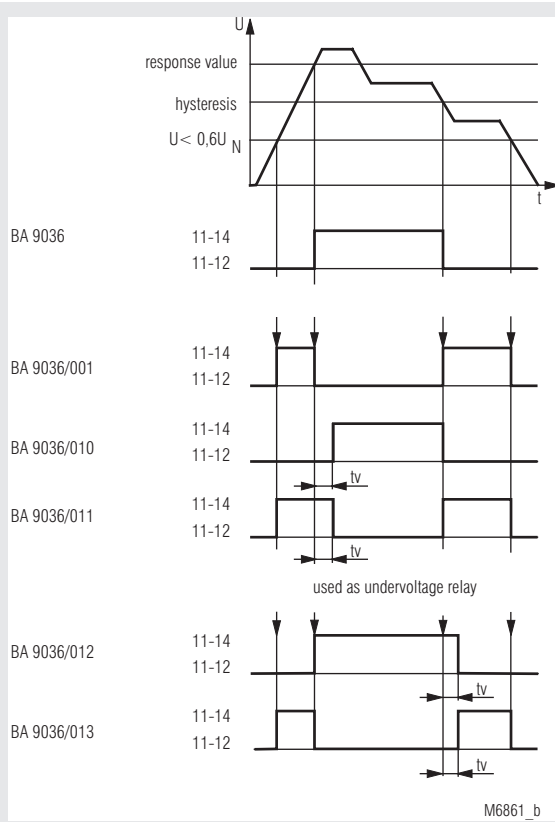
VARIMETER Voltage Relay BA 9036

Translation
of the original instructions



- According to IEC/EN 60255-1
- Single-phase
- Measuring ranges from 24 to 400
- Settable response and release value
- Without auxiliary supply
- Optionally available with adjustable time delay
- With LED indicators for operation and state of contacts
- 2 changeover contacts
- Width 45 mm

Function Diagram



Approvals and Markings



* see variants

Applications

Monitoring of voltage in DC and AC systems

Indicators

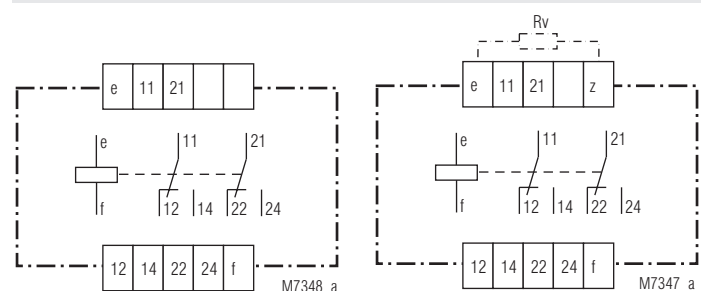
Upper LED: On, when voltage connected
Lower LED: On, when output contact activated

Notes

Mounting instruction for units with external series resistor
The external resistor conducts mains voltage and heats up during operation. It has to be mounted at a suitable location in the cabinet so that touch protection is provided. Because of the heat dissipation a suitable distance to neighbour devices has to be kept.

When using a drop resistor the measuring has to be connected to e and f.

Circuit Diagrams



BA 9036
connection diagram for AC voltage

BA 9036
connection diagram for DC voltage

Connection Terminals

Terminal designation	Signal description
e, f	Nominal voltage
e, z	Series resistor (DC)
11, 12, 14, 21, 22, 24	Changeover contact

Technical Data

Input

Nominal voltage U_N:	AC 24, 42, 110, 127, 230, 240, 290, 400 V DC 24, 48, 60 V DC 110*, 127*, 220*, 240 V* (others on request) *) with external drop resistor
	DC 110 V*: ZWS 20 SL1.5 k Ω 20 W DC 127 V*: ZWS 20 SL1.6 k Ω 20 W DC 220 V*: ZWS 35 SL 3.9 k Ω 35 W DC 240 V*: ZWS 35 SL4.7 k Ω 35 W *) Replacement RL 9836 without external drop resistor

Nominal consumption:	6 VA / 10 W
Nominal frequency:	50 / 60 Hz
Frequency range (constant parameter):	$\pm 5 \%$
Temperature influence:	< 0.05 % / K
Max. overload:	1.2 U_N continuously

Setting Ranges

Setting:	0.85 ... 1.05 U_N
Hysteresis:	0.75 ... 0.95 of setting value
Setting accuracy:	$\pm 5 \%$
Repeat accuracy:	$\pm 0.5 \%$
Time delay t_v:	0.5 ... 10 s adjustable ($U > 0.6 \times U_N$)

Output

Contacts:	2 changeover contacts	
Thermal current I_{th}:	6 A	
Switching capacity To AC 15		
NO contact:	2 A / AC 230 V	IEC/EN 60947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60947-5-1
To DC 13		
NO contact:	1 A / DC 24 V	IEC/EN 60947-5-1
NC contact:	1 A / DC 24 V	IEC/EN 60947-5-1
Electrical contact life At 6 A, AC 230 V $\cos \varphi = 1$:	1.5 x 10 ⁵ 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	

General Data

Operating mode:	Continuous operation	
Temperature range Operation:	- 20 ... + 60 °C	
Storage:	- 20 ... + 60 °C	
Altitude:	< 2000 m	
Clearance and creepage distances Rated impulse voltage / pollution degree:	4 kV / 2	IEC 60664-1
Overvoltage category:	III up to 300 V II > 300 V	
EMC Electrostatic discharge:	8 kV (air)	IEC/EN 61000-4-2
HF irradiation 80 MHz ... 2,7 GHz:	10 V / m	IEC/EN 61000-4-3
Fast transients:	2 kV	IEC/EN 61000-4-4
Surge voltages 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 V0 behaviour according to UL subject 94	
Vibration resistance:	Amplitude 0.35 mm IEC/EN 60068-2-6 frequency 10 ... 55 Hz	
Climate resistance:	20 / 060 / 04	IEC/EN 60068-1
Terminal designation:	EN 50005	

Technical Data

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/-4
Insulation of wires or sleeve length:	8 mm
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60999-1 0.8 Nm
Fixing torque:	
Mounting:	DIN rail IEC/EN 60715
Weight:	310 g

Dimensions

Width x height x depth:	45 x 73 x 132 mm
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UL-Data

Nominal voltage U_N:	AC 120 V
Switching capacity:	Pilot duty B150



Technical data that is not stated in the UL-Data, can be found in the technical data section.

CCC-Data

Thermal current I_{th}:	5 A
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Switching capacity

To AC 15		
NO contact:	2 A / AC 230 V	IEC/EN 60947-5-1
To DC 13		
NO contact:	1 A / DC 24 V	IEC/EN 60947-5-1



Technical data that is not stated in the CCC-Data, can be found in the technical data section.

Standard Type

BA 9036 AC 230 V 50 Hz	
Article number:	0045288
• Nominal voltage U_N :	AC 230 V
• Width:	45 mm

Variants

BA 9036/61:	With UL approval on request
BA 9036:	Undervoltage / closed circuit operation, with CCC approval on request
BA 9036/001:	Overvoltage / closed circuit operation
BA 9036/010:	Overvoltage / open circuit operation / time delay
BA 9036/011:	Overvoltage / closed circuit operation / time delay
BA 9036/012:	Undervoltage / closed circuit operation / time delay
BA 9036/013:	Undervoltage / open circuit operation / time delay

Ordering example for variants

BA 9036 / _ _ _ AC 230 V 50 Hz	
	Nominal frequency
	Nominal voltage
	Variant, if required
	Type

Characteristic

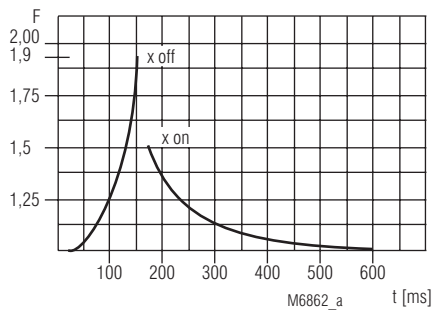


Diagram switching delay

Switching delay t_M :

The characteristic shows the switching delay depending on the values of X_{on} - X_{off} when switching the voltage on or off. A slow voltage change reduces the delay.

Example:

U setting = 200 V
U applied = 230 V

$$F = \frac{230 \text{ V}}{200 \text{ V}} = 1.1$$

$t_{M,on}$ = approx. 300 ms
 $t_{M,off}$ = approx. 60 ms

$$F = \frac{U \text{ applied}}{U \text{ setting}}$$

Accessories

ZWS 20 SL, ZWS 35 SL

Drop resistor

