

# High Power relay 100 A



Power generators



Back-up generators



Pump control



Disabled lift



Inverter



Charging Stations





**Printed circuit mount - 3.6 mm contact gap**  
**Relay for applications with high power**

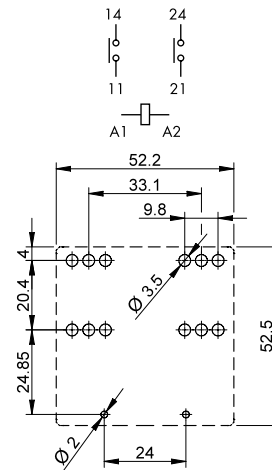
**Type 68.22-4300**  
- 2 NO

- Contact gap  $\geq 3.6$  mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- DC coils, with only 700 mW holding power
- Reinforced insulation between coil and contacts
- Suitable for use at ambient temperatures up to 85 °C
- Meets the EN 60335-1 requirements of resistance to heat and fire (GWIT 775 °C and GWFI 850 °C)
- Cadmium free contact materials

**68.22-4300**



- 2 NO
- Contact gap 3.6 mm
- PCB mount



Copper side view

For outline drawing see page 6

**Contact specification**

Contact configuration		2 NO
Contact gap	mm	$\geq 3.6$
Rated current/ Maximum peak current (for 1 ms)	A	100/300
Rated voltage/ Maximum switching voltage	V AC	400/690
Rated load AC1/AC7a (per pole)	VA	40000
Rated load AC15 (per pole @ 230 V AC)	VA	4600
Single-phase motor rating (230 V AC)	kW	2.2
Three-phase motor rating (480 V AC)	kW	—
Breaking capacity DC1: 24/110/220 V	A	100/5/1.2
Minimum switching load	mW (V/mA)	1000 (10/10)
Standard contact material		AgSnO <sub>2</sub>

**Coil specification**

Nominal voltage (U <sub>N</sub> )	V DC	12 - 24
Rated power	W	2.9
Operating range (-40...+70°C)	DC	(0.90 ... 1.1)U <sub>N</sub>
Energy-saving mode (-40...+85)°C		
Operating range for 1 s		(0.95...2.5)U <sub>N</sub>
Holding voltage range	DC	0.5 U <sub>N</sub>
Minimum holding power	W	0.7
Must drop-out voltage	DC	0.05 U <sub>N</sub>

**Technical data**

Mechanical life	cycles	1 · 10 <sup>6</sup>
Electrical life at rated load AC7a	cycles	30 · 10 <sup>3</sup>
Operate/release time	ms	25/3
Ambient temperature range (energy-saving mode)	°C	-40...+70 (-40...+85)
Environmental protection		RT II

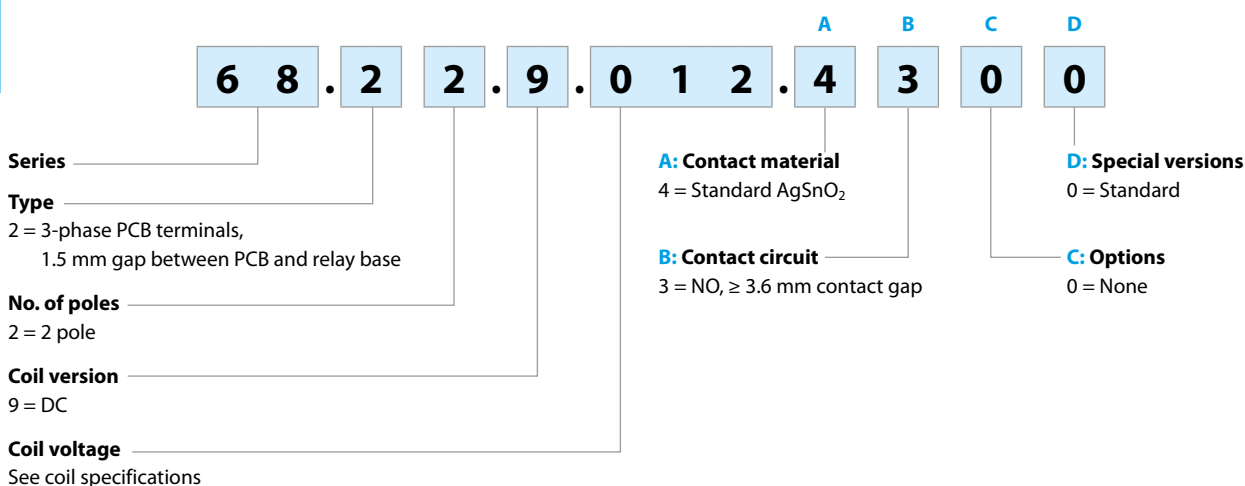
**Approvals** (according to type)



## Ordering information

Example: 68 series, power relay for printed circuit, 2 NO contacts, 12 V DC coil.

A



## Technical data

### Insulation according to EN 61810-1

Nominal voltage of supply system	V AC	400/690 3-phase
Rated insulation voltage	V AC	630
Pollution degree		3

### Insulation between coil and contact set

Type of Insulation		Reinforced
Overvoltage category		III
Rated impulse voltage	kV (1.2/50 μs)	6
Dielectric strength	V AC	5000

### Insulation between adjacent contacts

Type of Insulation		Basic
Overvoltage category		III
Rated impulse voltage	kV (1.2/50)μs	6
Dielectric strength	V AC	4000

### Insulation between open contacts

Type of disconnection		Full-disconnection
Overvoltage category		III
Rated impulse voltage	kV (1.2/50)μs	4
Dielectric strength	V AC	2500

### Insulation between coil terminals

Rated impulse voltage (surge) differential mode (according to EN 61000-4-5)	kV (1.2/50 μs)	4
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### Other data

Bounce time: NO	ms	2	
Vibration resistance (10...150)Hz: NO	g	9	
Shock resistance	g	30	
Power lost to the environment	without contact current	W	2.9
	with rated current	W	13

Test procedure B (single mounting)

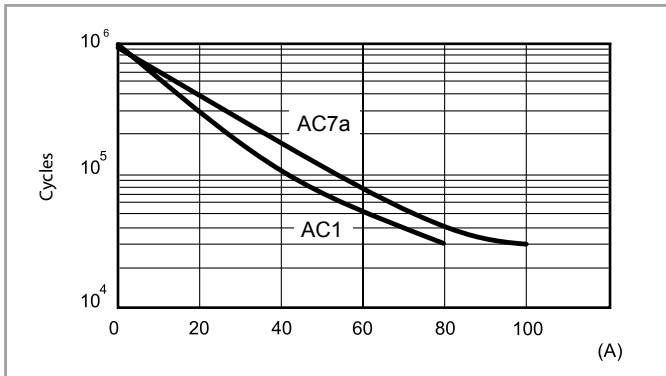
Recommended distance between relays mounted on PCB in case of group mounting mm ≥ 20

### Short circuit protection

Rated conditional short circuit current	kA	5
Back-up fuse for motor load	A	63 (delayed type)

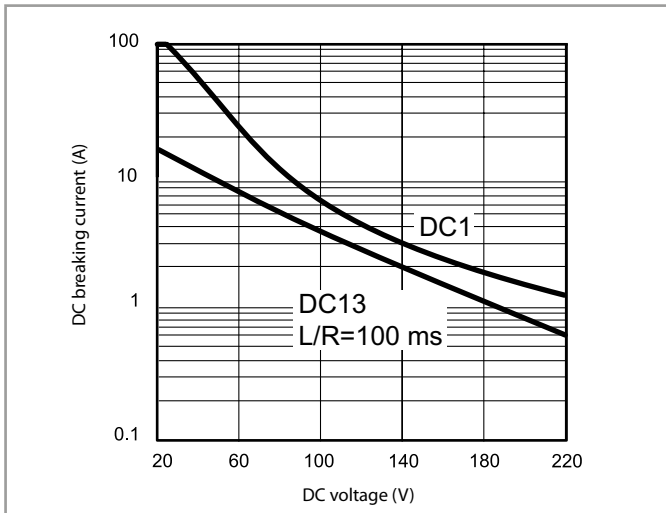
## Contact specification

**F 68 - Electrical life v contact current**



**NOTE:** for ambient temperatures between 70 and 85 °C, the electrical life is reduced by 30%

**H 68 - Maximum DC breaking capacity**



When switching a resistive (DC1) or inductive (DC13) load having voltage and current values under the corresponding curve, an electrical life of > 30000 cycles can be expected.

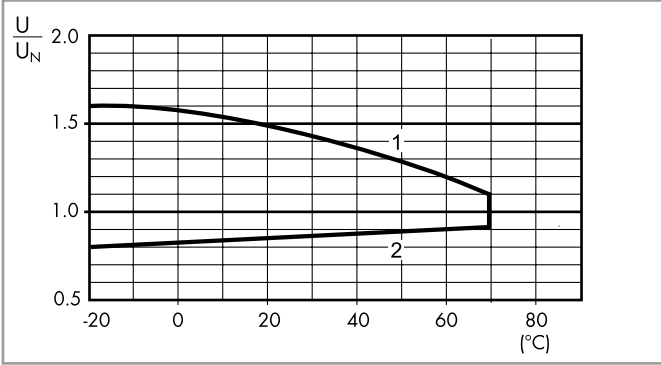
**NOTE:** The heating and electrical endurance tests have been performed on relays soldered on PC boards having the following characteristics: double side, copper thickness > 105 µm, contact tracks width 40 to 45 mm, total cross section about 10 mm<sup>2</sup>

## Coil specifications

### DC coil data

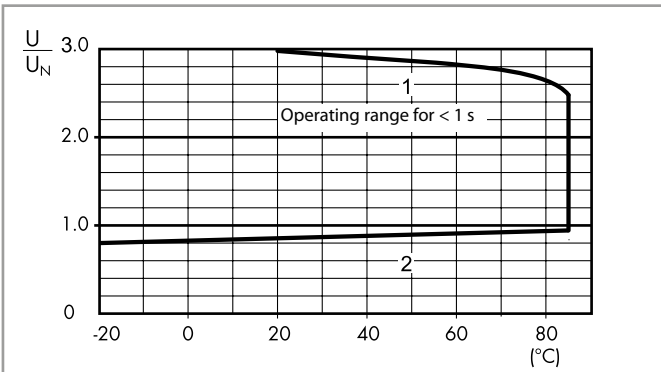
Nominal voltage	Coil code	Operating range (@ 70 °C max)		Holding voltage	Resistance	Rated coil consumption I at $U_N$
		$U_{min}$	$U_{max}$			
$U_N$		V	V	$U_h$	R	$I_N$
V		V	V	V	$\Omega$	mA
12	9.012	10.8	13.2	6.0	50	240
24	9.024	21.6	26.4	12.0	200	120

### R 68-1 - Operating range v ambient temperature, with standard (continuous) coil energization (-40...+70)°C



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

### R 68-2 - Operating range v ambient temperature, in energy saving mode (-40...+85)°C



- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

### Energy saving mode

In some applications, such as photovoltaic inverters, it may be necessary to minimize the overall relay power dissipation and to permit use at higher ambient temperature levels (up to 85 °C). This can be achieved by initially applying a coil voltage within the Energy saving mode Operating range (see diagram to the left) and then rapidly (< 1 s) reducing the coil voltage to a level within the Holding voltage range. The lower the Holding voltage, the lower is the continuous power dissipation of the coil (0.7 W minimum). Coil voltages as high as 2.5  $U_N$  may be used, when necessary, to reduce the contact operate time.

## Outline drawings

Type 68.22

