

**PCB Relay with forcibly guided contacts according to EN 61810-3 (previously EN 50205) Type B 2 CO contacts\***

**Type 50.12...1000**  
- 2 pole 8 A  
- Contact AgNi

**Type 50.12...5000**  
- 2 pole 8 A  
- Contact AgNi + Au

- High physical separation between adjacent contacts
- Cadmium Free contact materials
- 8 mm, 6 kV (1.2/50 μs) isolation, coil-contacts
- Flux proof: RT II

**50.12...1000**



- For medium duty switching, suggested for DC loads
- 2 pole 8 A
- 5 mm pinning
- PCB mounting

**50.12...5000**

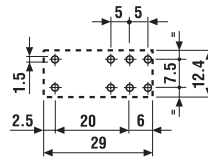
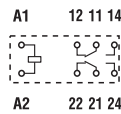


- For safety applications
- Gold plate contacts for low level switching capability
- 5 mm pinning
- PCB mounting

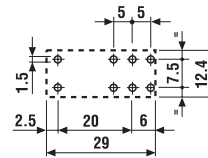
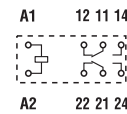
\* According to EN 61810-3 only 1 NO and 1 NC (11-14 and 21-22 or 11-12 and 21-24) shall be used as forcibly guided contacts.

FOR UL RATINGS SEE:  
"General technical information" page V

For outline drawing see page 7



Copper side view



Copper side view

<b>Contact specification</b>			
Contact configuration		2 CO (DPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	8/15	8/15
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2000	2000
Rated load AC15 (230 V AC)	VA	500	500
Single phase motor rating (230 V AC)	kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V	A	8/0.65/0.2	8/0.65/0.2
Minimum switching load	mW (V/mA)	500 (10/10)	50 (5/5)
Standard contact material		AgNi	AgNi + Au
<b>Coil specification</b>			
Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	—	—
	V DC	5 - 6 - 12 - 24 - 48 - 60 - 110 - 125	5 - 6 - 12 - 24 - 48 - 60 - 110 - 125
Rated power AC/DC	VA (50 Hz)/W	—/0.7	—/0.7
Operating range	AC (50 Hz)	—	—
	DC	(0.75...1.2)U <sub>N</sub>	(0.75...1.2)U <sub>N</sub>
Holding voltage	AC/DC	—/0.4 U <sub>N</sub>	—/0.4 U <sub>N</sub>
Must drop-out voltage	AC/DC	—/0.1 U <sub>N</sub>	—/0.1 U <sub>N</sub>
<b>Technical data</b>			
Mechanical life AC/DC	cycles	—/10 · 10 <sup>6</sup>	—/10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
Operate/release time	ms	10/4	10/4
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1500	1500
Ambient temperature range	°C	-40...+70	-40...+70
Environmental protection		RT II	RT II
<b>Approvals</b> (according to type)			

**PCB Relay with forcibly guided contacts according to EN 61810 (previously EN 50205) Type A**
**Type 50.14...4220/4310**

- 4 pole 8 A (2 NO + 2 NC) or (3 NO + 1 NC)
- Contact AgSnO<sub>2</sub>

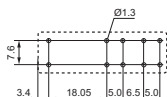
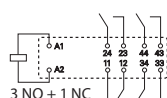
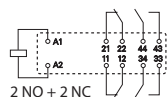
**Type 50.16...5420/5510**

- 6 pole 8 A (4 NO + 2 NC) or (5 NO + 1 NC)
- Contact AgSnO<sub>2</sub> + Au

- High physical separation between adjacent contacts
- Cadmium Free contact materials
- DC coil 800 mW
- 8 mm, 6 kV (1.2/50 μs) isolation, coil-contacts
- PCB mounting
- Wash tight: RT III

**50.14**

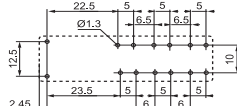
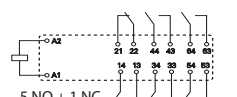
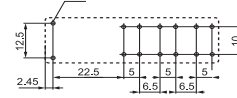
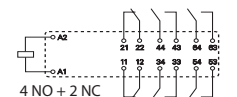

- For safety applications
- 4 pole 8 A
- PCB mounting



Copper side view

**50.16**


- For safety applications
- 6 pole 8 A
- PCB mounting



Copper side view

FOR UL RATINGS SEE:

"General technical information" page V

For outline drawing see page 7

**Contact specification**

Contact configuration		2 NO + 2 NC, 3 NO + 1 NC	4 NO + 2 NC, 5 NO + 1 NC
Rated current/Maximum peak current	A	8/15	8/15
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	2000	2000
Rated load AC15 (230 V AC)	VA	700	1100
Single phase motor rating (230 V AC)	kW	0.37	0.37
Breaking capacity DC1: 30/110/220 V	A	8/0.6/0.2	8/0.6/0.2
Minimum switching load	mW (V/mA)	50 (5/10)	50 (5/10)
Standard contact material		AgSnO <sub>2</sub>	AgSnO <sub>2</sub> + Au

**Coil specification**

Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	—	—
	V DC	12 - 24 - 48 - 110	12 - 24 - 48 - 110
Rated power AC/DC	VA (50 Hz)/W	—/0.8	—/0.8
Operating range	AC (50 Hz)	—	—
	DC	(0.75...1.2)U <sub>N</sub>	(0.75...1.2)U <sub>N</sub>
Holding voltage	AC/DC	—/0.4 U <sub>N</sub>	—/0.4 U <sub>N</sub>
Must drop-out voltage	AC/DC	—/0.1 U <sub>N</sub>	—/0.1 U <sub>N</sub>

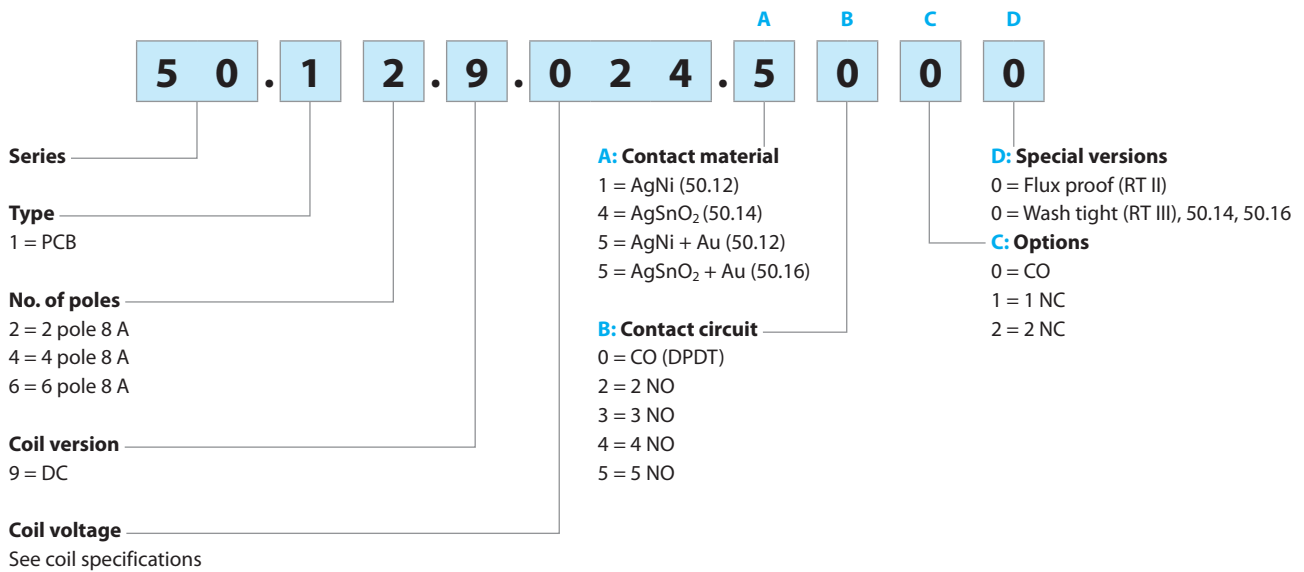
**Technical data**

Mechanical life AC/DC	cycles	—/10 · 10 <sup>6</sup>	—/10 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	100 · 10 <sup>3</sup>	100 · 10 <sup>3</sup>
Operate/release time	ms	10/4	10/4
Insulation between coil and contacts (1.2/50 μs)	kV	6 (8 mm)	6 (8 mm)
Dielectric strength between open contacts	V AC	1500	1500
Ambient temperature range	°C	−40...+70	−40...+70
Environmental protection		RT III	RT III

**Approvals (according to type)**


## Ordering information

Example: 50 series forcibly guided contacts, 2 CO (DPDT) 8 A contacts, 24 V DC coil.

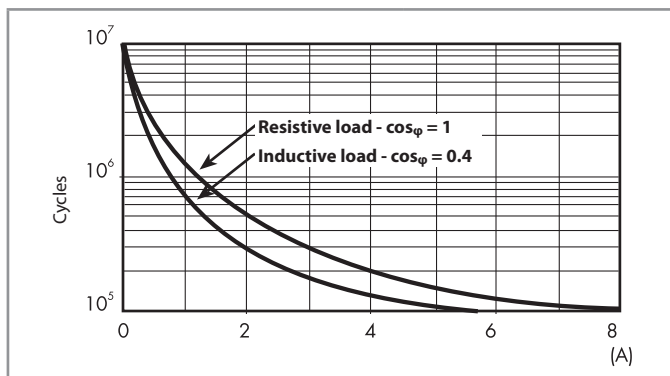


## Technical data

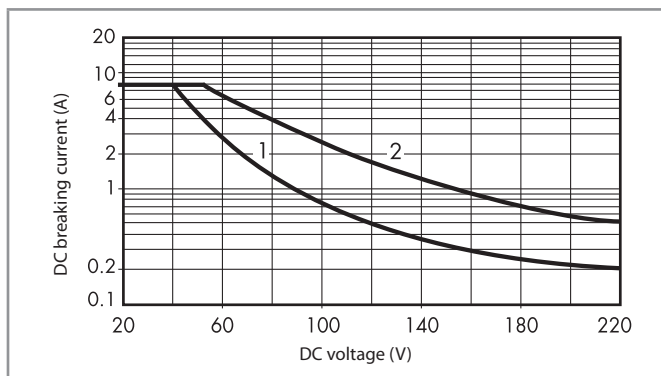
Insulation according to EN 61810-1			
Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	400
Pollution degree		3	2
Insulation between coil and contact set			
Type of insulation		Reinforced (8 mm)	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50 μs)	6	
Dielectric strength	V AC	4000	
Insulation between adjacent contacts			
Type of insulation		Basic	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50 μs)	4	
Dielectric strength (50.12, 50.16)	V AC	3000	
Dielectric strength (50.14)	V AC	2500	
Insulation between open contacts			
Type of disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 μs)	1500/2.5	
Insulation between coil terminals			
Rated impulse voltage (surge) differential mode (according to EN 61000-4-5)	kV(1.2/50 μs)	2	
Other data			
Bounce time: NO/NC	ms	2/10	
Vibration resistance (10...200)Hz: NO/NC	g	20/6	
Shock resistance NO/NC	g	20/5	
Power lost to the environment	without contact current	W	0.7
	with rated current	W	1.2
Recommended distance between relays mounted on PCB	mm	≥ 5	

## Contact specification

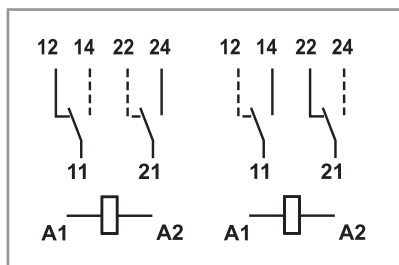
F 50 - Electrical life (AC) v contact current (type 50.12)



H 50 - Maximum DC1 breaking capacity (type 50.12)



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 100 \cdot 10^3$  can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.  
Note: the release time for the load will be increased.



Alternative selection of NO and NC contacts to provide Forcibly guided (mechanically linked) contacts, in accordance with EN 61810-3 (type B).

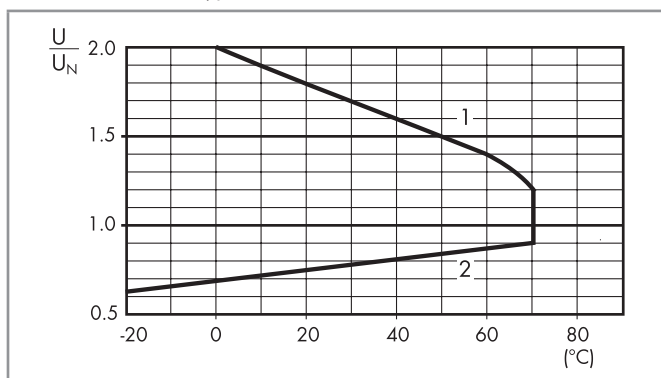
## Coil specifications

DC coil data (type 50.12)

Nominal voltage $U_N$	Coil code	Operating range		Resistance R	Rated coil consumption I at $U_N$
		$U_{min}$	$U_{max}$		
V		V	V	$\Omega$	mA
5	9.005	3.8	6	35	143
6	9.006	4.5	7.2	50	120
12	9.012	9	14.4	205	58.5
24	9.024	18	28.8	820	29.3
48	9.048	36	57.6	3280	14.4
60	9.060	45	72	5140	11.7
110	9.110	82.5	131	17250	6.4
125	9.125	93.7	150	22300	5.6

R 50 - DC coil operating range v ambient temperature

Standard coil (type 50.12)



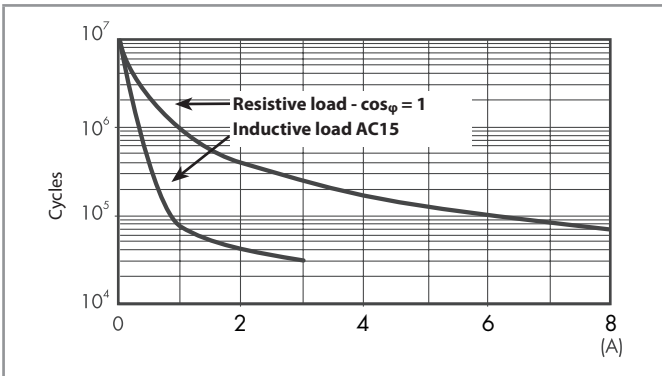
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

DC coil data (type 50.14/16)

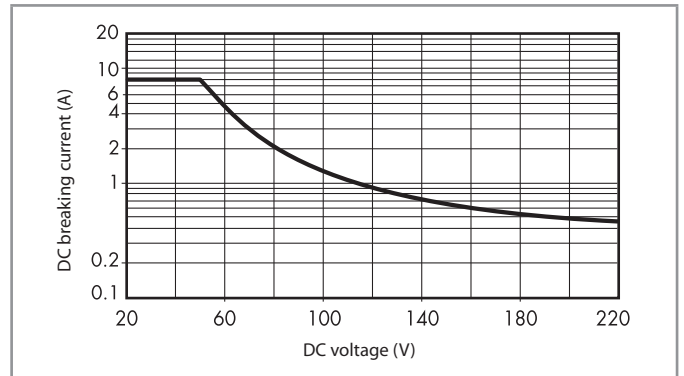
Nominal voltage $U_N$	Coil code	Operating range		Resistance R	Rated coil consumption I at $U_N$
		$U_{min}$	$U_{max}$		
V		V	V	$\Omega$	mA
12	9.012	9	14.4	180	66.6
24	9.024	18	28.8	720	33.3
48	9.048	36	57.6	2880	16.6
110	9.110	82.5	131	15125	7.7

### Contact specification

**F 50 - Electrical life (AC) v contact current (type 50.14)**

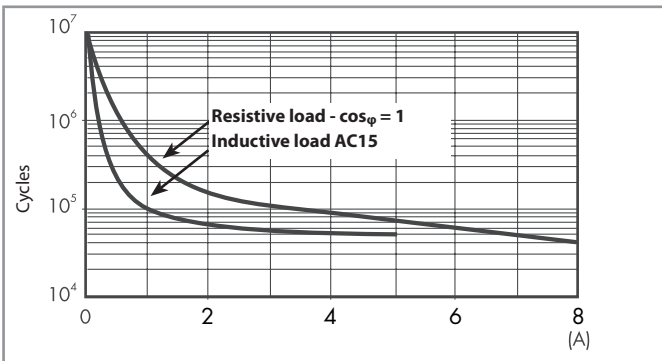


**H 50 - Maximum DC1 breaking capacity (type 50.14)**

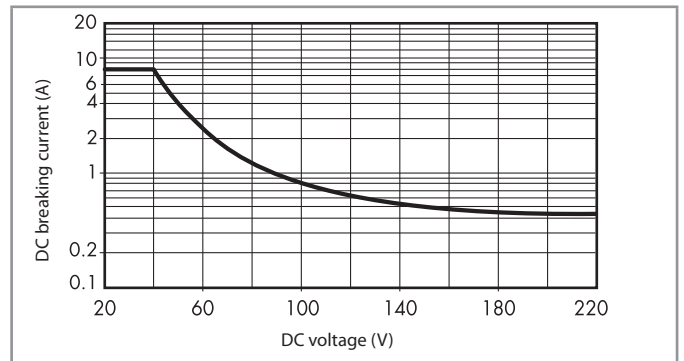


- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 100 \cdot 10^3$  can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.  
Note: the release time for the load will be increased.

**F 50 - Electrical life (AC) v contact current (type 50.16)**



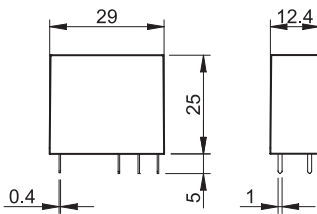
**H 50 - Maximum DC1 breaking capacity (type 50.16)**



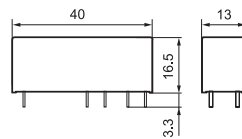
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 100 \cdot 10^3$  can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.  
Note: the release time for the load will be increased.

### Outline drawings

Type 50.12...1000/50.12...5000



Type 50.14



Type 50.16

