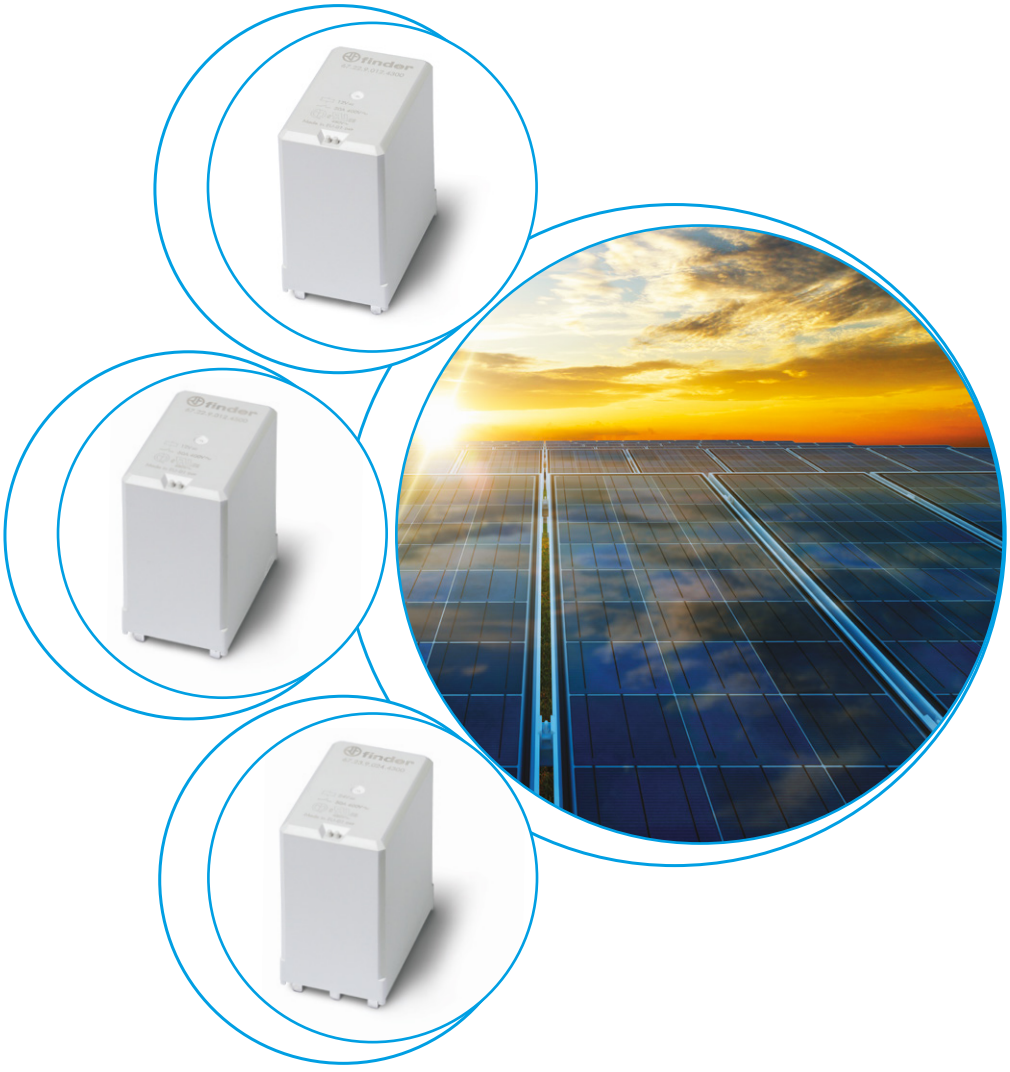
finder
RELAYING INNOVATION

67
SERIES

High Power relay 50 A

- Power generators
- Back-up generators
- Pump control
- Disabled lift
- Inverter



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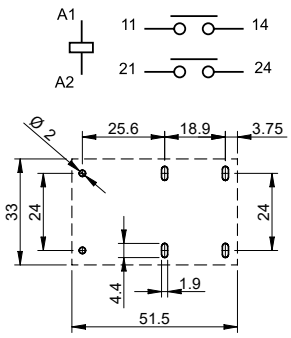
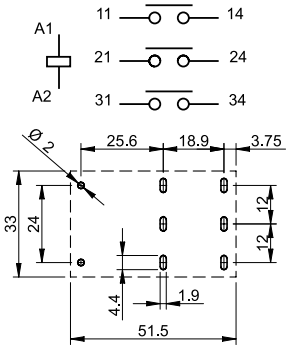
In case of discrepancies between the printed and online versions, the latter prevails.

Printed circuit mount - 3 mm contact gap 50 A Power relay for photovoltaic inverters and high power according to EN 60947-4-1 for AC3 load

Type 67.22-x300
- 2 NO

Type 67.23-x300
- 3 NO
- $AgSnO_2$ version, suitable for AC3 load (EN 60947-4-1)

- Contact gap ≥ 3 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- DC coils, with only 170 mW holding power
- Reinforced insulation between coil and contacts
- 1.5 mm gap between PCB and relay base
- Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energization) or 70 °C (with standard coil energization)
- Meets the EN 60335-1 requirements of resistance to heat and fire (GWIT 775 °C and GWFI 850 °C)
- Cadmium free contact materials:
  - AgNi version (for applications where lower contact resistance is needed)
  - $AgSnO_2$ version (for applications where higher inrush current values are expected)

	67.22-x300	**67.23-x300**
		
	• 2 NO • Contact gap ≥ 3 mm • PCB mount	• 3 NO • Contact gap ≥ 3 mm • Suitable for AC3 load • PCB mount
		
For outline drawing see page 8	Copper side view	Copper side view
Contact specification		
Contact configuration	2 NO (DPST-NO)	3 NO (3PST-NO)
Contact gap mm	≥ 3	≥ 3
Rated current/ Maximum peak current (for 5 ms) A	50/150	50/150
Rated voltage/ Maximum switching voltage V AC	400/690	400/690
Rated load AC1/AC7a (per pole) VA	20 000	20 000
Rated load AC7a (@ 105 °C) A	—	25
Rated load AC3 (@ 40 °C) A	—	12
Rated load AC15 (per pole @ 230 V AC) VA	2300	2300
Single-phase motor rating (230 V AC) kW	2.2	2.2
Three-phase motor rating (480 V AC) kW	—	11
Breaking capacity DC1: 24/110/220 V A	50/4/1	50/4/1
Minimum switching load mW (V/mA)	1000 (10/10)	1000 (10/10)
Standard contact material	$AgSnO_2$	$AgSnO_2$
Coil specification		
Nominal voltage (U_N) V DC	5 - 6 - 8 - 12 - 24 - 48	
Rated power W	1.7	1.7
Operating range (–40…+70)°C DC	(0.90 …1.1)U_N	(0.90 …1.1)U_N
Energy-saving mode (–40…+85)°C		
Operating range for 1 s	(0.95…2.5)U_N	(0.95…2.5)U_N
Holding voltage range DC	(0.32…0.65)U_N	(0.32…0.65)U_N
Minimum holding power W	0.17	0.17
Must drop-out voltage DC	0.05 U_N	0.05 U_N
Technical data		
Mechanical life cycles	$1 \cdot 10^6$	$1 \cdot 10^6$
Electrical life at rated load AC7a cycles	$30 \cdot 10^3$	$30 \cdot 10^3$
Electrical life at rated load AC3 cycles	—	100 000
Operate/release time ms	25/5	25/5
Ambient temperature range (energy-saving mode) °C	–40…+70 (–40…+85)	–40…+70 (–40…+85)
Environmental protection	RT II	RT II
Approvals (according to type)	EAC cULus 03	

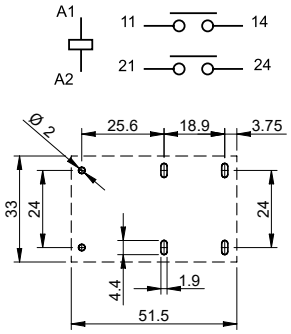
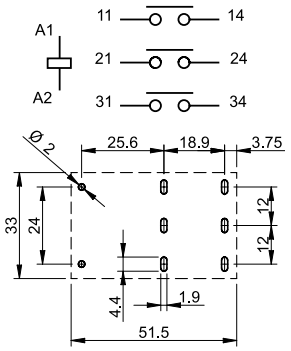
A

Printed circuit mount - 5.2 mm contact gap 50 A Power relay for photovoltaic inverters

Type 67.22-x500
- 2 NO

Type 67.23-x500
- 3 NO

- Contact gap ≥ 5.2 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2)
- DC coils, with only 170 mW holding power
- Reinforced insulation between coil and contacts
- 1.5 mm gap between PCB and relay base
- Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energization) or 60 °C (with standard coil energization)
- Meets the EN 60335-1 requirements of resistance to heat and fire (GWIT 775 °C and GWFI 850 °C)
- Cadmium free contact materials:
  - AgNi version (for applications where lower contact resistance is needed)
  - $AgSnO_2$ version (for applications where higher inrush current values are expected)

		67.22-x500	**67.23-x500**
			
		• 2 NO • Contact gap ≥ 5.2 mm • PCB mount	• 3 NO • Contact gap ≥ 5.2 mm • PCB mount
			
For outline drawing see page 8		Copper side view	Copper side view
Contact specification			
Contact configuration		2 NO (DPST-NO)	3 NO (3PST-NO)
Contact gap	mm	≥ 5.2	≥ 5.2
Rated current/ Maximum peak current (for 5 ms)	A	50/150	50/150
Rated voltage/ Maximum switching voltage	V AC	400/690	400/690
Rated load AC1/AC7a (per pole)	VA	20 000	20 000
Rated load AC15 (per pole @ 230 V AC)	VA	2300	2300
Single-phase motor rating (230 V AC)	kW	2.2	2.2
Three-phase motor rating (480 V AC)	kW	—	11
Breaking capacity DC1: 24/110/220	A	50/7/2	50/7/2
Minimum switching load	mW (V/mA)	1000 (10/10)	1000 (10/10)
Standard contact material		$AgSnO_2$	$AgSnO_2$
Coil specification			
Nominal voltage (U_N)	V DC	5 - 6 - 8 - 12 - 24 - 48	
Rated power	W	2.7	2.7
Operating range (–40…+60)°C	DC	(0.90 …1.1)U_N	(0.90 …1.1)U_N
Energy-saving mode (–40…+85)°C			
Operating range for 1 s		(0.95…2.5)U_N	(0.95…2.5)U_N
Holding voltage range	DC	(0.25…0.5)U_N	(0.25…0.5)U_N
Minimum holding power	W	0.17	0.17
Must drop-out voltage	DC	0.05 U_N	0.05 U_N
Technical data			
Mechanical life	cycles	$1 \cdot 10^6$	$1 \cdot 10^6$
Electrical life at rated load AC7a	cycles	$30 \cdot 10^3$	$30 \cdot 10^3$
Operate/release time	ms	30/4	30/4
Ambient temperature range (energy-saving mode)	°C	–40…+60 (–40…+85)	–40…+60 (–40…+85)
Environmental protection		RT II	RT II
Approvals (according to type)			

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Ordering information

Example: 67 series solar relay, single PCB terminals, 2 pole NO, ≥ 3 mm contact gap.

											A	B	C	D		
6	7	.	2	3	.	9	.	0	1	2	.	4	3	0	0	

Series

Type
2 = Single PCB terminals, 1.5 mm gap between PCB and relay base

No. of poles
2 = 2 pole
3 = 3 pole

Coil version
9 = DC

Coil voltage
See coil specifications

A: Contact material
1 = AgNi
4 = Standard $AgSnO_2$

B: Contact circuit
3 = NO, ≥ 3 mm contact gap
5 = NO, ≥ 5.2 mm contact gap

C: Options
0 = None

D: Special versions
0 = Standard
1 = Wash tight (RT III)

S = Version suggested for 100 A switching, provided the 3 contacts are connected in parallel (only 67.23…430xS)

Technical data

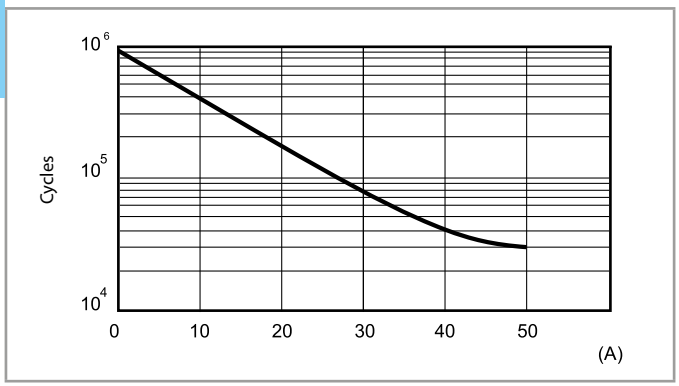
Insulation according to EN 61810-1				
Nominal voltage of supply system	V AC	400/690 3-phase	400 1-phase	230/400
Rated insulation voltage	V AC	630	400	400
Pollution degree		3		
Insulation between coil and contact set				
Type of Insulation		Reinforced		
Overvoltage category		III		
Rated impulse voltage	kV (1.2/50 µs)	6		
Dielectric strength	V AC	4000		
Insulation between adjacent contacts				
Type of Insulation		Basic		
Overvoltage category		III		
Rated impulse voltage	kV (1.2/50 µs)	6		
Dielectric strength	V AC	2500		
Insulation between open contacts				
Type of disconnection		Micro-disconnection*		Full-disconnection
Overvoltage category		—		III
Rated impulse voltage	kV (1.2/50 µs)	—		4
Dielectric strength	V AC	2500 (67.xx-x300)/3000 (67.xx-x500)		
Insulation between coil terminals				
Rated impulse voltage (according to EN 61180)	kV (1.2/50 µs)	4		
Other data				
Bounce time: NO	ms	2		
Vibration resistance (10…150)Hz: NO	g	15		
Shock resistance	g	35		
Power lost to the environment — without contact current	W	1.7 (67.xx-x300)/2.7 (67.xx-x500)		
Power lost to the environment — with rated current	W	8.5 (67.xx-x300)/9.5 (67.xx-x500)		
Recommended distance between relays mounted on PCB	mm	≥ 20		
Short circuit protection				
Rated conditional short circuit current	kA	5		
Back-up fuse for motor load	A	30 (delayed type)		

* with overvoltage category II: Full-disconnection

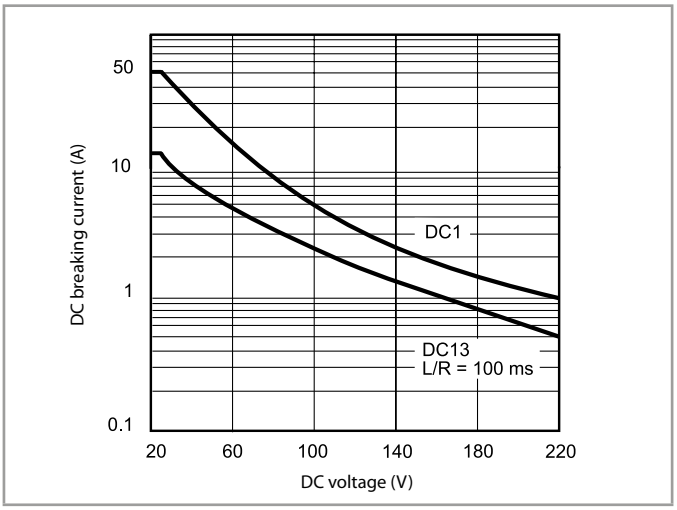
Contact specification

A

F 67 - Electrical life v contact current (AC1/AC7a load)

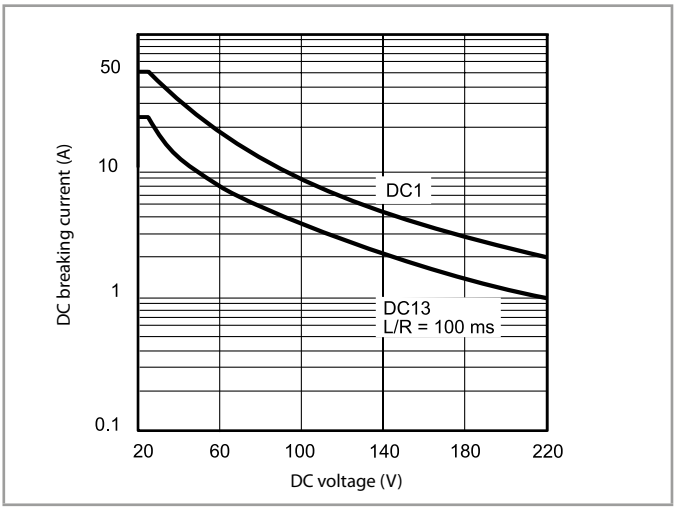


H 67-1 - Maximum DC breaking capacity (67.xx-x300)



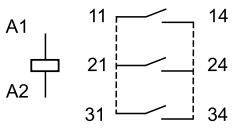
When switching a resistive (DC1) or inductive (DC13) load having voltage and current values under the corresponding curve, an electrical life of > 30000 cycles can be expected.

H 67-2 - Maximum DC breaking capacity (67.xx-x500)



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.

Connection of contacts in parallel



Connecting in parallel the contacts, with appropriate dimensioning of tracks on PC board, allow the relays to carry and switch loads up to 100 A:
- 100 A, with 67.23…4300S version
- 80 A, with 67.23…1300 version

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Coil specifications

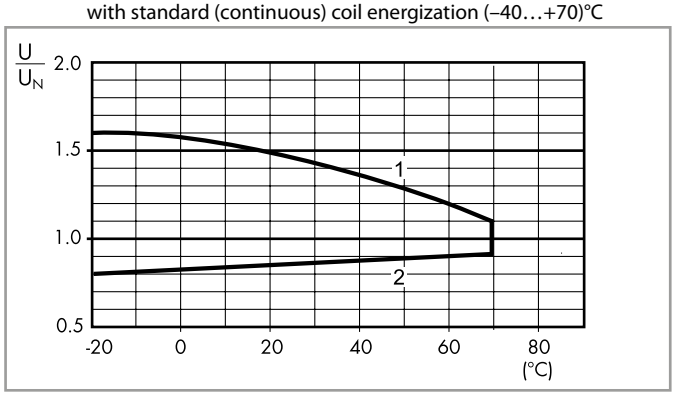
DC coil data, 67.xx-x300

Nominal voltage U_N	Coil code	Operating range (@ 70 °C max) U_{min}	U_{max}	Holding voltage U_h	Resistance R	Rated coil consumption I at U_N I_N
V		V	V	V	Ω	mA
5	**9**.005	4.5	5.5	1.6	14.7	340
6	**9**.006	5.4	6.6	1.9	21.5	279
8	**9**.008	7.2	8.8	2.6	37.6	213
12	**9**.012	10.8	13.2	3.8	85	141
24	**9**.024	21.6	26.4	7.7	340	71
48	**9**.048	43.2	52.8	15.4	1355	35

DC coil data, 67.xx-x500

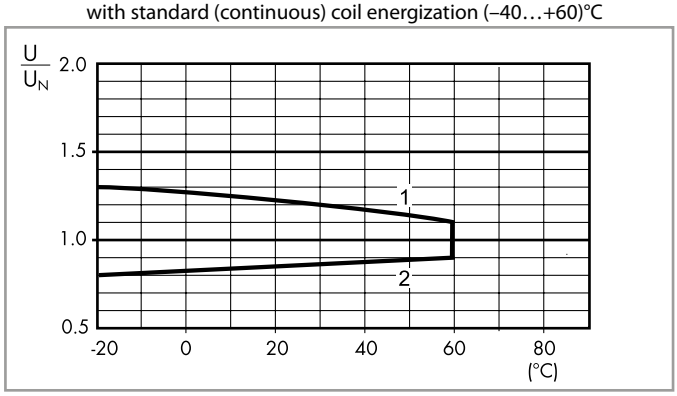
Nominal voltage U_N	Coil code	Operating range (@ 60 °C max) U_{min}	U_{max}	Holding voltage U_h	Resistance R	Rated coil consumption I at U_N I_N
V		V	V	V	Ω	mA
5	**9**.005	4.5	5.5	1.25	9.3	538
6	**9**.006	5.4	6.6	1.5	13.5	444
8	**9**.008	7.2	8.8	2	23.7	338
12	**9**.012	10.8	13.2	3	53.5	224
24	**9**.024	21.6	26.4	6	213	113
48	**9**.048	43.2	52.8	12	855	56

R 67-1 - Operating range v ambient temperature, 67.xx-x300
with standard (continuous) coil energization (–40…+70)°C



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

R 67-2 - Operating range v ambient temperature, 67.xx-x500
with standard (continuous) coil energization (–40…+60)°C

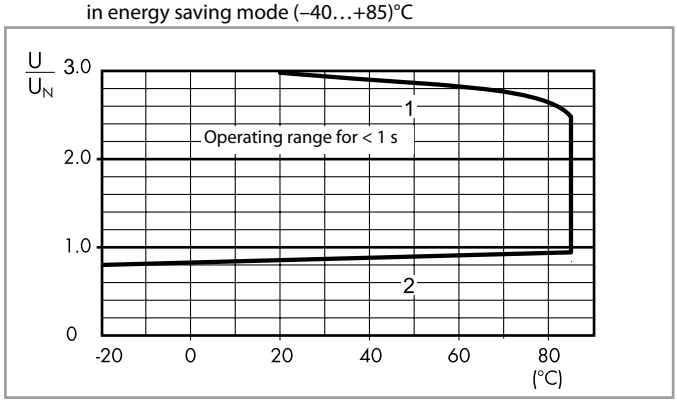


1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

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 right) 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 (0.17 W minimum).
Coil voltages as high as 2.5 U_N may be used, when necessary, to reduce the contact operate time.

R 67-3 - Operating range v ambient temperature, 67.xx-x300/x500
in energy saving mode (–40…+85)°C

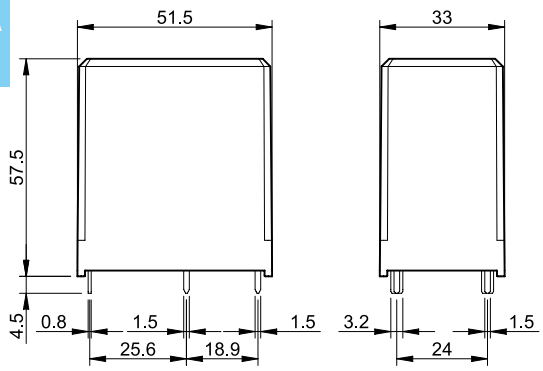


1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

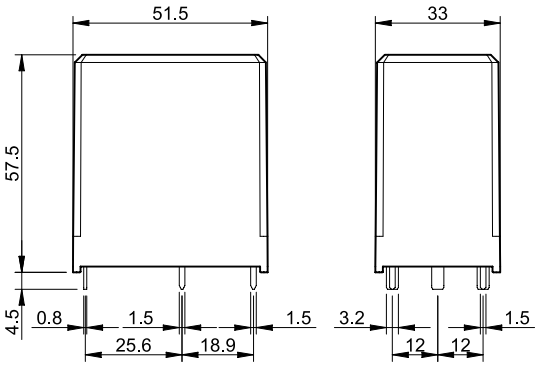
Outline drawings

A

Type 67.22



Type 67.23



Please see general technical information

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