

# Power relays 20 - 30 A



Infrared and  
microwave  
ovens



Industrial washing  
machines



Burners,  
boilers and  
furnaces



Jacuzzis and  
hot tubs



Power  
generators



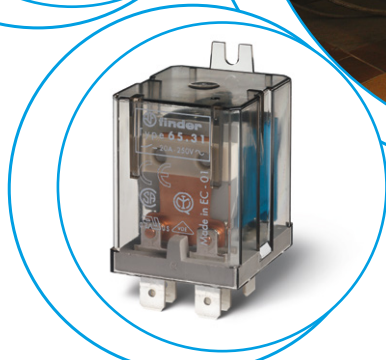
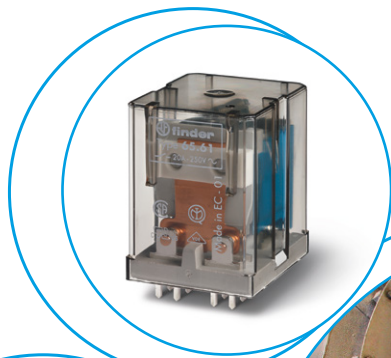
Panels for electrical  
distribution



Back-up  
generators



Industrial  
motors



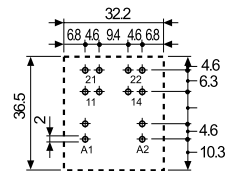
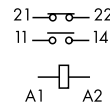
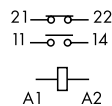
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**20 A Power relays**  
**1 NO + 1 NC (SPST-NO + SPST-NC)**  
**Type 65.31**  
 - Flange mount and Faston 250 connections  
**Type 65.61**  
 - PCB mount  
 • AC coils & DC coils



- 20 A rated contacts
- Faston 250 (6.3 x 0.8 mm) connection
- Flange mount

- 20 A rated contacts
- PCB mount
- Bifurcated terminals



Copper side view

\* Maximum peak current is 120 A - 5 ms on NO contact.

FOR UL RATINGS SEE:

"General technical information" page IX

For outline drawing see page 7

**Contact specification**

Contact configuration	1NO + 1NC (SPST-NO+SPST-NC)	1NO + 1NC (SPST-NO+SPST-NC)
Rated current/Maximum peak current	A	20/120*
Rated voltage/Maximum switching voltage	V AC	250/400
Rated load AC1	VA	5000
Rated load AC15 (230 V AC)	VA	1000
Single phase motor rating (230 V AC)	kW	1.1
Breaking capacity DC1: 24/110/220 V	A	20/0.8/0.5
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 AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3
Operating range	AC	(0.8...1.1)U <sub>N</sub>
	DC	(0.85...1.1)U <sub>N</sub>
Holding voltage	AC/DC	0.8 U <sub>N</sub> / 0.6 U <sub>N</sub>
Must drop-out voltage	AC/DC	0.2 U <sub>N</sub> / 0.1 U <sub>N</sub>

**Technical data**

Mechanical life AC/DC	cycles	10 · 10 <sup>6</sup> / 30 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	80 · 10 <sup>3</sup>
Operate/release time	ms	10/12
Insulation between coil and contacts (1.2/50 μs)	kV	4
Dielectric strength between open contacts	V AC	1500
Ambient temperature range	°C	-40...+75
Environmental protection		RT I

**Approvals** (according to type)



**30 A Power relays**  
**1 NO (SPST-NO)**
**Type 65.31-4300**

- Flange mount and Faston 250 connections

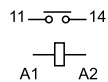
**Type 65.61-4300**

- PCB mount

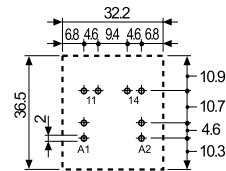
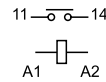
- $\geq 3$  mm contact gap
- AC coils & DC coils

**65.31-4300**


- 30 A rated contacts
- Faston 250 (6.3 x 0.8 mm) connection
- Flange mount


**65.61-4300**


- 30 A rated contacts
- PCB mount
- Bifurcated terminals



Copper side view

 \* Distance between contacts  $\geq 3$  mm (EN 60335-1).

\*\* Maximum peak current is 120 A - 5 ms on NO contact.

FOR UL RATINGS SEE:

"General technical information" page IX

For outline drawing see page 7

**Contact specification**

		1 NO (SPST-NO), $\geq 3$ mm*	1 NO (SPST-NO), $\geq 3$ mm*
Contact configuration		1 NO (SPST-NO), $\geq 3$ mm*	1 NO (SPST-NO), $\geq 3$ mm*
Rated current/Maximum peak current	A	30/120**	30/120**
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	7500	7500
Rated load AC15 (230 V AC)	VA	1250	1250
Single phase motor rating (230 V AC)	kW	1.5	1.5
Breaking capacity DC1: 24/110/220 V	A	30/1.1/0.7	30/1.1/0.7
Minimum switching load	mW (V/mA)	1000 (10/10)	1000 (10/10)
Standard contact material		AgSnO <sub>2</sub>	AgSnO <sub>2</sub>

**Coil specification**

Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3
Operating range	AC	(0.8...1.1)U <sub>N</sub>
	DC	(0.85...1.1)U <sub>N</sub>
Holding voltage	AC/DC	0.8 U <sub>N</sub> / 0.6 U <sub>N</sub>
Must drop-out voltage	AC/DC	0.2 U <sub>N</sub> / 0.1 U <sub>N</sub>

**Technical data**

Mechanical life AC/DC	cycles	10 · 10 <sup>6</sup> / 30 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	50 · 10 <sup>3</sup>
Operate/release time	ms	15/4
Insulation between coil and contacts (1.2/50 μs)	kV	4
Dielectric strength between open contacts	V AC	2500
Ambient temperature range	°C	-40...+75
Environmental protection		RT I

**Approvals** (according to type)


## Ordering information

Example: 65 series power relay, PCB with bifurcated terminals, 1 NO + 1 NC (SPST-NO + SPST-NC) contact, 12 V DC coil.

	<b>6</b>	<b>5</b>	.	<b>6</b>		<b>1</b>	.	<b>9</b>	.	<b>0</b>	<b>1</b>	<b>2</b>	.	<b>4</b>	<b>0</b>		<b>0</b>	<b>0</b>	
														<b>A</b>	<b>B</b>		<b>C</b>	<b>D</b>	
<b>Series</b>	65			6		1		9		012				4	0		0	0	
<b>Type</b>	3 = Faston 250 (6.3 x 0.8 mm) with rear flange mount 6 = PCB with bifurcated terminals													<b>A: Contact material</b> 4 = AgSnO <sub>2</sub>				<b>D: Special versions</b> 0 = Standard 9 = Type 65.31 without rear flange mount	
<b>No. of poles</b>	1 = 1 NO + 1 NC (SPST-NO + SPST-NC)													<b>B: Contact circuit</b> 0 = 1 NO + 1 NC (SPST-NO + SPST-NC) 3 = NO (≥ 3 mm contact gap)				<b>C: Options</b> 0 = None	
<b>Coil version</b>	8 = AC (50/60 Hz) 9 = DC																		
<b>Coil voltage</b>	See coil specifications																		

**Selecting features and options: only combinations in the same row are possible.**  
Preferred selections for best availability are shown in **bold**.

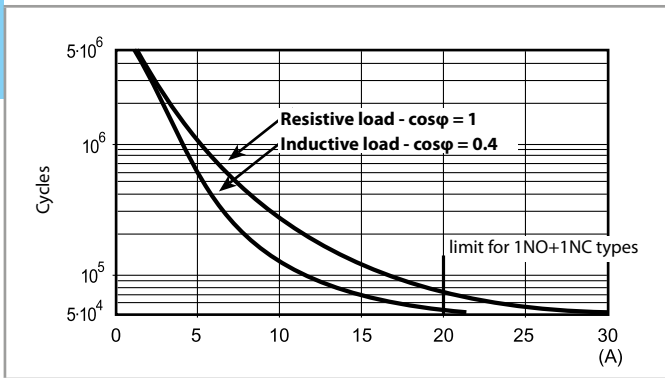
Type	Coil version	A	B	C	D
65.31	AC-DC	4	<b>0</b> - 3	<b>0</b>	<b>0</b> - 9
65.61	AC-DC	4	<b>0</b> - 3	<b>0</b>	<b>0</b>

## Technical data

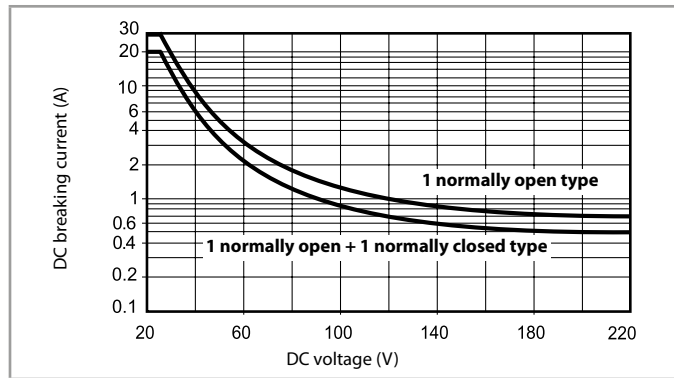
Insulation according to EN 61810-1					
		1 NO + 1 NC		1 NO	
Nominal voltage supply system	V AC	230/400		230/400	
Rated insulation voltage	V AC	250	400	250	400
Pollution degree		3	2	3	2
<b>Insulation between coil and contact set</b>					
Type of insulation		Basic		Basic	
Overtoltage category		III		III	
Rated impulse voltage	kV (1.2/50 μs)	4		4	
Dielectric strength	V AC	2500		2500	
<b>Insulation between open contacts</b>					
Type of disconnection		Micro-disconnection		Full-disconnection	
Overtoltage category		—		III	
Rated impulse voltage	kV (1.2/50 μs)	—		4	
Dielectric strength	V AC/kV (1.2/50 μs)	1500/2		2500/4	
<b>Insulation between coil terminals</b>					
Rated impulse voltage (according to EN 61180)	kV (1.2/50 μs)	4			
<b>Other data</b>					
Bounce time: NO/NC	ms	5/6 (1 NO + 1 NC)		7/— (1 NO)	
Vibration resistance (10...150)Hz: NO/NC	g	20/13			
Shock resistance	g	20			
Power lost to the environment	without contact current	W	1.3		
	with rated current	W	2.1 (65.31, 65.61)		3.1 (65.31/61.4300)
Recommended distance between relays mounted on PCB	mm	≥ 5			

### Contact specification

F 65 - Electrical life (AC) v contact current



H 65 - Maximum DC1 breaking capacity



- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of  $\geq 80 \cdot 10^3$  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.

### Coil specifications

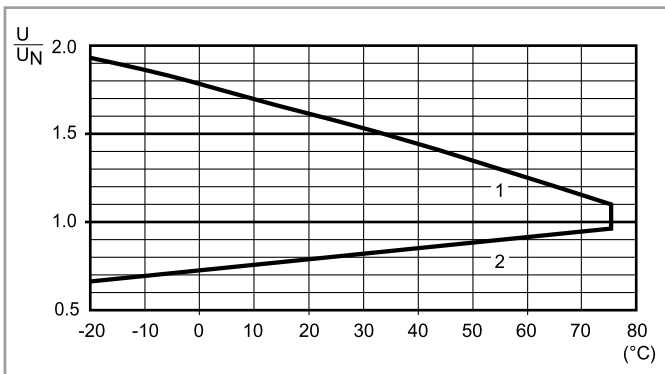
DC coil data

Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ mA
		$U_{min}$ V	$U_{max}$ V		
6	9.006	5.1	6.6	28	214
12	9.012	10.2	13.2	110	109
24	9.024	20.4	26.4	445	54
48	9.048	40.8	52.8	1770	27.1
60	9.060	51	66	2760	21.7
110	9.110	93.5	121	9420	11.7
125	9.125	106	138	12000	10.4
220	9.220	187	242	37300	5.8

AC coil data

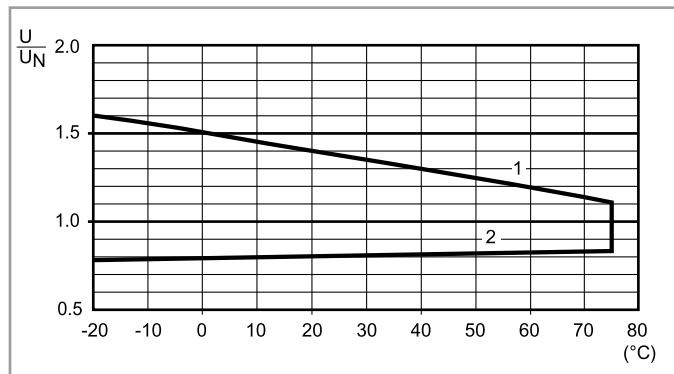
Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ (50 Hz) mA
		$U_{min}$ V	$U_{max}$ V		
6	8.006	4.8	6.6	4.6	367
12	8.012	9.6	13.2	19	183
24	8.024	19.2	26.4	74	90
48	8.048	38.4	52.8	290	47
60	8.060	48	66	450	37
110	8.110	88	121	1600	20
120	8.120	96	132	1940	18.6
230	8.230	184	253	7250	10.5
240	8.240	192	264	8500	9.2
400	8.400	320	440	19800	6

R 65 - DC coil operating range v ambient temperature



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

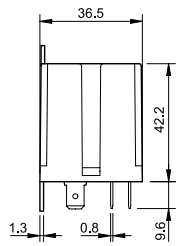
R 65 - AC coil operating range v ambient temperature



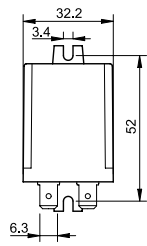
- 1 - Max. permitted coil voltage.
- 2 - Min. pick-up voltage with coil at ambient temperature.

### Outline drawings

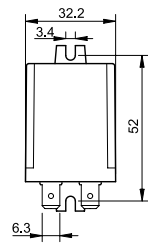
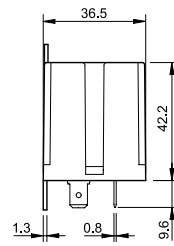
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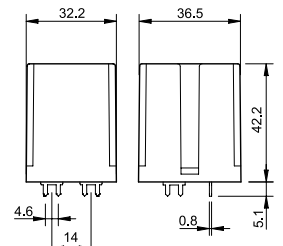
Type 65.61



Type 65.31-4300



Type 65.61-4300



### Accessories



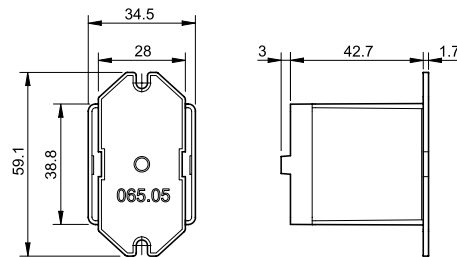
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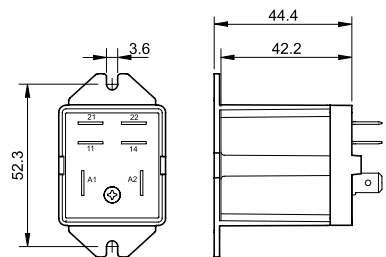
065.05 with relay

Top flange mount for types 65.31.x.xxx.xxx9

065.05



065.05



065.05 with relay



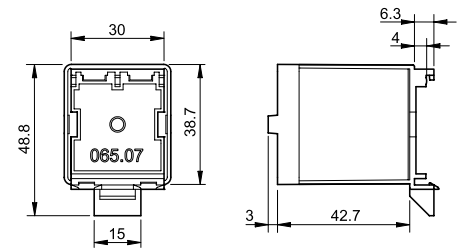
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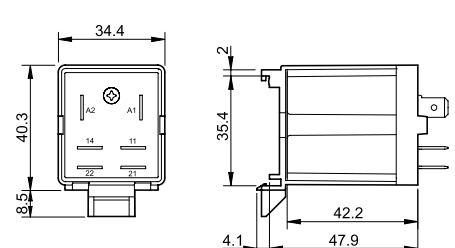
065.07 with relay

Top 35 mm rail (EN 60715) mount for types 65.31.x.xxx.xxx9

065.07



065.07



065.07 with relay



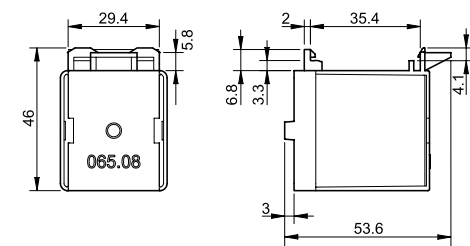
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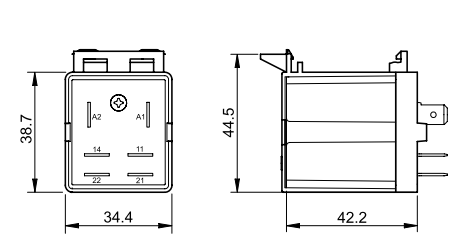
065.08 with relay

Rear 35 mm rail (EN 60715) mount for types 65.31.x.xxx.xxx9

065.08



065.08



065.08 with relay

