

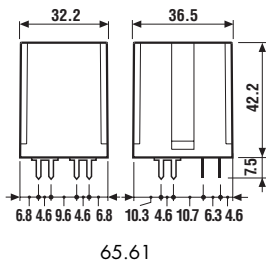
**Features**

**20 A Power relays**  
**1 NO + 1 NC (SPST-NO + SPST-NC)**

**65.31 Flange mount**  
**(Faston 250 connections)**

**65.61 PCB mount**

- AC coils & DC coils
- Cadmium Free option available

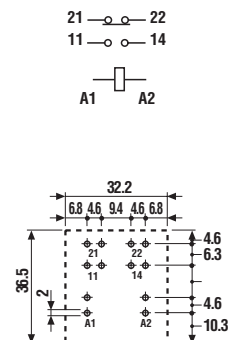
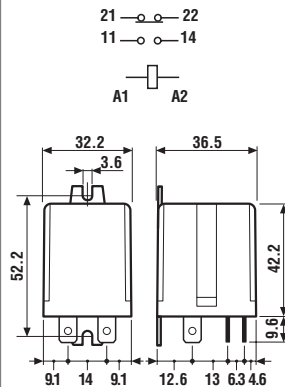


\* With the AgSnO<sub>2</sub> material the maximum peak current is 120 A - 5 ms on NO contact.

**65.31**
**65.61**


- 20 A rated contacts
- Flange mount/Faston 250 (6.3x0.8 mm) connection

- 20 A rated contacts
- PCB mount - bifurcated terminals



Copper side view

<b>Contact specification</b>		65.31	65.61
Contact configuration		1NO+1NC (SPST-NO+SPST-NC)	1NO+1NC (SPST-NO+SPST-NC)
Rated current/Maximum peak current	A	20/40*	20/40*
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	5,000	5,000
Rated load AC15 (230 V AC)	VA	1,000	1,000
Single phase motor rating (230 V AC)	kW	1.1	1.1
Breaking capacity DC1: 30/110/220 V	A	20/0.8/0.5	20/0.8/0.5
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
<b>Coil specification</b>		65.31	65.61
Nominal voltage (U <sub>N</sub> )	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	(0.8...1.1)U <sub>N</sub>	(0.8...1.1)U <sub>N</sub>
	DC	(0.85...1.1)U <sub>N</sub>	(0.85...1.1)U <sub>N</sub>
Holding voltage	AC/DC	0.8 U <sub>N</sub> /0.6 U <sub>N</sub>	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>	0.2 U <sub>N</sub> /0.1 U <sub>N</sub>
<b>Technical data</b>		65.31	65.61
Mechanical life AC/DC	cycles	10 · 10 <sup>6</sup> /30 · 10 <sup>6</sup>	10 · 10 <sup>6</sup> /30 · 10 <sup>6</sup>
Electrical life at rated load AC1	cycles	80 · 10 <sup>3</sup>	80 · 10 <sup>3</sup>
Operate/release time	ms	10/12	10/12
Insulation between coil and contacts (1.2/50 μs)	kV	4	4
Dielectric strength between open contacts	V AC	1,500	1,500
Ambient temperature range	°C	-40...+75	-40...+75
Environmental protection		RT I	RT I
<b>Approvals</b> (according to type)			

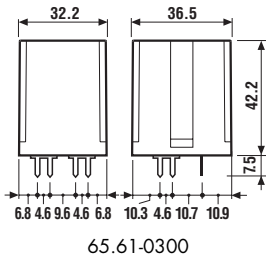
## Features

30 A Power relays  
1 NO (SPST-NO)

65.31-0300 Flange mount  
(Faston 250 connections)

65.61-0300 PCB mount

- $\geq 3$  mm contact gap
- AC coils & DC coils
- Cadmium Free option available



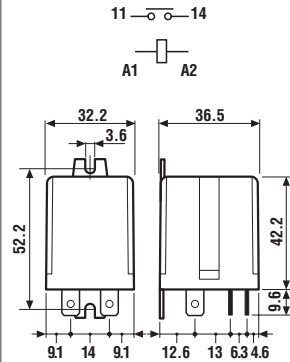
65

- \* Distance between contacts  $\geq 3$  mm (EN 60335-1).
- \*\* With the  $\text{AgSnO}_2$  material the maximum peak current is 120 A - 5 ms on NO contact.

### 65.31-0300



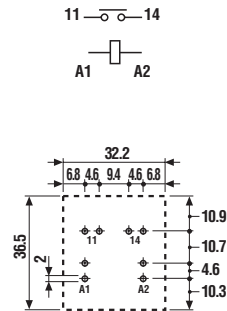
- 30 A rated contacts
- Flange mount/Faston 250 (6.3x0.8 mm) connection



### 65.61-0300



- 30 A rated contacts
- PCB mount - bifurcated terminals



Copper side view

Contact specification		65.31-0300	65.61-0300
Contact configuration		1 NO, $\geq 3$ mm*	1 NO, $\geq 3$ mm*
Rated current/Maximum peak current	A	30/50**	30/50**
Rated voltage/Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	7,500	7,500
Rated load AC15 (230 V AC)	VA	1,250	1,250
Single phase motor rating (230 V AC)	kW	1.5	1.5
Breaking capacity DC1: 30/110/220 V	A	30/1.1/0.7	30/1.1/0.7
Minimum switching load	mW (V/mA)	1,000 (10/10)	1,000 (10/10)
Standard contact material		AgCdO	AgCdO
Coil specification		65.31-0300	65.61-0300
Nominal voltage ( $U_N$ )	V AC (50/60 Hz)	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400	6 - 12 - 24 - 48 - 60 - 110 - 120 - 230 - 240 - 400
	V DC	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220	6 - 12 - 24 - 48 - 60 - 110 - 125 - 220
Rated power AC/DC	VA (50 Hz)/W	2.2/1.3	2.2/1.3
Operating range	AC	$(0.8 \dots 1.1) U_N$	$(0.8 \dots 1.1) U_N$
	DC	$(0.85 \dots 1.1) U_N$	$(0.85 \dots 1.1) U_N$
Holding voltage	AC/DC	$0.8 U_N / 0.6 U_N$	$0.8 U_N / 0.6 U_N$
Must drop-out voltage	AC/DC	$0.2 U_N / 0.1 U_N$	$0.2 U_N / 0.1 U_N$
Technical data		65.31-0300	65.61-0300
Mechanical life AC/DC	cycles	$10 \cdot 10^6 / 30 \cdot 10^6$	$10 \cdot 10^6 / 30 \cdot 10^6$
Electrical life at rated load AC1	cycles	$50 \cdot 10^3$	$50 \cdot 10^3$
Operate/release time	ms	15/4	15/4
Insulation between coil and contacts (1.2/50 $\mu$ s)	kV	4	4
Dielectric strength between open contacts	V AC	2,500	2,500
Ambient temperature range	$^{\circ}$ C	-40...+75	-40...+75
Environmental protection		RT I	RT I
Approvals (according to type)			

## Ordering information

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

	<b>6</b>	<b>5</b>	<b>.</b>	<b>6</b>	<b>1</b>	<b>.</b>	<b>9</b>	<b>.</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>.</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Series</b>													<b>A: Contact material</b>			<b>D: Special versions</b>
<b>Type</b>													0 = Standard AgCdO			0 = Standard
3 = Faston 250 (6.3x0.8 mm) with rear flange mount													4 = AgSnO <sub>2</sub>			5 = Top flange mount
<b>No. of poles</b>													<b>B: Contact circuit</b>			7 = Top 35 mm rail (EN 50022) mount
1 = 1 NC + 1 NO (SPST-NO + SPST-NC)													0 = 1 NO + 1 NC (SPST-NO + SPST-NC)			8 = Rear 35 mm rail (EN 50022) mount
<b>Coil version</b>													3 = NO (≥ 3 mm contact gap)			<b>C: Options</b>
8 = AC (50/60 Hz)																0 = None
9 = DC													<b>Selecting features and options: only combinations in the same row are possible.</b>			
<b>Coil voltage</b>													Preferred selections for best availability are shown in <b>bold</b> .			
see coil specifications																

Type	Coil version	A	B	C	D
65.31	AC-DC	<b>0</b> - 4	<b>0</b> - 3	<b>0</b>	<b>0</b> - 5 - 7 - 8
65.61	AC-DC	<b>0</b> - 4	<b>0</b> - 3	<b>0</b>	<b>0</b>

## Descriptions: Options and Special versions



**D: Special version 5**  
Top flange mount

**D: Special version 7**  
Top 35 mm rail mount

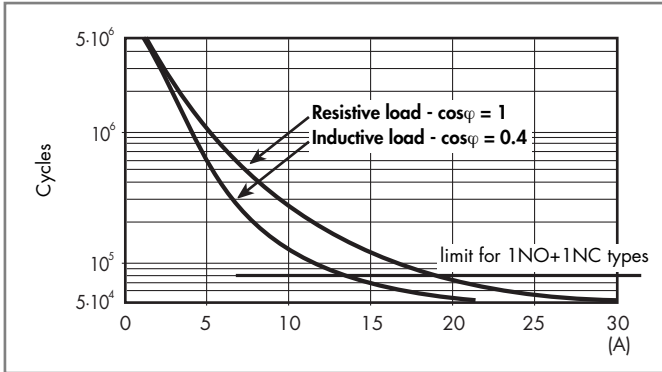
**D: Special version 8**  
Rear 35 mm rail mount

## Technical data

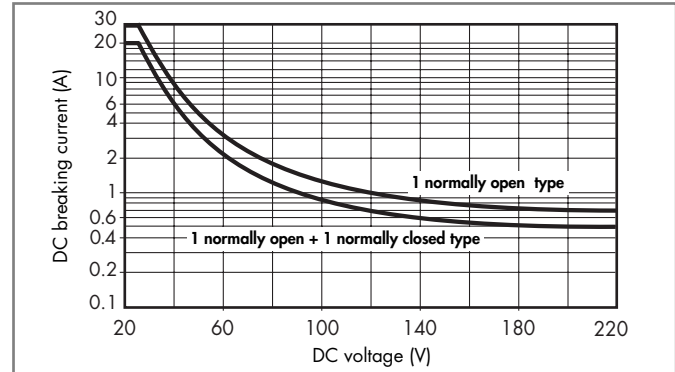
Insulation			
Insulation according to EN 61810-1 ed. 2	insulation rated voltage	V	250
	rated impulse withstand voltage	kV	4
	pollution degree		3
	overvoltage category		III
Insulation between coil and contacts (1.2/50 μs)		kV	4
Dielectric strength between open contacts		V AC	1,500 (changeover); 2,500 (normally open)
Conducted disturbance immunity			
Burst (5...50)ns, 5 kHz, on A1 - A2		EN 61000-4-4	level 4 (4 kV)
Surge (1.2/50 μs) on A1 - A2 (differential mode)		EN 61000-4-5	level 4 (4 kV)
Other data			
Bounce time: NO/NC	ms	5/6 (1 normally open + 1 normally closed)	7/- (normally open)
Vibration resistance (5...55)Hz, max. ± 1 mm: NO/NC	g/g	10/4	
Shock resistance	g	15	
Power lost to the environment		<b>1 normally open+1 normally closed</b>	<b>1 normally open</b>
	without contact current	W	1.3
	with rated current	W	2.1
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.

65

## Coil specifications

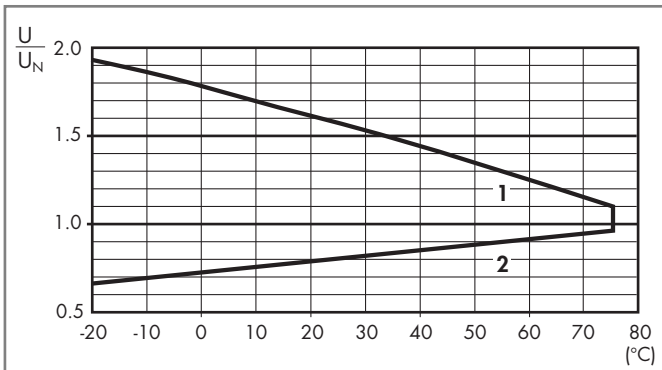
DC coil data

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	8.8	26.4	445	54
48	9.048	40.8	52.8	1,770	27.1
60	9.060	51	66	2,760	21.7
110	9.110	93.5	121	9,420	11.7
125	9.125	100	137.5	12,000	10.4
220	9.220	176	242	37,300	5.8

AC coil data

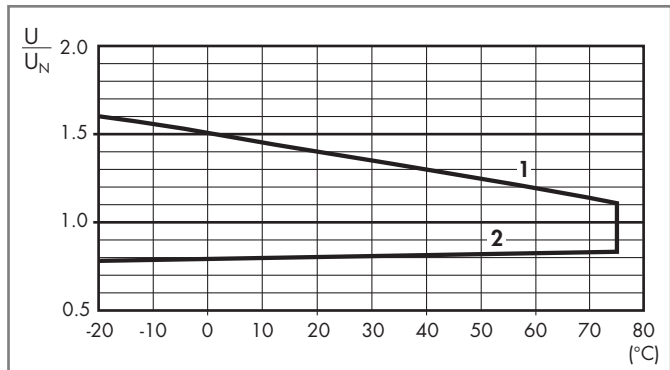
Nominal voltage $U_N$ V	Coil code	Operating range		Resistance R $\Omega$	Rated coil consumption I at $U_N$ (50Hz) mA
		$U_{min}$ V	$U_{max}$ V		
6	8.006	4.8	6.6	4.6	367
12	8.012	9.6	13.2	19	183
24	8.024	19.2	26.4	74	90
48	8.048	38.4	52.8	290	47
60	8.060	48	66	450	37
110	8.110	88	121	1,600	20
120	8.120	96	132	1,940	18.6
230	8.230	184	253	7,250	10.5
240	8.240	192	264	8,500	9.2
400	8.400	320	440	19,800	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.