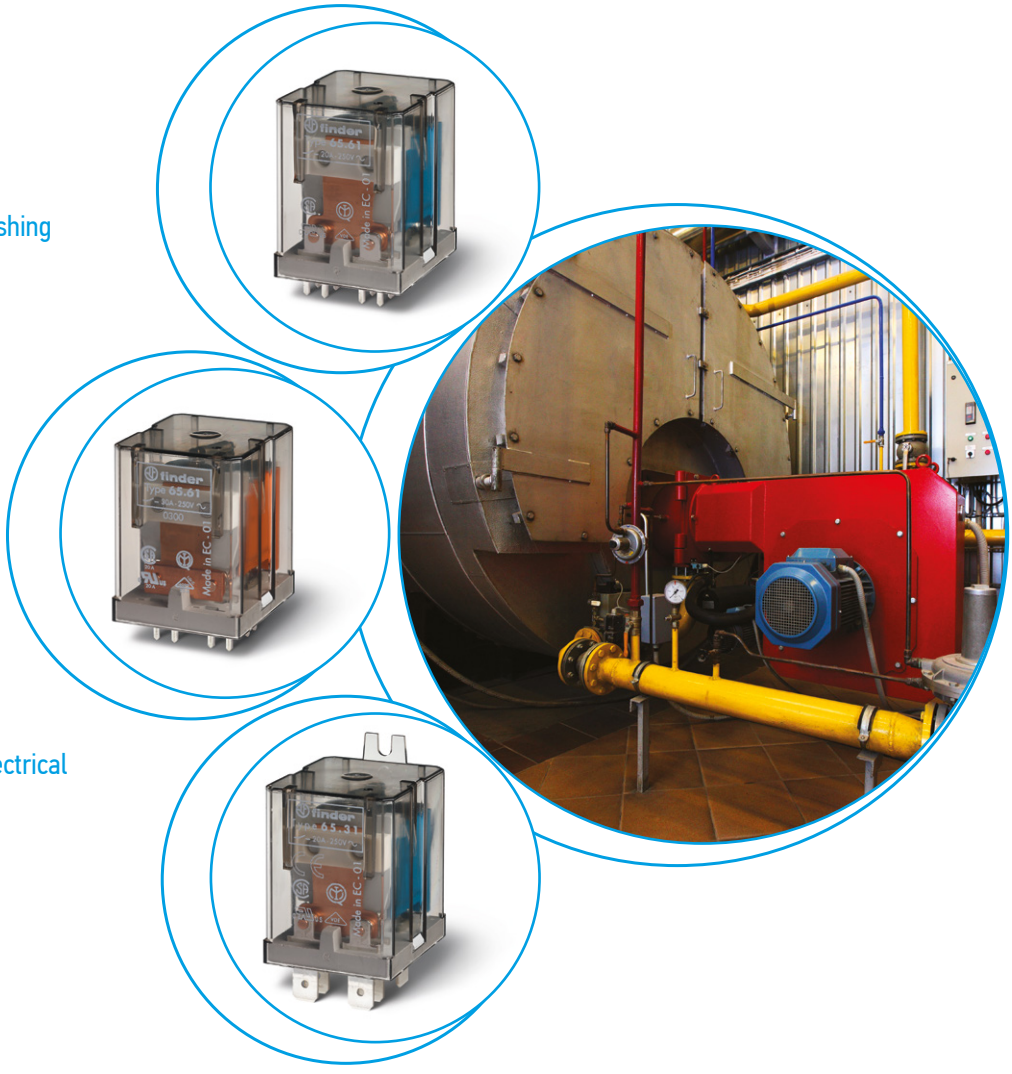
finder
RELAYING INNOVATION

65
SERIES

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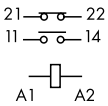
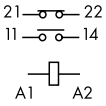
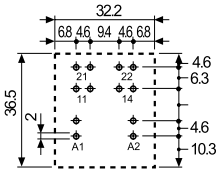
20 A Power relays
1 NO + 1 NC (SPST-NO + SPST-NC)

Type 65.31
- Flange mount and Faston 250 connections

Type 65.61
- PCB mount

- AC coils & DC coils

	65.31	65.61
		
	• 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*	20/120*
Rated voltage/ Maximum switching voltage	V AC	250/400	250/400
Rated load AC1	VA	5000	5000
Rated load AC15 (230 V AC)	VA	1000	1000
Single phase motor rating (230 V AC)	kW	1.1	1.1
Breaking capacity DC1: 24/110/220 V	A	20/0.8/0.5	20/0.8/0.5
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 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	2.2/1.3
Operating range	AC	$(0.8…1.1)U_N$	$(0.8…1.1)U_N$
	DC	$(0.85…1.1)U_N$	$(0.85…1.1)U_N$
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			
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	$80 \cdot 10^3$	$80 \cdot 10^3$
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	1500	1500
Ambient temperature range	°C	–40…+75	–40…+75
Environmental protection		RT I	RT I
Approvals (according to type)			

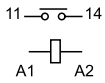
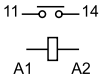
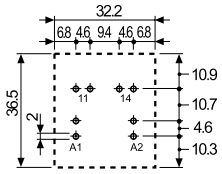
A

30 A Power relays
1 NO (SPST-NO)

Type 65.31-4300
- Flange mount and Faston 250 connections

Type 65.61-4300
- PCB mount

- ≥ 3 mm contact gap
- AC coils & DC coils

	65.31-4300	65.61-4300
		
	• 30 A rated contacts • Faston 250 (6.3 x 0.8 mm) connection • Flange mount	• 30 A rated contacts • PCB mount • Bifurcated terminals
		
		 Copper side view

* Distance between contacts ≥ 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			
Contact configuration		1 NO (SPST-NO), ≥ 3 mm*	1 NO (SPST-NO), ≥ 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		$AgSnO_2$	$AgSnO_2$
Coil specification			
Nominal voltage (U_N)	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	2.2/1.3
Operating range	AC	$(0.8…1.1)U_N$	$(0.8…1.1)U_N$
	DC	$(0.85…1.1)U_N$	$(0.85…1.1)U_N$
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			
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 µs)	kV	4	4
Dielectric strength between open contacts	V AC	2500	2500
Ambient temperature range	°C	–40…+75	–40…+75
Environmental protection		RT I	RT I
Approvals (according to type)			

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Ordering information

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

														A		B		C	D
6	5	.	6		1	.	9	.	0	1	2	.	4		0		0		0

Series

Type
3 = Faston 250 (6.3 x 0.8 mm) with rear flange mount
6 = PCB with bifurcated terminals

No. of poles
1 = 1 NO + 1 NC (SPST-NO + SPST-NC)

Coil version
8 = AC (50/60 Hz)
9 = DC

Coil voltage
See coil specifications

A: Contact material
4 = $AgSnO_2$

B: Contact circuit
0 = 1 NO + 1 NC (SPST-NO + SPST-NC)
3 = NO (≥ 3 mm contact gap)

C: Options
0 = None

D: Special versions
0 = Standard
9 = Type 65.31 without rear flange mount

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	**0** - 3	**0**	**0** - 9
65.61	AC-DC	4	**0** - 3	**0**	**0**

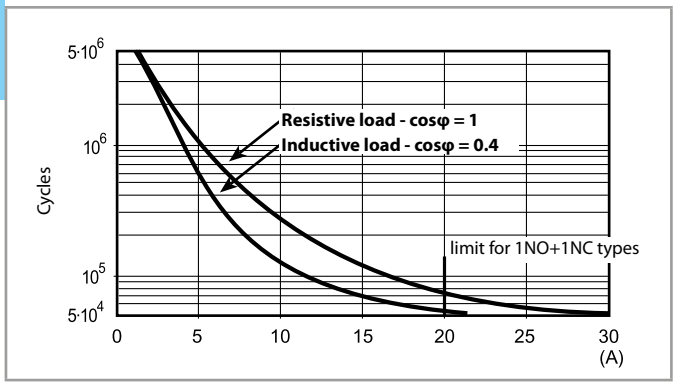
Technical data

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
Insulation between coil and contact set					
Type of insulation		Basic		Basic	
Overvoltage category		III		III	
Rated impulse voltage	kV (1.2/50 µs)	4		4	
Dielectric strength	V AC	2500		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/kV (1.2/50 µs)	1500/2		2500/4	
Insulation between coil terminals					
Rated impulse voltage (according to EN 61180)	kV (1.2/50 µs)	4			
Other data					
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			
Power lost to the environment — 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			

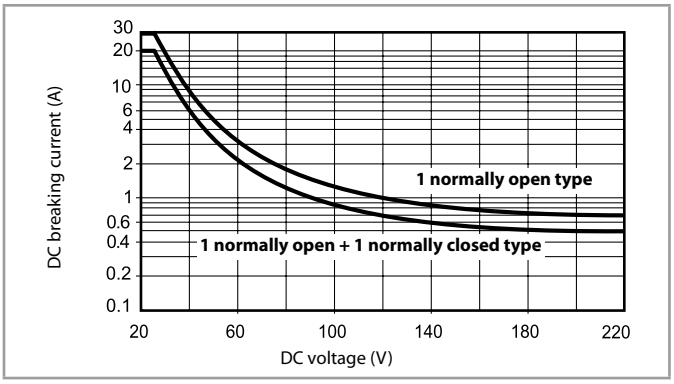
Contact specification

A

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

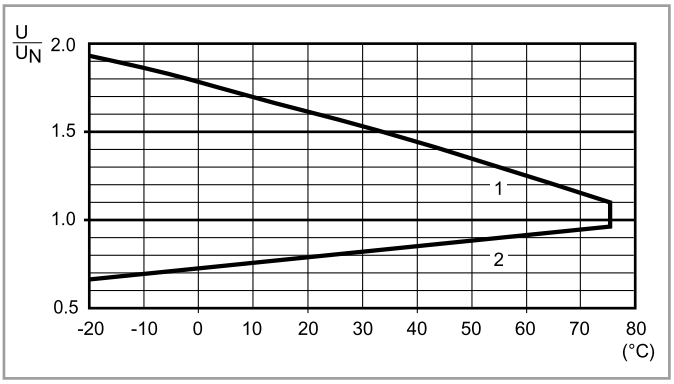
DC coil data

Nominal voltage	Coil code	Operating range		Resistance	Rated coil consumption
U_N		U_{min}	U_{max}	R	I at U_N
V		V	V	Ω	mA
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

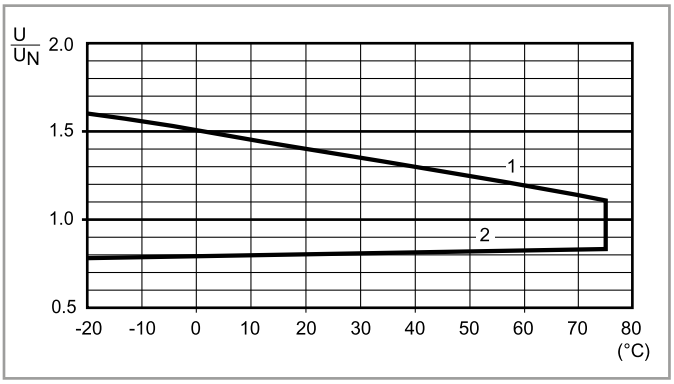
Nominal voltage	Coil code	Operating range		Resistance	Rated coil consumption
U_N		U_{min}	U_{max}	R	I at U_N (50 Hz)
V		V	V	Ω	mA
6	**8**.006	4.8	6.6	4.6	367
12	**8**.012	9.6	13.2	19	183
24	**8**.024	19.2	26.4	74	90
48	**8**.048	38.4	52.8	290	47
60	**8**.060	48	66	450	37
110	**8**.110	88	121	1600	20
120	**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.

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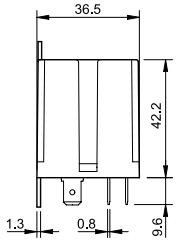
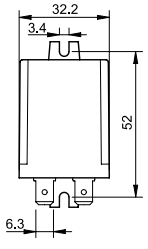
Outline drawings

Type 65.31





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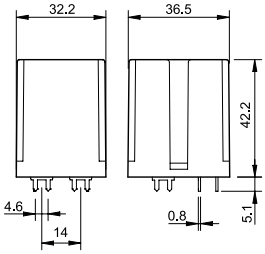
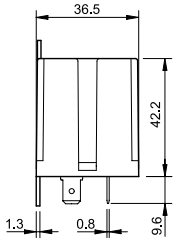
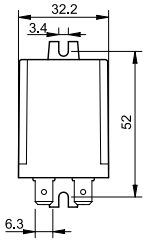


Type 65.31- 4300





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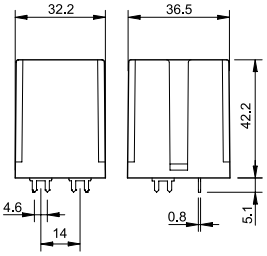


Accessories

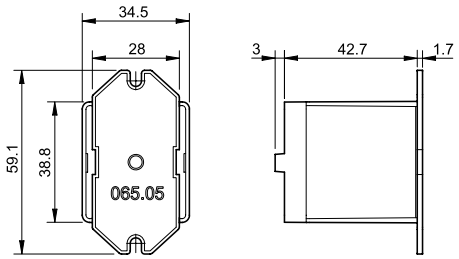


065.05



065.05 with relay

Top flange mount for types 65.31.x.xxx.xxx9 | 065.05



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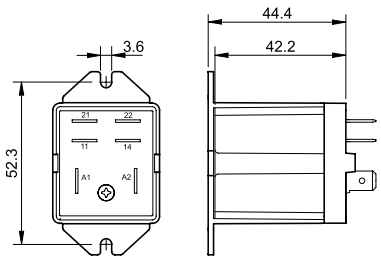


065.05 with relay

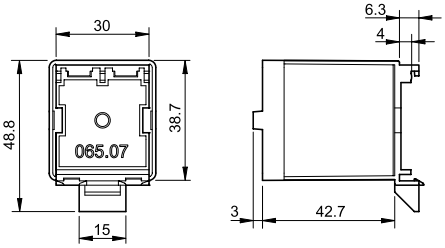


065.07



065.07 with relay

Top 35 mm rail (EN 60715) mount for types 65.31.x.xxx.xxx9 | 065.07



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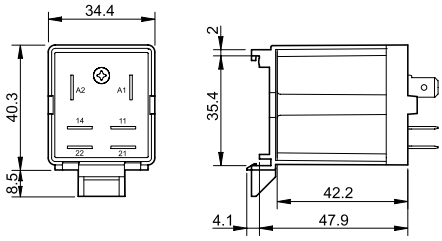


065.07 with relay

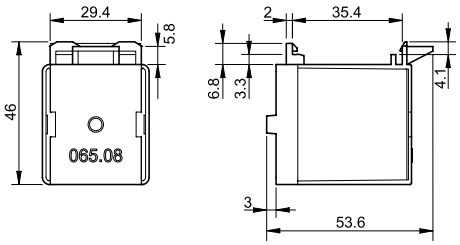


065.08



065.08 with relay

Rear 35 mm rail (EN 60715) mount for types 65.31.x.xxx.xxx9 | 065.08



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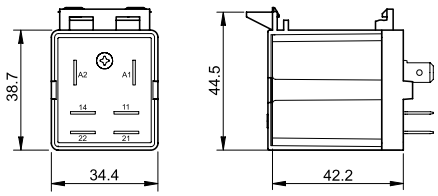

065.08 with relay