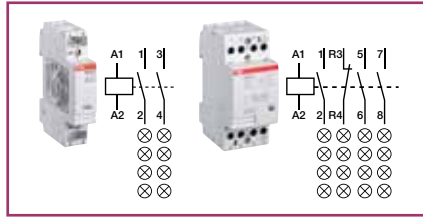


## Lamp applications



### Lamp control

#### Maximum load of the current paths for electric lamps $I_e$ [A]

	ESB20/ EN20	ESB24/ EN24	ESB40/ EN40	ESB63
Permitted compensating capacity per phase $C_{max}$ $\mu F$	75	100	350	500
<b>Lamp types</b>	Max. current load $I_e$ [A]			
Mixed lamps, incandescent and halogen lamps (230 V)	6	7	20	30
Fluorescent lamps with conventional ballast				
Single lamp uncompensated	9	22	36	56
Single lamp parallel compensated	3	3.5	10	15
Series compensation, duo circuit	9	22	36	56
Fluorescent lamps with electronic ballast	3	7	20	30
LED lamps	3 <sup>1)</sup>	7	20	30
Halogen metall vapor lamps and low + high pressure sodium-vapor lamps				
Single lamp without compensation	9	11	18	28
Single lamp with parallel compensation	3	3.5	10	15
Electronic ballast devices	3	7	20	30

<sup>1)</sup> Valid for max. inrush of 50 x  $I_e$

The lamp table considers already the inrush peaks and other lamp parameters.

Examples for lamp load calculation:

Fluorescent lamp with conventional ballast, uncompensated,

lamp operating current  $I = 1.5$  A, voltage  $U = 230$  V

1 pole of ESB24 can be loaded with max. 22 A,

see lamp table  $\Rightarrow 22$  A / 1.5 A = 14.66  $\Rightarrow$  14 lamps

1 pole of ESB20 can be loaded with max. 9 A,

see lamp table  $\Rightarrow 9$  A / 1.5 A = 6 lamps

Please use the referring value in the table stated above and divide it with the current stated on the lamp. This will lead into the number of lamps which can be switched.

E.g.: ESB24 used for LED lamps:

7 A (= 7000 mA) / 85 mA = 82.23  $\Rightarrow$  82 lamps



### Installation contactors ESB24/EN24, ESB40/EN40, ESB63

- Hum-free
- High overvoltage protection
- Protection against polarity reversal

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## Installation Contactor Hum-free and more

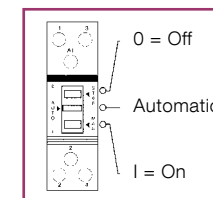


## Rated operational current and power

ESB20/EN20	ESB24/EN24	ESB40/EN40	ESB63
<b>Switching heaters and resistors, AC-1 / AC-7a</b>			
Rated operational current $I_b$ (NO)			
20 A	24 A	40 A	63 A
Rated operational current $I_b$ (NC)			
20 A	24 A	30 A	30 A
Rated operational power, 1-phase at 230 V (NO)			
4 kW	5.5 kW	9.2 kW	14.5 kW
Rated operational power, 1-phase at 230 V (NC)			
4 kW	5.5 kW	8.7 kW	13.3 kW
Rated operational power, 3-phase at 400 V			
	16 kW	26 kW	41 kW
<b>Switching motors, AC-3 / AC-7b</b>			
Rated operational current $I_b$ (NO)			
9 A	9 A	22 A	30 A
Rated operational power, 1-phase at 230 V			
1.1 kW	1.3 kW	3.7 kW	5 kW
Rated operational power, 3-phase at 400 V			
	4 kW	11 kW	15 kW
<b>Module width</b>			
18 mm	36 mm	54 mm	54 mm



Contacts	Type	Order code	Pkg qty
20 A 2-pole (No aux.-contact block possible)			
2NO	ESB 20-20 24 V 50/60 Hz	GHE3 211 102 R0001	10
2NO	ESB 20-20 230 V 50/60 Hz	GHE3 211 102 R0006	10
2NC	ESB 20-02 24 V 50/60 Hz	GHE3 211 202 R0001	10
2NC	ESB 20-02 230 V 50/60 Hz	GHE3 211 202 R0006	10
1NO, 1NC	ESB 20-11 24 V 50/60 Hz	GHE3 211 302 R0001	10
1NO, 1NC	ESB 20-11 230 V 50/60 Hz	GHE3 211 302 R0006	10
24 A 2-pole (1 aux.-contact block possible)			
2NO	ESB 24-20 230-240 V AC/DC	GHE3 291 402 R0006	5
2NO	ESB 24-20 24 V AC/DC	GHE3 291 402 R0001	5
24 A 4-pole (1 aux.-contact block possible)			
4NO	ESB 24-40 24 V AC/DC	GHE3 291 102 R0001	5
4NO	ESB 24-40 230-240 V AC/DC	GHE3 291 102 R0006	5
4NC	ESB 24-04 24 V AC/DC	GHE3 291 202 R0001	5
4NC	ESB 24-04 230-240 V AC/DC	GHE3 291 202 R0006	5
2NO, 2NC	ESB 24-22 24 V AC/DC	GHE3 291 302 R0001	5
2NO, 2NC	ESB 24-22 230-240 V AC/DC	GHE3 291 302 R0006	5
3NO, 1NC	ESB 24-31 24 V AC/DC	GHE3 291 602 R0001	5
3NO, 1NC	ESB 24-31 220-230 V AC/DC	GHE3 291 602 R0006	5
1NO, 3NC	ESB 24-13 24 V AC/DC	GHE3 291 702 R0001	5
1NO, 3NC	ESB 24-13 230-240 V AC/DC	GHE3 291 702 R0006	5
40 A 2-/3-/4-pole (1 aux.-contact block possible)			
2NO	ESB 40-20 24 V AC/DC	GHE3 491 402 R0001	3
2NO	ESB 40-20 230 V AC/DC	GHE3 491 402 R0006	3
3NO	ESB 40-30 24 V AC/DC	GHE3 491 502 R0001	3
3NO	ESB 40-30 230 V AC/DC	GHE3 491 502 R0006	3
4NO	ESB 40-40 24 V AC/DC	GHE3 491 102 R0001	3
4NO	ESB 40-40 230 V AC/DC	GHE3 491 102 R0006	3
3NO, 1NC	ESB 40-31 24 V AC/DC	GHE3 491 602 R0001	3
3NO, 1NC	ESB 40-31 230 V AC/DC	GHE3 491 602 R0006	3
2NO, 2NC	ESB 40-22 24 V AC/DC	GHE3 491 302 R0001	3
2NO, 2NC	ESB 40-22 230 V AC/DC	GHE3 491 302 R0006	3
63 A 2-/3-/4-pole (1 aux.-contact block possible)			
2NO	ESB 63-20 24 V AC/DC	GHE3 691 402 R0001	3
2NO	ESB 63-20 230 V AC/DC	GHE3 691 402 R0006	3
3NO	ESB 63-30 230 V AC/DC	GHE3 691 502 R0006	3
3NO, 1NC	ESB 63-31 230 V AC/DC	GHE3 691 602 R0006	3
4NO	ESB 63-40 24 V AC/DC	GHE3 691 102 R0001	3
4NO	ESB 63-40 230 V AC/DC	GHE3 691 102 R0006	3



### EN-Types – with benefits for service

EN-Types have an integrated 3-position switch for manual and automatic operation.

#### Functions:

- Switch in position „AUTO“: Standard control
- Switch in position „0“: Supply to coil interrupted (Off)
- Switch in position „I“: Manually switched on (a trigger signal at the coil terminal initiates the switch moving into „AUTO“ position)

Contacts	Type	Order code	Pkg qty
20 A 2-pole (No aux.-contact block possible)			
2NO	EN 20-20 24 V 50 Hz	GHE3 221 101 R0001	10
2NO	EN 20-20 230 V 50 Hz	GHE3 221 101 R0006	10
24 A 3-pole (1 aux.-contact block possible)			
3NO	EN 24-30 230-240 V AC/DC	GHE3 261 501 R0006	5
24 A 4-pole (1 aux.-contact block possible)			
3NO, 1NC	EN 24-31 24 V AC/DC	GHE3 261 601 R0001	5
3NO, 1NC	EN 24-31 230-240 V AC/DC	GHE3 261 601 R0006	5
4NO	EN 24-40 24 V AC/DC	GHE3 261 101 R0001	5
4NO	EN 24-40 230-240 V AC/DC	GHE3 261 101 R0006	5
40 A 3-pole (1 aux.-contact block possible)			
3NO	EN 40-30 230 V AC/DC	GHE3 421 501 R0006	3
40 A 4-pole (1 aux.-contact block possible)			
4NO	EN 40-40 24 V AC/DC	GHE3 421 101 R0001	3
4NO	EN 40-40 230 V AC/DC	GHE3 421 101 R0006	3
3NO, 1NC	EN 40-31 24 V AC/DC	GHE3 421 601 R0001	3
3NO, 1NC	EN 40-31 230 V AC/DC	GHE3 421 601 R0006	3
Accessories			
2NO	EH 04-20, Aux.-contact block	GHE3 401 321 R0001	1
1NO, 1NC	EH 04-11, Aux.-contact block	GHE3 401 321 R0002	1
distance pcs	ESB-DIS Spacer	GHE3 201 902 R0001	10
Seal	ESBPLK24	GHE3 201 903 R0001	10