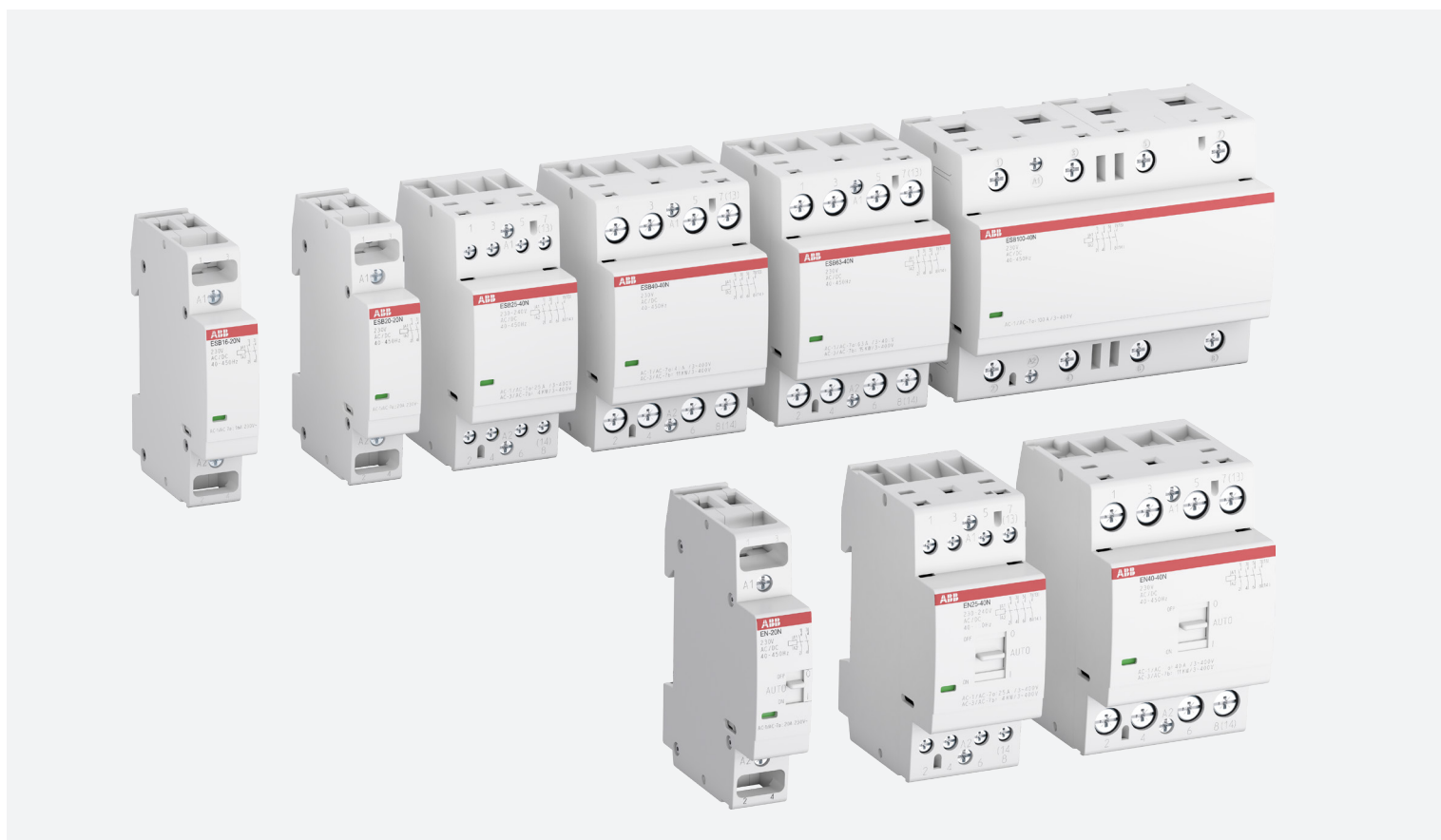


CATALOG 2018

Installation contactors

Modular DIN rail components



Installation contactors

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Installation contactors

A wide range of contactors take noise reduction to new levels



ABB's hum-free installation contactor designs now offer a wider range of ratings from 16 A to 100 A. Widely used in buildings for switching and controlling lighting, heating, ventilation, motor and pumps, the installation contactors take noise reduction to a new level. With an innovative AC / DC coil design that eliminates hum, a broad selection of common accessories as well as manual and automatic versions, installation contactors offer peace of mind in noise-sensitive applications.



Optimum interface

Quiet and reliable in every application

ABB's hum-free contactors feature innovative AC / DC coils. The range covers ratings from 16 A to 100 A and offers accessories to suit customer requirements in every application.

An integrated indicator makes diagnostics quicker and provides reliable information about the contactor's status at a glance.



Easy to install

Simple solution that saves time

Reduce installation time and stock levels, with a universal auxiliary contact block that can be attached to the contactors by hand.

Installation contactors fit easily with ABB's System Pro M compact range, making them fully compatible with other modular DIN-rail components.



Global availability

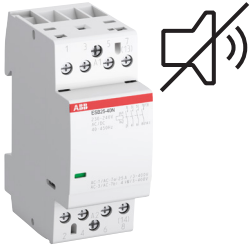
Whatever you need, wherever you need it

Installation contactors are available in single and multi-packs to meet different customer needs and to optimize warehousing space.

Every ABB product enjoys expert local support worldwide to make communication easier and delivery faster.

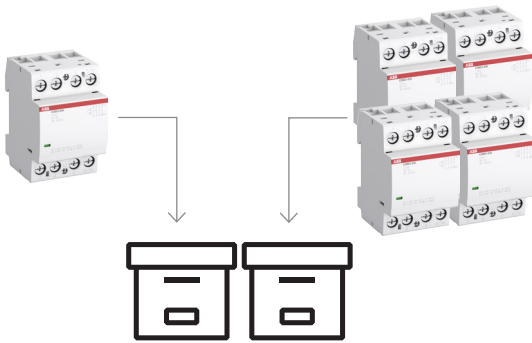
Installation contactors

Features and benefits



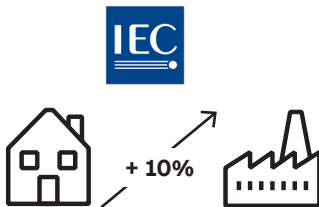
Noise-free operation

With an innovative AC / DC design that eliminates hum, the range meets the needs of applications demanding silent operation, for example hotel rooms and residential buildings.



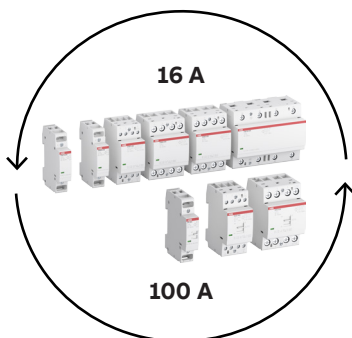
Single and multi packaging

The right packaging for your needs- our products are available in a choice of different packaging and delivery quantities. This allows you to warehouse according to your needs and save up to 50% on your inventory.



Wide application range

The ESB installation contactors range meets both the industrial standard IEC 60947-4-1 and the household standard IEC 61095 as well as pollution degree class 3. Due to multiple certification and inherent robustness, the contactors can be used in 10% more applications in both residential and industrial settings.



Comprehensive solution

ABB's ESB and EN installation contactors range offers a complete solution from 16 A to 100 A, offering an answer to all customer needs from a single supplier.

With 16 A, 25 A and 100 A versions, tender specifications can be met with competitive pricing.

Installation contactors

Features and benefits



Save up to 15% space with group mounting

ESB16..N and ESB/EN20..N can be group mounted. There is no need for a distance piece between contactors, saving both valuable space in cabinets and money.



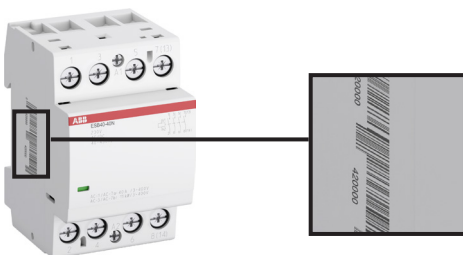
Built-in protective circuit

Protect the contactor without additional space-demanding components against remote lightning strikes and overvoltages.



Design in accordance with System Pro M

Contactors and accessories are designed according to System pro M range and ABB's modular DIN-rail components and fit in dedicated panels.



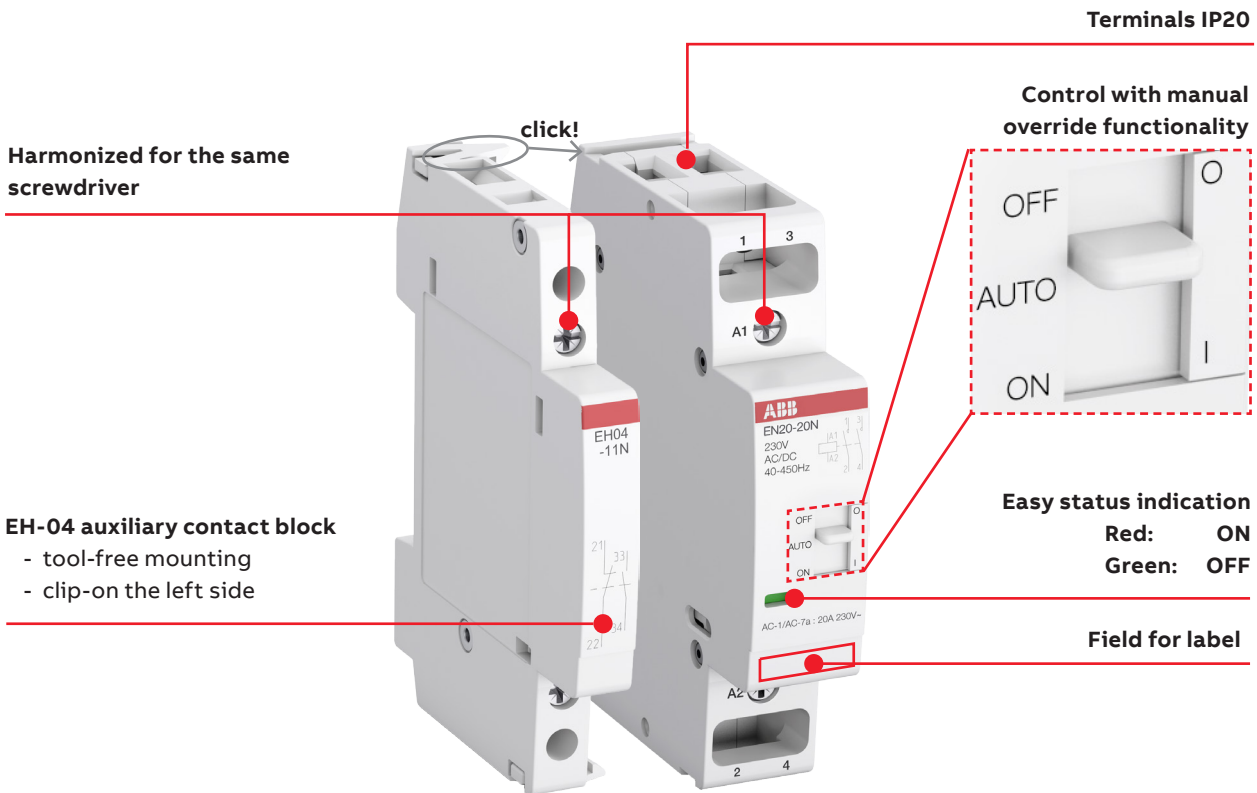
EAN-code for an easy identification

Just scan the EAN-code printed on the side of the devices and save up to 80% time identifying the product in your system. This way, handling and identifying your products in warehouse and cashier system is easy.

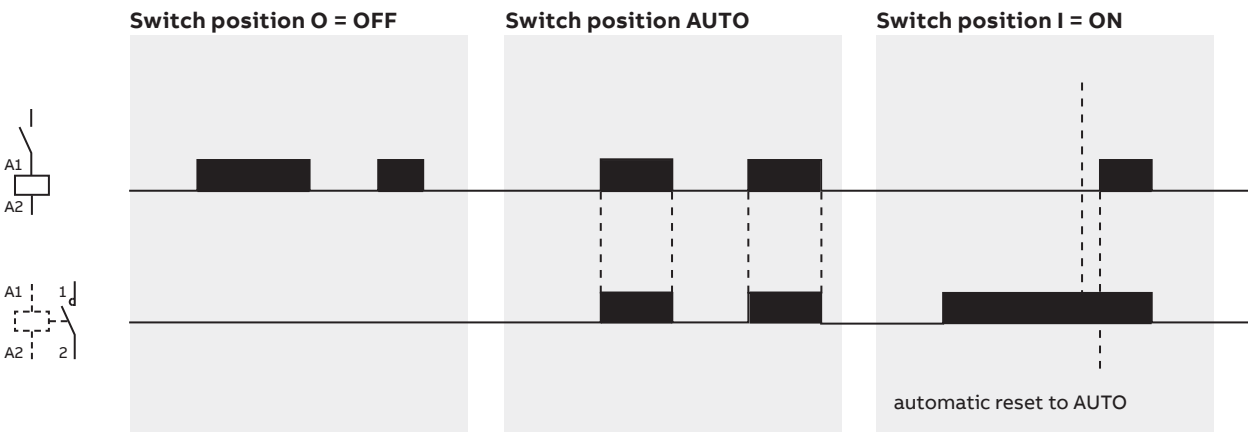
Installation contactors

Easy installation and maintenance

ABB's installation contactors come with many features that make installation and maintenance easier. The mechanical Indicator with green and red color for status indication ensures a quick diagnostic of the system. Also, some speciality types feature a manual override functionality with a toggle switch to control independently from control source. Accessories can be mounted tool-free on the contactor, for example auxiliaries, space holders as well as security and safety covers.



Operation mode EN-versions



Installation contactors

Overview contactors

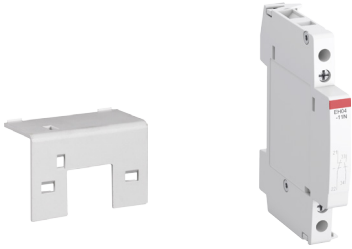


Type	ESB16..N	ESB20..N EN20..N	ESB25..N EN25..N	ESB40..N EN40..N	ESB63..N	ESB100..N
AC-1 / AC-7a (A)	16	20	25	40	63	100
Modular Width	1	1	2	3	3	3/6
Accessories						
Auxiliary contact blocks	2 NO	EH04-20	EH04-20	EH04-20	EH04-20	EH04-20
	1 NO + 1 NC	EH04-11	EH04-11	EH04-11	EH04-11	EH04-11
Distance piece	-	-	ESB-DIS	ESB-DIS	ESB-DIS	ESB-DIS
Covers	-	-	ESB-PLK24 ESB-SPK24	ESB-PLK40/63 ESB-SPK40/63	ESB-PLK40/63 ESB-SPK40/63	-



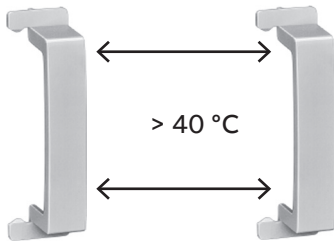
Installation contactors

Overview accessories



Tool-free accessories

Speed up installation and maintenance time by mounting accessories tool-free to the contactor. Auxiliaries, security safety covers and space holders are easily and quickly installed.



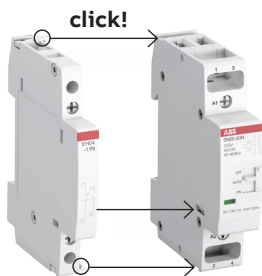
Distance pieces

If the ambient temperature in your control cabinet exceeds 40°C and the on-time is longer than an hour, you need to use a distance piece between each second contactor for the ESB25..N to ESB100..N.



Sealing covers

Protect the security of your employees/ customers' installation with sealing covers. They are available in different sizes and can be clipped on easily.



Auxiliary contact blocks

ABB's new range of auxiliary contact blocks are mounted on the left side of the contactors. Simply clip them on - no tools required! Valuable inventory space can be saved with the new auxiliary contact block which is designed to fit all contactors of the range.

ESB16..N installation contactors

16 A, AC-1 /AC-7a
AC / DC operated



ESB16..N

1SBC101551V0000

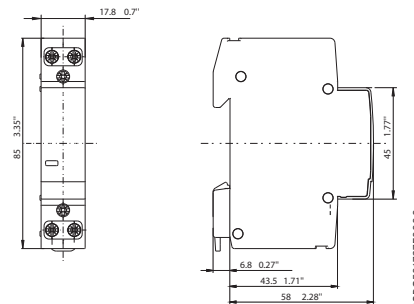
The ESB16..N installation contactors are used to control single-phase loads up to 16 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB16..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage ⁽¹⁾	Type	Order code	Pkg qty	Weight (1 pce)
					kg	
V AC / DC						
Single packaging						
	1	24	ESB16-20N-01	1SBE111111R0120	1	0.14
		230	ESB16-20N-06	1SBE111111R0620	1	0.14
	1	24	ESB16-02N-01	1SBE111111R0102	1	0.14
		230	ESB16-02N-06	1SBE111111R0602	1	0.14
	1	24	ESB16-11N-01	1SBE111111R0111	1	0.14
		230	ESB16-11N-06	1SBE111111R0611	1	0.14
Multiple packaging						
	1	24	ESB16-20N-01	1SBE111111M0120	12	0.14
		230	ESB16-20N-06	1SBE111111M0620	12	0.14
	1	24	ESB16-02N-01	1SBE111111M0102	12	0.14
		230	ESB16-02N-06	1SBE111111M0602	12	0.14
	1	24	ESB16-11N-01	1SBE111111M0111	12	0.14
		230	ESB16-11N-06	1SBE111111M0611	12	0.14

(1) Other control voltages: see voltage code table and contact ABB for availability of products



1SBC50127F0000

ESB16..N

ESB20..N installation contactors

20 A, AC-1 /AC-7a

AC / DC operated



ESB20..N

1SB C015 S2 V0000

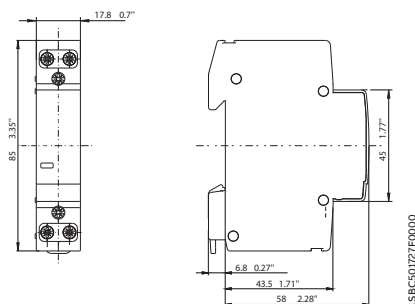
The ESB20..N installation contactors are used to control single-phase loads up to 20 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB20..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage ⁽¹⁾	Type	Order code	Pkg qty	Weight (1 pce)
		V AC / DC				
Single packaging						
	1	24	ESB20-20N-01	1SBE121111R0120	1	0.14
		230	ESB20-20N-06	1SBE121111R0620	1	0.14
	1	24	ESB20-02N-01	1SBE121111R0102	1	0.14
		230	ESB20-02N-06	1SBE121111R0602	1	0.14
	1	24	ESB20-11N-01	1SBE121111R0111	1	0.14
		230	ESB20-11N-06	1SBE121111R0611	1	0.14
Multiple packaging						
	1	24	ESB20-20N-01	1SBE121111M0120	12	0.14
		230	ESB20-20N-06	1SBE121111M0620	12	0.14
	1	24	ESB20-02N-01	1SBE121111M0102	12	0.14
		230	ESB20-02N-06	1SBE121111M0602	12	0.14
	1	24	ESB20-11N-01	1SBE121111M0111	12	0.14
		230	ESB20-11N-06	1SBE121111M0611	12	0.14

(1) Other control voltages: see voltage code table and contact ABB for availability of products



1SB C501Z/F0000

ESB20..N

Dimensions mm, inches

ESB25..N installation contactors

25 A, AC-1 / AC-7a
AC / DC operated



ESB25..N

The ESB25..N installation contactors are used to control single and three-phases loads up to 25 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB25..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage ⁽¹⁾ V AC / DC	Type	Order code	Pkg qty	Weight (1 pce) kg
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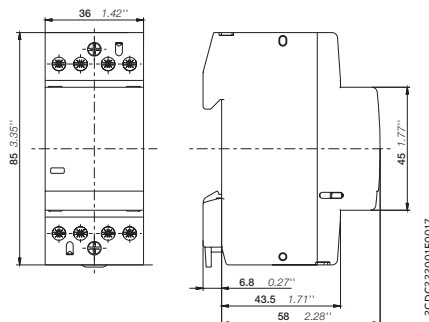
Single packaging

	24	ESB25-40N-01	1SAE231111R0140	1	0.245
	230 ... 240	ESB25-40N-06	1SAE231111R0640	1	0.235
	24	ESB25-04N-01	1SAE231111R0104	1	0.245
	230 ... 240	ESB25-04N-06	1SAE231111R0604	1	0.235
	24	ESB25-22N-01	1SAE231111R0122	1	0.245
	230 ... 240	ESB25-22N-06	1SAE231111R0622	1	0.235
	24	ESB25-31N-01	1SAE231111R0131	1	0.245
	230 ... 240	ESB25-31N-06	1SAE231111R0631	1	0.235
	24	ESB25-13N-01	1SAE231111R0113	1	0.245
	230 ... 240	ESB25-13N-06	1SAE231111R0613	1	0.235

Multiple packaging

	24	ESB25-40N-01	1SAE231111M0140	6	0.245
	230 ... 240	ESB25-40N-06	1SAE231111M0640	6	0.235
	24	ESB25-04N-01	1SAE231111M0104	6	0.245
	230 ... 240	ESB25-04N-06	1SAE231111M0604	6	0.235
	24	ESB25-22N-01	1SAE231111M0122	6	0.245
	230 ... 240	ESB25-22N-06	1SAE231111M0622	6	0.235
	24	ESB25-31N-01	1SAE231111M0131	6	0.245
	230 ... 240	ESB25-31N-06	1SAE231111M0631	6	0.235
	24	ESB25-13N-01	1SAE231111M0113	6	0.245
	230 ... 240	ESB25-13N-06	1SAE231111M0613	6	0.235

(1) Other control voltages: see voltage code table and contact ABB for availability of products



ESB25..N

Dimensions mm, inches

ESB40..N installation contactors

40 A, AC-1 / AC-7a

AC / DC operated



2CDC221008V0017

ESB40..N

The ESB40..N installation contactors are used to control single and three-phases loads up to 40 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB40..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage ⁽¹⁾ V AC / DC	Type	Order code	Pkg qty	Weight (1 pce) kg
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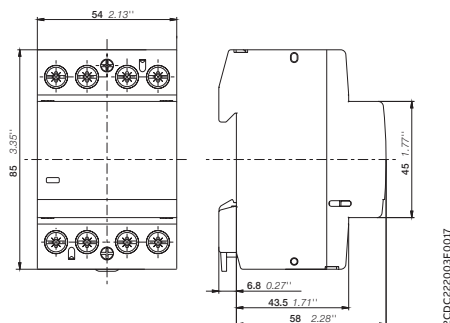
Single packaging

	24	ESB40-40N-01	1SAE341111R0140	1	0.405
	230	ESB40-40N-06	1SAE341111R0640	1	0.405
	24	ESB40-22N-01	1SAE341111R0122	1	0.405
	230	ESB40-22N-06	1SAE341111R0622	1	0.405
	24	ESB40-31N-01	1SAE341111R0131	1	0.405
	230	ESB40-31N-06	1SAE341111R0631	1	0.405
	24	ESB40-30N-01	1SAE341111R0130	1	0.385
	230	ESB40-30N-06	1SAE341111R0630	1	0.385
	24	ESB40-20N-01	1SAE341111R0120	1	0.370
	230	ESB40-20N-06	1SAE341111R0620	1	0.370

Multiple packaging

	24	ESB40-40N-01	1SAE341111M0140	4	0.405
	230	ESB40-40N-06	1SAE341111M0640	4	0.405
	24	ESB40-22N-01	1SAE341111M0122	4	0.405
	230	ESB40-22N-06	1SAE341111M0622	4	0.405
	24	ESB40-31N-01	1SAE341111M0131	4	0.405
	230	ESB40-31N-06	1SAE341111M0631	4	0.405
	24	ESB40-30N-01	1SAE341111M0130	4	0.385
	230	ESB40-30N-06	1SAE341111M0630	4	0.385
	24	ESB40-20N-01	1SAE341111M0120	4	0.370
	230	ESB40-20N-06	1SAE341111M0620	4	0.370

(1) Other control voltages: see voltage code table and contact ABB for availability of products.



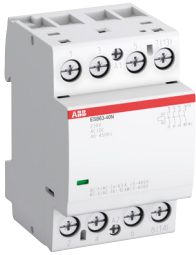
ESB40..N

Dimensions mm, inches

2CDC22003F0017

ESB63..N installation contactors

63 A, AC-1 / AC-7a
AC / DC operated



2CDC221009V0017

ESB63..N

The ESB63..N installation contactors are used to control single and three-phases loads up to 63 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB63..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage ⁽¹⁾ V AC / DC	Type	Order code	Pkg qty	Weight (1 pce) kg
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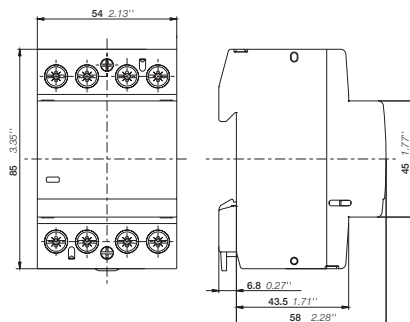
Single packaging

		3	24	ESB63-40N-01	1SAE351111R0140	1	0.405
			230	ESB63-40N-06	1SAE351111R0640	1	0.405
		3	230	ESB63-31N-06	1SAE351111R0631	1	0.405
		3	230	ESB63-30N-06	1SAE351111R0630	1	0.385
		3	24	ESB63-20N-01	1SAE351111R0120	1	0.37
			230	ESB63-20N-06	1SAE351111R0620	1	0.37
		3	230	ESB63-11N-06	1SAE351111R0611	1	0.37

Multiple packaging

		3	24	ESB63-40N-01	1SAE351111M0140	4	0.405
			230	ESB63-40N-06	1SAE351111M0640	4	0.405
		3	230	ESB63-31N-06	1SAE351111M0631	4	0.405
		3	230	ESB63-30N-06	1SAE351111M0630	4	0.385
		3	24	ESB63-20N-01	1SAE351111M0120	4	0.37
			230	ESB63-20N-06	1SAE351111M0620	4	0.37
		3	230	ESB63-11N-06	1SAE351111M0611	4	0.37

(1) Other control voltages: see voltage code table and contact AB B for availability of products.



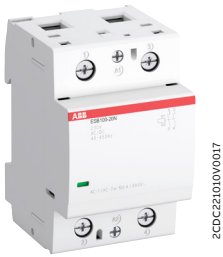
ESB63..N

Dimensions mm, inches

2CDC22003F0017

ESB100..N installation contactors

100 A, AC-1 / AC-7a
AC / DC operated



ESB100-20N

2CDC221010V0017



ESB100-40N

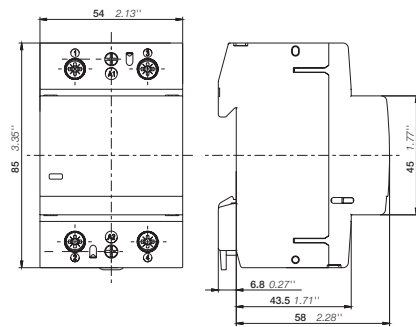
2CDC221010V0017

The ESB100..N installation contactors are used to control single and three-phases loads up to 100 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.

ESB100..N series is providing the following benefits:

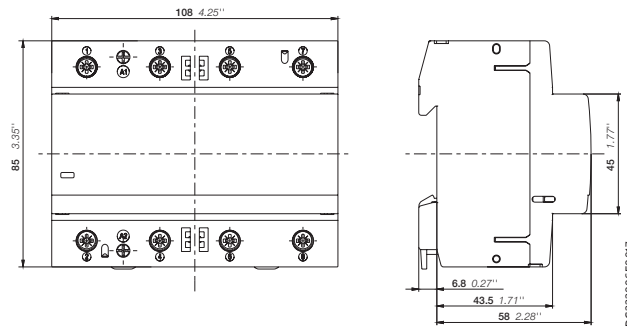
- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage	Type	Order code	Pkg qty	Weight (1 pce)
		V AC / DC				kg
Single packaging						
	6	24	ESB100-40N-01	1SAE661111R0140	1	0.405
		230	ESB100-40N-06	1SAE661111R0640	1	0.405
	3	24	ESB100-20N-01	1SAE361111R0120	1	0.81
		230	ESB100-20N-06	1SAE361111R0620	1	0.81
Multiple packaging						
	3	24	ESB100-20N-01	1SAE361111M0120	2	1.62
		230	ESB100-20N-06	1SAE361111M0620	2	1.62



ESB100-20N

2CDC222005F0017



ESB100-40N

2CDC222006F0017

Dimensions mm, inches

EN20..N installation contactors - manually / automatic operated

20 A, AC-1 / AC-7a
AC / DC operated



EN20..N

1SBCE01953V0000

The EN20..N installation contactors are used to control single-phase loads up to 20 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically.

These contactors are made for use in household applications as well as in industrial environment.

EN16..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

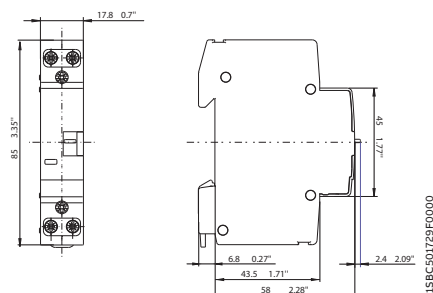
Main contacts	Width in number of modular spacings	Rated control circuit voltage V AC / DC	Type	Order code	Pkg qty	Weight (1 pce) kg
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Single packaging

	24	EN20-20N-01	1SBE122111R0120	1	0.14
	230	EN20-20N-06	1SBE122111R0620	1	0.14

Multiple packaging

	24	EN20-20N-01	1SBE122111M0120	12	0.14
	230	EN20-20N-06	1SBE122111M0620	12	0.14



1SBCE01729F0000

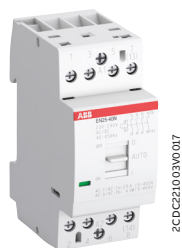
EN20..N

Dimensions mm, inches

EN25..N installation contactors - manually / automatic operated

25 A, AC-1 / AC-7a

AC / DC operated



EN25..N

The EN25..N installation contactors are used to control single- and three-phase loads up to 25 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically.

These contactors are made for use in household applications as well as in industrial environment.

EN25..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage (1)	Type	Order code	Pkg qty	Weight (1 pce)
		V AC / DC				kg

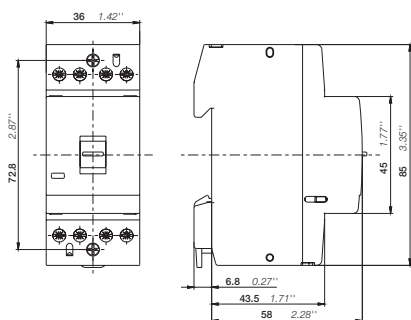
Single packaging

	24	EN25-40N-01	1SAE232111R0140	1	0.250
	230 ... 240	EN25-40N-06	1SAE232111R0640	1	0.240
	24	EN25-31N-01	1SAE232111R0131	1	0.250
	230 ... 240	EN25-31N-06	1SAE232111R0631	1	0.240
	230 ... 240	EN25-30N-06	1SAE232111R0630	1	0.235

Multiple packaging

	24	EN25-40N-01	1SAE232111M0140	6	0.250
	230 ... 240	EN25-40N-06	1SAE232111M0640	6	0.240
	24	EN25-31N-01	1SAE232111M0131	6	0.250
	230 ... 240	EN25-31N-06	1SAE232111M0631	6	0.240
	230 ... 240	EN25-30N-06	1SAE232111M0630	6	0.235

(1) Other control voltages: see voltage code table and contact ABB for availability of products.



EN25..N

Dimensions mm, inches

EN40..N installation contactors - manually / automatic operated

40 A, AC-1 / AC-7a
AC / DC operated



2CDC22004F0017

EN40..N

The EN40..N installation contactors are used to control single- and three-phase loads up to 40 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically.

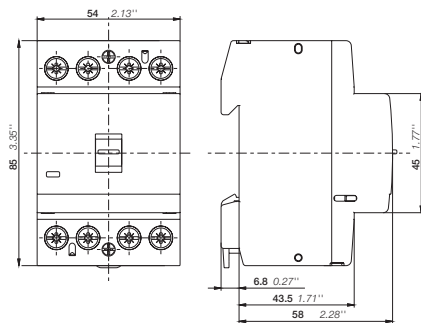
These contactors are made for use in household applications as well as in industrial environment.

EN40..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage (1) V AC / DC	Type	Order code	Pkg qty	Weight (1 pce) kg
Single packaging						
	3	24	EN40-40N-01	1SAE342111R0140	1	0.410
		230	EN40-40N-06	1SAE342111R0640	1	0.410
	3	24	EN40-31N-01	1SAE342111R0131	1	0.410
		230	EN40-31N-06	1SAE342111R0631	1	0.410
	3	230	EN40-30N-06	1SAE342111R0630	1	0.410
	3	230	EN40-20N-06	1SAE342111R0620	1	0.375
Multiple packaging						
	3	24	EN40-40N-01	1SAE342111M0140	4	0.410
		230	EN40-40N-06	1SAE342111M0640	4	0.410
	3	24	EN40-31N-01	1SAE342111M0131	4	0.410
		230	EN40-31N-06	1SAE342111M0631	4	0.410
	3	230	EN40-30N-06	1SAE342111M0630	4	0.410
	3	230	EN40-20N-06	1SAE342111M0620	4	0.375

(1) Other control voltages: see voltage code table and contact ABB for availability of products.



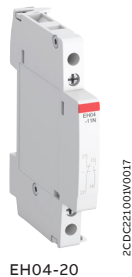
2CDC22004F0017

EN40..N

Dimensions mm, inches

Installation contactors

Ordering details accessories



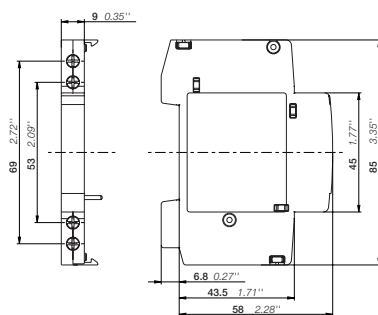
Auxiliary contact blocks

Suitable for	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Single packaging					
ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N		EH04-11N	1SAE901901R1011	1	0.040
		EH04-20N	1SAE901901R1020	1	0.040
Multiple packaging					
ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N		EH04-11N	1SAE901901M1011	6	0.040
		EH04-20N	1SAE901901M1020	6	0.040

Accessories

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
Sealing covers					
ESB25..N, EN25..N	sealing cover	ESB-PLK24	GHE3201903R0001	10	0.002
ESB40..N, ESB63..N, EN40..N	sealing cover	ESB-PLK40/63	GHE3401903R0001	10	0.003
ESB25..N, EN25..N	protection cover	ESB-SPK24	GHE3201903R0002	10	0.005
ESB40..N, ESB63..N, EN40..N	protection cover	ESB-SPK40/63	GHE3401903R0002	10	0.010
Distant piece					
ESB25..N, ESB40..N, ESB63..N, EN25..N, EN40..N, ESB100..N, EN100..N		ESB-DIS (1)	GHE3201902R0001	10	0.002

(1) If several contactors are mounted adjacently and the ON time is longer than one hour, every second contactor needs a distance piece. Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C or on Type ESB16..N and ESB/EN20..N.



EH04..N

Dimensions mm, inches

2CDC22007F0017

Installation contactors

Technical data

Main circuit – Utilization characteristics according to IEC/EN

Contactor type		ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N
Standards		IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 61095					
Rated operational voltage U_e		220 V DC	220 V DC	220 V DC	220 V DC	220 V DC	220 V DC
		250 V AC	250 V AC	400 V AC	400 V AC	400 V AC	400 V AC
Rated frequency		DC, 50/60 Hz					
AC-1 / AC-7a utilization category for air temperature near the contactor $\leq 55^\circ\text{C}$							
Rated operational current I_e AC-1 / AC-7a		16 A	20 A	25 A	40 A	63 A	100 A
Rated operational power AC-1	230 V						
	1 phase	3.7 kW	4.6 kW	5.8 kW	9.2 kW	14.5 kW	23 kW
	400 V						
	3 phases	–	–	17.3 kW	27.7 kW	43.6 kW	69.3 kW
AC-3 / AC-7b utilization category for air temperature close to contactor $\leq 55^\circ\text{C}$							
Rated operational current I_e AC-3 / AC-7b	230 V						
	1 phase	6 A	9 A	9 A	22 A	30 A	–
	400 V						
	3 phases	–	–	9 A	22 A	30 A	–
Rated operational power AC-3	230 V						
	1 phase	0.9 kW	1.3 kW	1.3 kW	3.7 kW	5 kW	–
	400 V						
	3 phases	–	–	4 kW	11 kW	15 kW	–
Rated making capacity AC-3 acc. to IEC 60947-4-1		10 x I_e / AC-3	10 x I_e / AC-3	10 x I_e / AC-3	10 x I_e / AC-3	10 x I_e / AC-3	–
Rated breaking capacity AC-3 acc. to IEC 60947-4-1		8 x I_e / AC-3	8 x I_e / AC-3	8 x I_e / AC-3	8 x I_e / AC-3	8 x I_e / AC-3	–
Short-circuit protective devices - gG type fuses		20 A	20 A	35 A	63 A	80 A	125 A
Rated short-time withstand current I_{cw} at 40°C ambient temp. in free air, from a cold state	10 s	72 A	72 A	72 A	176 A	240 A	–
Power loss per pole		0.9 W	1.4 W	2 W	3 W	4.5 W	6 W
Maximum electrical switching frequency	AC-1 / AC-7a	300 cycles/h	300 cycles/h	300 cycles/h	300 cycles/h	300 cycles/h	150 cycles/h
	AC-3 / AC-7b	600 cycles/h	600 cycles/h	600 cycles/h	600 cycles/h	600 cycles/h	–
Electrical durability	AC-1 / AC-7a	150000 cycles	150000 cycles	130000 cycles	150000 cycles	100000 cycles	70000 cycles
	AC-3 / AC-7b	150000 cycles	150000 cycles	500000 cycles	150000 cycles	240000 cycles	–
Mechanical durability		1000000 cycles					

Installation contactors

Technical data

Main circuit – Utilization characteristics according to UL/CSA

Contactor type	ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N	
Standards	UL 60947-1, UL 60947-4-1						
General use rating	240 V 16 A	20 A	25 A	40 A	63 A	100 A	
Motor rating							
Full load current	220 ... 240 V 1 phase	6.9 A	8 A	9.6 A	22 A	28 A	–
	440 ... 480 V 3 phases	–	–	7.6 A	21 A	21 A	–
Horse power rating	220 ... 240 V 1 phase	0.8 hp	1 hp	1 hp	3 hp	5 hp	–
	440 ... 480 V 3 phases	–	–	5 hp	15 hp	15 hp	–
Short-circuit protection for contactors without thermal O/L relay - Motor protection excluded							
Fuse rating	20 A	20 A	25 A	40 A	75 A	125 A	
Fuse type 480 V	K5	K5	K5	K5	K5	K5	
Max. electrical switching frequency							
for general use	300 cycles/h	300 cycles/h	300 cycles/h	300 cycles/h	300 cycles/h	150 cycles/h	
for motor use	600 cycles/h	600 cycles/h	600 cycles/h	600 cycles/h	600 cycles/h	–	

General technical data

Contactor type	ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N
Rated insulation voltage U_i acc. to IEC 60947-4-1 and VDE 0110 (Gr. C)	400 V	400 V	500 V	500 V	500 V	500 V
Rated impulse withstand voltage U_{imp}	6 kV	ESB: 6 kV EN: 6 kV	ESB: 6 kV EN: 4 kV / 6 kV with protection cover	6 kV	6 kV	6 kV
Ambient air temperature ⁽¹⁾						
operation	-25 ... +55 °C					
storage	-40 ... +80 °C					
Maximum operating altitude permissible	2000 m					
Resistance to shock acc. to IEC 60068-2-27	11 ms pulse 15g					

⁽¹⁾ If several contactors are mounted adjacently and the ON time is longer than one hour, every second contactor needs a distance piece, Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C or on Type ESB20.

Magnet system characteristics

Contactor type	ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N
Coil operating limits acc. to IEC/EN60947-4-1	0.85 ... 1.1 x UC (at $\theta \leq 55$ °C)					
Rated frequency	DC, 50 / 60 / 400 Hz					
Frequency range	DC, 40 ... 450 Hz					
Coil consumption						
average holding value DC	2.5 W	2.5 W	4 W	5 W	5 W	8.5 W
average pull-in value DC	2.5 W	2.5 W	4 W	5 W	70 W	100 W

Installation contactors

Technical data

Mounting characteristics and conditions for use

Contactor type	ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N
Mounting position	Position 1 to 5					
Mounting on DIN rail	TH35-15 (35 x 15 mm Mounting Rail) acc. to IEC 60715 TH35-7.5 (35 x 7.5 mm Mounting Rail) acc. to IEC 60715					

Connecting characteristics - Main circuit

Contactor type	ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N
Connecting capacity						
Rigid	1x 1 ... 10 mm ² 2x 1 ... 4 mm ²	1x 1 ... 10 mm ² 2x 1 ... 4 mm ²	1x 1.5 ... 10 mm ² 2x 1.5 ... 4 mm ²	1x 1.5 ... 25 mm ² 2x 1.5 ... 10 mm ²	1x 1.5 ... 25 mm ² 2x 1.5 ... 10 mm ²	1x 10 ... 50 mm ² 2x -
Flexible with ferrule	1x 1 ... 6 mm ² 2x 1 ... 2.5 mm ²	1x 1 ... 6 mm ² 2x 1 ... 2.5 mm ²	1x 1.5 ... 10 mm ² 2x 1.5 ... 2.5 mm ²	1x 1.5 ... 16 mm ² 2x 1.5 ... 10 mm ²	1x 1.5 ... 16 mm ² 2x 1.5 ... 10 mm ²	1x 10 ... 35 mm ² 2x -
Flexible with insulated ferrule	1x 1 ... 6 mm ² 2x 1 ... 1.5 mm ²	1x 1 ... 6 mm ² 2x 1 ... 1.5 mm ²	1x 1.5 ... 10 mm ² 2x 1.5 mm ²	1x 1.5 ... 16 mm ² 2x 1.5 ... 10 mm ²	1x 1.5 ... 16 mm ² 2x 1.5 ... 10 mm ²	1x 10 ... 35 mm ² 2x -
Flexible	1x 1 ... 6 mm ² 2x 1 ... 4 mm ²	1x 1 ... 6 mm ² 2x 1 ... 4 mm ²	1x 1.5 ... 10 mm ² 2x 1.5 ... 4 mm ²	1x 1.5 ... 16 mm ² 2x 1.5 ... 10 mm ²	1x 1.5 ... 16 mm ² 2x 1.5 ... 10 mm ²	1x 10 ... 35 mm ² 2x -
Stranded acc. to UL/CSA	1 4-8 AWG	1 4-8 AWG	16-8 AWG	16-4 AWG	16-4 AWG	8-0 AWG
Degree of protection	IP20					
Wire stripping length	10 mm	10 mm	10 mm	13 mm	13 mm	15 mm
Tightening torque	1.2 N·m / 11 lb.in	1.2 N·m / 11 lb.in	1 N·m / 9 lb.in	2.5 N·m / 20 lb.in	2.5 N·m / 20 lb.in	3 N·m / 27 lb.in
Recommended screw driver	Pozidriv 1			Pozidriv 2		

Connecting characteristics - Control circuit

Contactor type	ESB16..N	ESB20..N / EN20..N	ESB25..N / EN25..N	ESB40..N / EN40..N	ESB63..N	ESB100..N
Connecting capacity						
Rigid	1x 1 ... 4 mm ² 2x 1 ... 2.5 mm ²					
Flexible with ferrule	1x 0.75 ... 2.5 mm ² 2x 0.75 ... 1 mm ²					
Flexible with insulated ferrule	1x 1 ... 2.5 mm ² 2x 0.75 ... 1 mm ²					
Flexible	1x 1 ... 4 mm ² 2x 1 ... 2.5 mm ²					
Stranded acc. to UL/CSA	16-10 AWG					
Degree of protection	IP20					
Wire stripping length	7 mm					
Tightening torque	0.9 N·m / 8 lb.in					
Recommended screw driver	Pozidriv 1					

Installation contactors

DC switching table

Type	Rated operational voltage	Contact	DC-1/A 1-pole	DC3/A 1-pole
ESB16-..N	24 V DC	NO	20	15
ESB20-..N	48 V DC		15	7
EN20-..N	60 V DC		15	5
	110 V DC		5	1,5
	220 V DC		0,5	0,2
	24 V DC	NC	14	6
	48 V DC		7	3
	60 V DC		4,5	2
	110 V DC		1,5	0,6
	220 V DC		0,2	0,1

Type	Rated operational voltage	Contact	DC-1 /A 3 poles in series	DC-3 /A 3 poles in series
ESB25-..N	24 V DC	NO	24	24
EN25-..N	48 V DC		24	24
	60 V DC		24	24
	110 V DC		24	16
	220 V DC		13	4
	24 V DC	NC	24	19
	48 V DC		22	9,4
	60 V DC		17,5	7,5
	110 V DC		9,5	4,1
220 V DC		3,8	1,6	
ESB40-..N	24 V DC	NO	40	40
EN40-..N	48 V DC		40	40
	60 V DC		40	34
	110 V DC		30	18
	220 V DC		15	4,5
ESB63-..N	24 V DC	NO	63	63
	48 V DC		63	47
	60 V DC		60	38
	110 V DC		33	21
	220 V DC		17	5
ESB100-..N	24 V DC	NO	100	100
	48 V DC		100	70
	60 V DC		80	45
	110 V DC		50	25
	220 V DC		35	7

Installation contactors

Lamp load table

Please note that switching lamps is a capacitor load application where high inrush current peaks could occur. These are influenced by the length and cross section of the wire as well as the type of power supply unit and specifications of the lamp brand. For example, long cables can increase the possible number of lamps per pole. The table shows the allowed max. current for one pole and considers already the startup current peaks.

The following selection table shows the current values and the maximum switchable capacitor load for compensated lamps. These two limits have to be considered in the selection of contactors.

	ESB16..N	ESB20..N EN20..N	ESB25..N EN25..N	ESB40..N EN40..N	ESB63..N	ESB100..N
Permitted compensating capacity per phase C_{max} [μF]	45	45	100	350	500	650
Lamp types	Maximum load of the current paths during switching of electric lamps I _e [A]					
Incandescent and halogen lamps (230 V)	3	3	7	20	30	45
Mixing lamps without ballast	3	3	7	20	30	45
Fluorescent lamps with conventional ballast						
single lamp uncompensated	18	18	22	36	56	90
single lamp parallel compensated	1.5	1.5	3.5	10	15	22
series compensation, duo circuit	18	18	22	36	56	90
Fluorescent lamps with electronic ballast or CFL	3	3	7	20	30	45
LED lamps	3	3	7	20	30	45
High pressure mercury-vapor lamps						
single lamp without compensation	9	9	11	18	28	45
single lamp with parallel compensation	1.5	1.5	3.5	10	15	22
Halogen metal-vapor lamps						
single lamp without compensation	9	9	11	18	28	45
single lamp with parallel compensation	1.5	1.5	3.5	10	15	22
High pressure sodium-vapor lamps						
single lamp without compensation	9	9	11	18	28	45
single lamp with parallel compensation	1.5	1.5	3.5	10	15	22
Low pressure sodium-vapor lamps						
single lamp without compensation	9	9	11	18	28	45
single lamp with parallel compensation	1.5	1.5	3.5	10	15	22

Example for lamp load calculation

Due to many varieties of lamps and ballasts we advice to take the current load as base for reference. The lamp table considers already the inrush peaks and other lamp parameters. Please see the following examples for a reliable project lamp calculation.

Fluorescent lamp with conventional ballast, uncompensated

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

1 pole of ESB25..N can be loaded with max. 22 A,

see lamp table => $22 \text{ A} / 1.5 \text{ A} = 14.66 \Rightarrow 14$ lamps

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

see lamp table => $9 \text{ A} / 1.5 \text{ A} = 6$ lamps

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

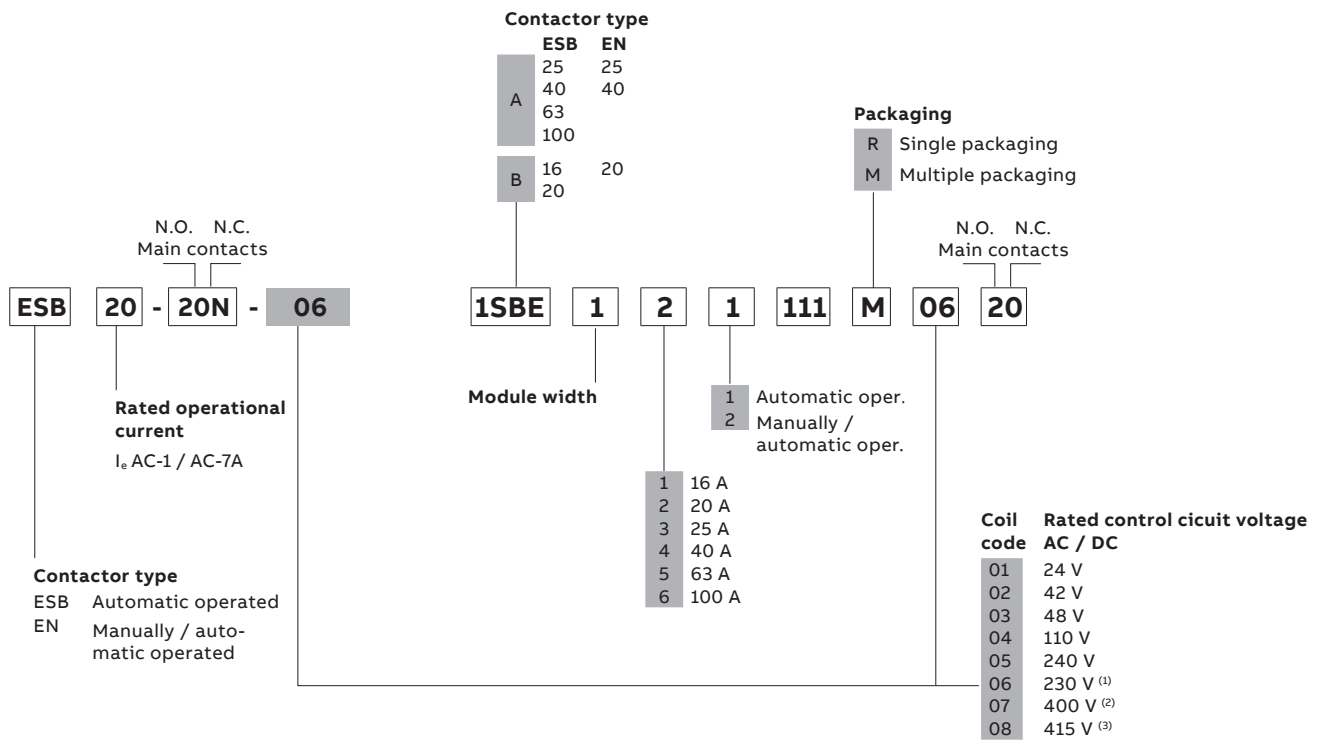
Example with picture: ESB25..N used for LED lamps:

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



Installation contactors

Voltage code table



⁽¹⁾ only coil 6 available with 230 V - 240 V for ESB25..N / EN25..N

⁽²⁾ only coil 7 available with 400 V - 415 V for ESB25..N / EN25..N

⁽³⁾ coil 8 not available for ESB16..N, ESB20..N / EN20..N

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Order code classification

Order code	Type	Page	Order code	Type	Page	Order code	Type	Page
1SAE231111M0104	ESB25-04N-01	13	1SAE351111R0120	ESB63-20N-01	15			
1SAE231111M0113	ESB25-13N-01	13	1SAE351111R0140	ESB63-40N-01	15			
1SAE231111M0122	ESB25-22N-01	13	1SAE351111R0611	ESB63-11N-06	15			
1SAE231111M0131	ESB25-31N-01	13	1SAE351111R0620	ESB63-20N-06	15			
1SAE231111M0140	ESB25-40N-01	13	1SAE351111R0630	ESB63-30N-06	15			
1SAE231111M0604	ESB25-04N-06	13	1SAE351111R0631	ESB63-31N-06	15			
1SAE231111M0613	ESB25-13N-06	13	1SAE351111R0640	ESB63-40N-06	15			
1SAE231111M0622	ESB25-22N-06	13	1SAE361111M0120	ESB100-20N-01	16			
1SAE231111M0631	ESB25-31N-06	13	1SAE361111M0620	ESB100-20N-06	16			
1SAE231111M0640	ESB25-40N-06	13	1SAE361111R0120	ESB100-20N-01	16			
1SAE231111R0104	ESB25-04N-01	13	1SAE361111R0620	ESB100-20N-06	16			
1SAE231111R0113	ESB25-13N-01	13	1SAE661111R0140	ESB100-40N-01	16			
1SAE231111R0122	ESB25-22N-01	13	1SAE661111R0640	ESB100-40N-06	16			
1SAE231111R0131	ESB25-31N-01	13	1SAE901901M011	EH04-11N	20			
1SAE231111R0140	ESB25-40N-01	13	1SAE901901M020	EH04-20N	20			
1SAE231111R0604	ESB25-04N-06	13	1SAE901901R011	EH04-11N	20			
1SAE231111R0613	ESB25-13N-06	13	1SAE901901R020	EH04-20N	20			
1SAE231111R0622	ESB25-22N-06	13	1SBE111111M0102	ESB16-02N-01	11			
1SAE231111R0631	ESB25-31N-06	13	1SBE111111M0111	ESB16-11N-01	11			
1SAE231111R0640	ESB25-40N-06	13	1SBE111111M0120	ESB16-20N-01	11			
1SAE232111M0131	EN25-31N-01	18	1SBE111111M0602	ESB16-02N-06	11			
1SAE232111M0140	EN25-40N-01	18	1SBE111111M0611	ESB16-11N-06	11			
1SAE232111M0630	EN25-30N-06	18	1SBE111111M0620	ESB16-20N-06	11			
1SAE232111M0631	EN25-31N-06	18	1SBE111111R0102	ESB16-02N-01	11			
1SAE232111M0640	EN25-40N-06	18	1SBE111111R0111	ESB16-11N-01	11			
1SAE232111R0131	EN25-31N-01	18	1SBE111111R0120	ESB16-20N-01	11			
1SAE232111R0140	EN25-40N-01	18	1SBE111111R0602	ESB16-02N-06	11			
1SAE232111R0630	EN25-30N-06	18	1SBE111111R0611	ESB16-11N-06	11			
1SAE232111R0631	EN25-31N-06	18	1SBE111111R0620	ESB16-20N-06	11			
1SAE232111R0640	EN25-40N-06	18	1SBE121111M0102	ESB20-02N-01	12			
1SAE341111M0120	ESB40-20N-01	14	1SBE121111M0111	ESB20-11N-01	12			
1SAE341111M0122	ESB40-22N-01	14	1SBE121111M0120	ESB20-20N-01	12			
1SAE341111M0130	ESB40-30N-01	14	1SBE121111M0602	ESB20-02N-06	12			
1SAE341111M0131	ESB40-31N-01	14	1SBE121111M0611	ESB20-11N-06	12			
1SAE341111M0140	ESB40-40N-01	14	1SBE121111M0620	ESB20-20N-06	12			
1SAE341111M0620	ESB40-20N-06	14	1SBE121111R0102	ESB20-02N-01	12			
1SAE341111M0622	ESB40-22N-06	14	1SBE121111R0111	ESB20-11N-01	12			
1SAE341111M0630	ESB40-30N-06	14	1SBE121111R0120	ESB20-20N-01	12			
1SAE341111M0631	ESB40-31N-06	14	1SBE121111R0602	ESB20-02N-06	12			
1SAE341111M0640	ESB40-40N-06	14	1SBE121111R0611	ESB20-11N-06	12			
1SAE341111R0120	ESB40-20N-01	14	1SBE121111R0620	ESB20-20N-06	12			
1SAE341111R0122	ESB40-22N-01	14	1SBE122111M0120	EN20-20N-01	17			
1SAE341111R0130	ESB40-30N-01	14	1SBE122111M0620	EN20-20N-06	17			
1SAE341111R0131	ESB40-31N-01	14	1SBE122111R0120	EN20-20N-01	17			
1SAE341111R0140	ESB40-40N-01	14	1SBE122111R0620	EN20-20N-06	17			
1SAE341111R0620	ESB40-20N-06	14	GHE3201902R0001	ESB-DIS (1)	20			
1SAE341111R0622	ESB40-22N-06	14	GHE3201903R0001	ESB-PLK24	20			
1SAE341111R0630	ESB40-30N-06	14	GHE3201903R0002	ESB-SPK24	20			
1SAE341111R0631	ESB40-31N-06	14	GHE3401903R0001	ESB-PLK40/63	20			
1SAE341111R0640	ESB40-40N-06	14	GHE3401903R0002	ESB-SPK40/63	20			
1SAE342111M0131	EN40-31N-01	19						
1SAE342111M0140	EN40-40N-01	19						
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Notes

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