



Technical catalogue

# Modular DIN rail components

## Installation contactors



# Installation Contactors



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# Modular DIN rail components

## Installation Contactors ESB and EN

All over the world, commercial and industrial buildings such as hospitals, hotels, shopping and sport centers, domestic and residential installation are equipped with ABB low voltage products and systems.

From switchboard to light switch, ABB covers the complete range of equipment required for controlling and protecting electrical installations.



### Typical segments

1-2 Residential installations | 3 Hotels



For controlling and remote switching, ABB offers a complete range of installation contactors that are mainly used in the following applications:

- Lighting
- Heating
- Ventilation
- Pumps and motors.

ESB and EN installation contactors are designed to match the Modular DIN rail components for common use in dedicated panels.

The ESB range includes 4 ratings from 20 A to 63 A with 2 to 4-pole version.

The EN range includes 3 ratings from 20 A to 40 A.

Many contacts variations are available for managing all application. Products comply with standards IEC60947-4-1 and IEC61095.

**Construction:**

The ESB20, EN20 operates with an AC solenoid system.

Types ESB24...63, EN24...40 are fitted with a DC solenoid actuator and are therefore hum-free. The noise during switching is barely audible making it beneficial for use in buildings such as hospitals, hotels or houses. An incorporated varistor protects the coil against remote lightning strikes and overvoltages up to 5 kV.

In addition, it limits the interference voltage peaks of the solenoid system.

The contactors can therefore be combined with programmable logic controllers. There is no need for a protective circuit. The solenoid system is provided with radio interference suppression. Accessories are available, such as auxiliary contacts and sealing covers.

**ESB advantages:**

- Powerful for lamp switching
- Operation flag indicator
- DC coil: - Noiseless and hum free
  - Low power consumption
  - Integrated overvoltage protection.

The EN contactors have a built-in toggle switch for automatic and manual operation.

**EN advantages:**

- Facilitate commissioning
- Functional test before start-up
- Ease maintenance operation
- High degree of safety and availability in case of automation system failure.

**4 Shopping centers | 5 Hospitals | 6 Commercial & industrial buildings**





**20 A**  
**AC-1/AC-7a**

# ESB20 Installation Contactors

AC Operated



## Application

The ESB contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.


## Certifications and Approvals



## Description

The **ESB20** contactors are used for the control of single phase loads up to 20 A. They operate with an AC coil. You can choose between a various N.O. and N.C. contacts combination.

## Ordering Details

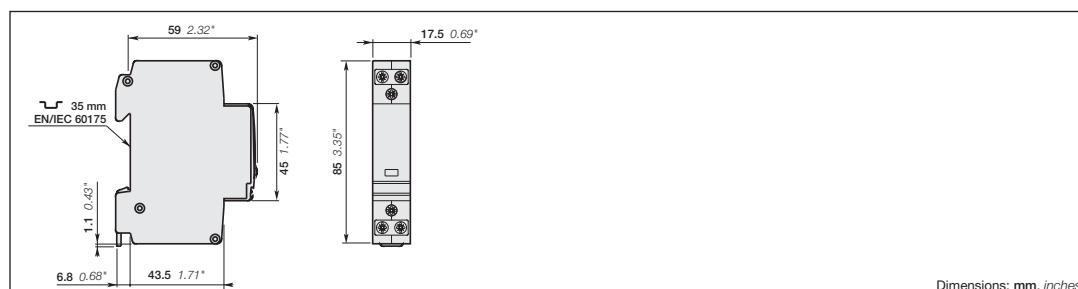
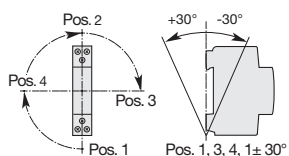
Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(ngl)</sup> pieces	Weight kg (1 pce)
		50 Hz	60 Hz				
 1	1	12 V	14 V	ESB20-20	<b>GHE3211102R1004</b>	10	0.14
		20 V	24 V		<b>GHE3211102R1005</b>	10	0.14
		24 V	28 V		<b>GHE3211102R0001</b>	10	0.14
		42 V	48 V		<b>GHE3211102R0002</b>	10	0.14
		48 V	55 V		<b>GHE3211102R0003</b>	10	0.14
		110 V	125...127 V		<b>GHE3211102R0004</b>	10	0.14
		230 V	264 V		<b>GHE3211102R0006</b>	10	0.14
2 N.O.	1	240 V	278 V	<b>GHE3211102R0005</b>	10	0.14	
		400 V	-	<b>GHE3211102R0007</b>	10	0.14	
		12 V	14 V	ESB20-02	<b>GHE3211202R1004</b>	10	0.14
		20 V	24 V		<b>GHE3211202R1005</b>	10	0.14
		24 V	28 V		<b>GHE3211202R0001</b>	10	0.14
		42 V	48 V		<b>GHE3211202R0002</b>	10	0.14
		48 V	55 V		<b>GHE3211202R0003</b>	10	0.14
110 V	125...127 V	<b>GHE3211202R0004</b>	10		0.14		
230 V	264 V	<b>GHE3211202R0006</b>	10		0.14		
2 N.C.	1	240 V	278 V	<b>GHE3211202R0005</b>	10	0.14	
		400 V	-	<b>GHE3211202R0007</b>	10	0.14	
		12 V	14 V	ESB20-11	<b>GHE3211302R1004</b>	10	0.14
		20 V	24 V		<b>GHE3211302R1005</b>	10	0.14
		24 V	28 V		<b>GHE3211302R0001</b>	10	0.14
		42 V	48 V		<b>GHE3211302R0002</b>	10	0.14
		48 V	55 V		<b>GHE3211302R0003</b>	10	0.14
110 V	125...127 V	<b>GHE3211302R0004</b>	10		0.14		
230 V	264 V	<b>GHE3211302R0006</b>	10		0.14		
1 N.O.	1	240 V	278 V	<b>GHE3211302R0005</b>	10	0.14	
1 N.C.		400 V	-	<b>GHE3211302R0007</b>	10	0.14	

## Main Technical Data

For complete technical data see 1SBC103005S0201.pdf

<b>Main poles</b> acc to. IEC 60947-4-1 and IEC 61095	Rated operational voltage $U_e$	250 V
	$I_e$ AC-1 / AC-7a Rated operational current (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	20 A
	AC-3 / AC-7b Ratings (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	
	Rated operational power	1 phase 230 V 1.1 kW
	$I_e$ Rated operational current	1 phase 230 V 9 A
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 $U_e$ (at $\theta \leq 55^\circ\text{C}$ )
	Average pull-in coil consumption value	8 VA / 5 W
	Average holding coil consumption value	3.2 VA / 1.2 W
<b>Connecting capacity</b>	Main pole terminals	Rigid 1 x 1.5 ... 10 mm <sup>2</sup> 2 x 1.5 ... 4 mm <sup>2</sup>
	Coil terminals	Rigid 1 x 0.5 ... 4 mm <sup>2</sup> 2 x 0.75 ... 2.5 mm <sup>2</sup>

### Mounting positions



Dimensions: mm, inches



**24 A**  
**AC-1/AC-7a**

# ESB24 Installation Contactors

AC / DC Operated



## Application

The ESB contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.

## Description

The **ESB24** contactors are used for the control of single and three-phases loads up to 24 A. Due to their DC solenoid actuator, the **ESB24** can be connected to AC or DC voltages.

This provides the following benefits:

Hum-free operating system, no vibration, silent in operation, low power consumption, integrated high overvoltage protection 5 kV. You can choose between a various N.O. and N.C. contacts combination.

## Main accessories:

Auxiliary contact blocks **EH04**.

## Certifications and Approvals



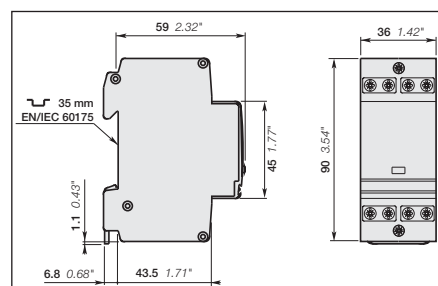
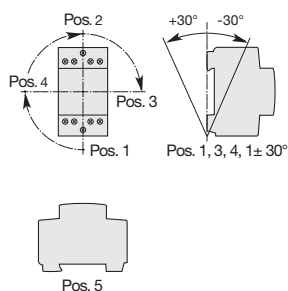
## Ordering Details

Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(ing)</sup> pieces	Weight kg (1 pce)
		40... 450 Hz	DC				
 4 N.O.	2	12 V	12 V	ESB24-40	<b>GHE3291102R1004</b>	5	0.28
		24 V	24 V		<b>GHE3291102R0001</b>	5	0.28
		42 V	42 V		<b>GHE3291102R0002</b>	5	0.28
		48 V	48 V		<b>GHE3291102R0003</b>	5	0.28
		110...120 V	110...120 V		<b>GHE3291102R0004</b>	5	0.28
		230...240 V	230...240 V		<b>GHE3291102R0006</b>	5	0.28
		400...415 V	400...415 V		<b>GHE3291102R0007</b>	5	0.28
 4 N.C.	2	12 V	12 V	ESB24-04	<b>GHE3291202R1004</b>	5	0.28
		24 V	24 V		<b>GHE3291202R0001</b>	5	0.28
		42 V	42 V		<b>GHE3291202R0002</b>	5	0.28
		48 V	48 V		<b>GHE3291202R0003</b>	5	0.28
		110...120 V	110...120 V		<b>GHE3291202R0004</b>	5	0.28
		230...240 V	230...240 V		<b>GHE3291202R0006</b>	5	0.28
		400...415 V	400...415 V		<b>GHE3291202R0007</b>	5	0.28
 2 N.O. 2 N.C.	2	12 V	12 V	ESB24-22	<b>GHE3291302R1004</b>	5	0.28
		24 V	24 V		<b>GHE3291302R0001</b>	5	0.28
		42 V	42 V		<b>GHE3291302R0002</b>	5	0.28
		48 V	48 V		<b>GHE3291302R0003</b>	5	0.28
		110...120 V	110...120 V		<b>GHE3291302R0004</b>	5	0.28
		230...240 V	230...240 V		<b>GHE3291302R0006</b>	5	0.28
		400...415 V	400...415 V		<b>GHE3291302R0007</b>	5	0.28
 3 N.O. 1 N.C.	2	12 V	12 V	ESB24-31	<b>GHE3291602R1004</b>	5	0.28
		24 V	24 V		<b>GHE3291602R0001</b>	5	0.28
		42 V	42 V		<b>GHE3291602R0002</b>	5	0.28
		48 V	48 V		<b>GHE3291602R0003</b>	5	0.28
		110...120 V	110...120 V		<b>GHE3291602R0004</b>	5	0.28
		230...240 V	230...240 V		<b>GHE3291602R0006</b>	5	0.28
		400...415 V	400...415 V		<b>GHE3291602R0007</b>	5	0.28
 1 N.O. 3 N.C.	2	12 V	12 V	ESB24-13	<b>GHE3291702R1004</b>	5	0.28
		24 V	24 V		<b>GHE3291702R0001</b>	5	0.28
		42 V	42 V		<b>GHE3291702R0002</b>	5	0.28
		48 V	48 V		<b>GHE3291702R0003</b>	5	0.28
		110...120 V	110...120 V		<b>GHE3291702R0004</b>	5	0.28
		230...240 V	230...240 V		<b>GHE3291702R0006</b>	5	0.28
		400...415 V	400...415 V		<b>GHE3291702R0007</b>	5	0.28

## Main Technical Data

Main poles		Rated operational voltage $U_e$		400 V	
acc to IEC 60947-4-1 and IEC 61095	$I_e$ AC-1 / AC-7a	Rated operational current (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	24 A		
	AC-3 / AC-7b	Ratings (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )			
	Rated operational power	3 phases	400 V	4 kW	
	$I_e$ Rated operational current	3 phases	400 V	9 A	
Magnet system		Coil operating limits (acc. to IEC 60947-4-1)		0.85 ... 1.1 $U_e$ (at $\theta \leq 55^\circ\text{C}$ )	
		Average pull-in coil consumption value		4 VA / 4 W	
		Average holding coil consumption value		4 VA / 4 W	
Connecting capacity		Main pole terminals		Rigid	
				1 x 1.5 ... 10 mm <sup>2</sup>	
				2 x 1.5 ... 4 mm <sup>2</sup>	
		Coil terminals		Rigid	
				1 x 1 ... 4 mm <sup>2</sup>	
				2 x 0.75 ... 2.5 mm <sup>2</sup>	

## Mounting positions



Dimensions: mm, inches



**40 A**  
**AC-1/AC-7a**

# ESB40 Installation Contactors

AC / DC Operated



## Application

The ESB contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.

## Description

The **ESB40** contactors are used for the control of single and three-phases loads up to 40 A. Due to their DC solenoid actuator, the **ESB40** can be connected to AC or DC voltages.

This provides the following benefits:

Hum-free operating system, no vibration, silent in operation, low power consumption, integrated high overvoltage protection 5 kV. You can choose between a various N.O. and N.C. contacts combination.

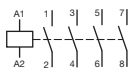
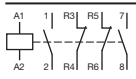
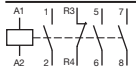
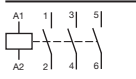
## Main accessories:

Auxiliary contact blocks **EH04**.

## Certifications and Approvals



## Ordering Details

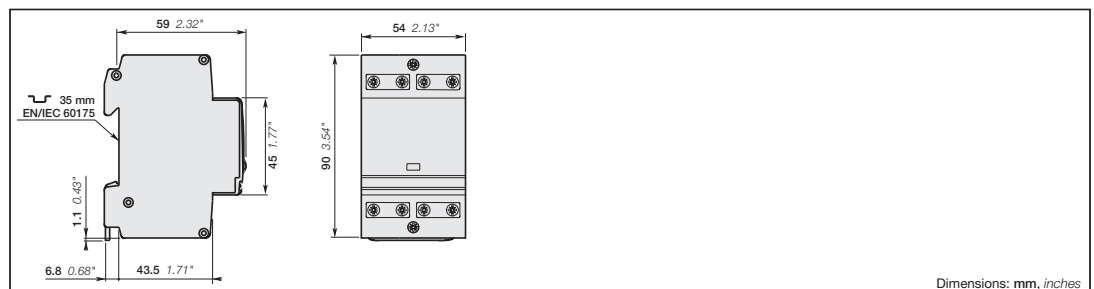
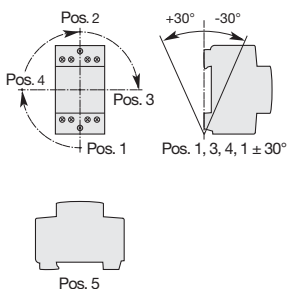
Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(ing)</sup> pieces	Weight kg (1 pce)	
		40... 450 Hz	DC					
 4 N.O.	3	12 V	12 V	ESB40-40	<b>GHE3491102R1004</b>	3	0.40	
		24 V	24 V		<b>GHE3491102R0001</b>	3	0.40	
		42 V	42 V		<b>GHE3491102R0002</b>	3	0.40	
		48 V	48 V		<b>GHE3491102R0003</b>	3	0.40	
		110...120 V	110...120 V		<b>GHE3491102R0004</b>	3	0.40	
		230...240 V	230...240 V		<b>GHE3491102R0006</b>	3	0.40	
 2 N.O. 2 N.C.	3	24 V	24 V	ESB40-22	<b>GHE3491302R0001</b>	3	0.40	
		230 V	230 V		<b>GHE3491302R0006</b>	3	0.40	
		24 V	24 V		ESB40-31	<b>GHE3491602R0001</b>	3	0.40
		230 V	230 V			<b>GHE3491602R0006</b>	3	0.40
 3 N.O. 1 N.C.	3	24 V	24 V	ESB40-30	<b>GHE3491502R0001</b>	3	0.39	
		230 V	230 V		<b>GHE3491502R0006</b>	3	0.39	
		400 V	400 V		<b>GHE3491502R0007</b>	3	0.39	
 3 N.O. 2 N.O.	3	24 V	24 V	ESB40-20	<b>GHE3491402R0001</b>	3	0.38	
		230 V	230 V		<b>GHE3491402R0006</b>	3	0.38	

## Main Technical Data

For complete technical data see 1SBC103005S0201.pdf

<b>Main poles</b>	Rated operational voltage $U_e$	400 V
acc to IEC 60947-4-1 and IEC 61095	$I_e$ AC-1 / AC-7a Rated operational current (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	40 A
	AC-3 / AC-7b Ratings (for 1500 r.p.m., 50 Hz or 1800 r.p.m., 60 Hz, 3-phase motors) (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	
	Rated operational power 3 phases	400 V 11 kW
	$I_e$ Max. Rated operational current 3 phases	400 V 22 A
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 $U_e$ (at $\theta \leq 55^\circ\text{C}$ )
	Average pull-in coil consumption value	5 VA / 5 W
	Average holding coil consumption value	5 VA / 5 W
<b>Connecting capacity</b>	Main pole terminals	Rigid 1 x 1.5 ... 25 mm <sup>2</sup>
	Coil terminals	Rigid 2 x 1.5 ... 10 mm <sup>2</sup>
		1 x 1 ... 4 mm <sup>2</sup>
		2 x 0.75 ... 2.5 mm <sup>2</sup>

### Mounting positions



Dimensions: mm, inches





**63 A**  
**AC-1/AC-7a**

# ESB63 Installation Contactors

AC / DC Operated



## Application

The ESB contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.

## Certifications and Approvals



## Description

The **ESB63** contactors are used for the control of single and three-phases loads up to 63 A. Due to their DC solenoid actuator, the **ESB63** can be connected to AC or DC voltages.

This provides the following benefits:

Hum-free operating system, no vibration, silent in operation, low power consumption, integrated high overvoltage protection 5 kV. You can choose between a various N.O. and N.C. contacts combination.

## Main accessories:

Auxiliary contact blocks **EH04**.

## Ordering Details

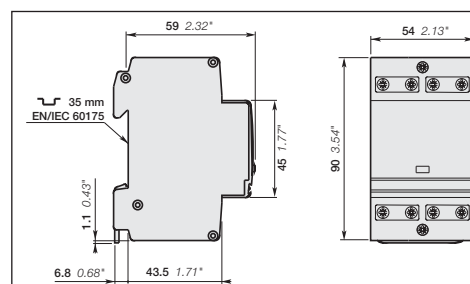
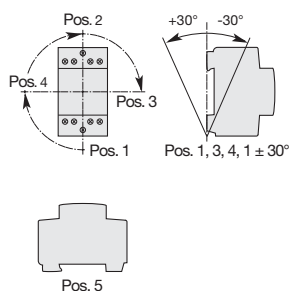
Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(ing)</sup> pieces	Weight kg (1 pce)
		40... 450 Hz	DC				
 4 N.O.	3	12 V	12 V	ESB63-40	<b>GHE3691102R1004</b>	3	0.42
		24 V	24 V		<b>GHE3691102R0001</b>	3	0.42
		42 V	42 V		<b>GHE3691102R0002</b>	3	0.42
		48 V	48 V		<b>GHE3691102R0003</b>	3	0.42
		110...120 V	110...120 V		<b>GHE3691102R0004</b>	3	0.42
 2 N.O. 2 N.C.	3	230...240 V	230...240 V	ESB63-22	<b>GHE3691102R0006</b>	3	0.42
		400...415 V	400...415 V		<b>GHE3691102R0007</b>	3	0.42
		415 V	415 V		<b>GHE3691102R0008</b>	3	0.42
		400 V	400 V		<b>GHE3691302R0007</b>	3	0.42
		110 V	110 V		ESB63-31	<b>GHE3691602R0004</b>	3
230 V	230 V	<b>GHE3691602R0006</b>	3	0.42			
 3 N.O. 1 N.C.	3	230 V	230 V	ESB63-30	<b>GHE3691502R0006</b>	3	0.41
		400 V	400 V		<b>GHE3691502R0007</b>	3	0.41
 3 N.O.	3	24 V	24 V	ESB63-20	<b>GHE3691402R0001</b>	3	0.40
		230 V	230 V		<b>GHE3691402R0006</b>	3	0.40
 2 N.O. 1 N.C.	3	230 V	230 V	ESB63-11	<b>GHE3691802R0006</b>	3	0.40
		400 V	400 V				

## Main Technical Data

For complete technical data see 1SBC103005S0201.pdf

<b>Main poles</b> acc to. IEC 60947-4-1 and IEC 61095	Rated operational voltage <b>U<sub>e</sub></b>	400 V
	<b>I<sub>e</sub></b> AC-1 / AC-7a Rated operational current (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	63 A
	AC-3 / AC-7b Ratings (for 1500 r.p.m., 50 Hz or 1800 r.p.m., 60 Hz, 3-phase motors) (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	
	Rated operational power	3 phases 400 V 15 kW
	<b>I<sub>m</sub></b> Max. rated operational current	3 phases 400 V 30 A
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 <b>U<sub>e</sub></b> (at $\theta \leq 55^\circ\text{C}$ )
	Average pull-in coil consumption value	65 VA / 65 W
	Average holding coil consumption value	4.2 VA / 4.2 W
<b>Connecting capacity</b>	Main pole terminals	Rigid 1 x 1.5 ... 25 mm <sup>2</sup>
		2 x 1.5 ... 10 mm <sup>2</sup>
	Coil terminals	Rigid 1 x 1 ... 4 mm <sup>2</sup>
		2 x 0.75 ... 2.5 mm <sup>2</sup>

### Mounting positions



Dimensions: mm, inches

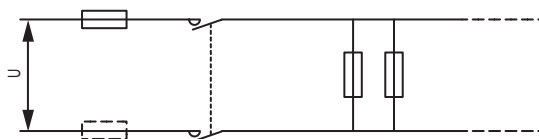
1SBC103005S0201

# ESB Installation Contactors

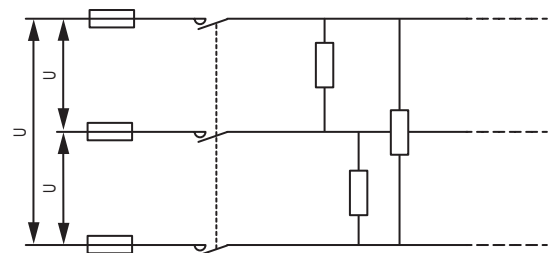
## Technical Data

### Main Pole - Utilization Characteristics according to IEC

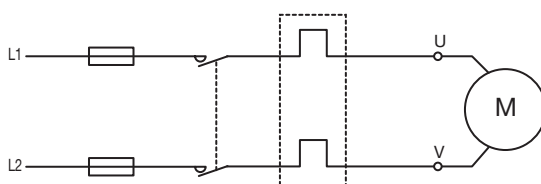
Contactor types:	AC operated		ESB20				ESB24				ESB40				ESB63			
	AC / DC operated																	
<b>Rated operational voltage <math>U_e</math> max.</b>	<b>V</b>		AC: 250, DC: 220				AC: 400, DC: 220											
<b>Rated frequency limits</b>	<b>Hz</b>		50/60, DC															
<b>Utilization category AC-1 / AC-7a</b>																		
for air temperature close to contactor $< 55\text{ }^\circ\text{C}$																		
Max. rated operational current $I_e$ AC-1 / AC-7a																		
	N.O.	<b>A</b>	20				24				40				63			
	N.C.	<b>A</b>	20				24				30				30			
<b>Utilization category AC-3 / AC-7b</b>																		
for air temperature close to contactor $\leq 55\text{ }^\circ\text{C}$																		
<b>Max. rated operational current <math>I_e</math> AC-3/AC-7b</b>																		
	230 V - 1 phase N.O.	<b>A</b>	9				9				22				30			
	400 V - 3 phases N.O.	<b>A</b>	-				9				22				30			
<b>Rated operational power AC-3</b>																		
	230 V - 1 phase	<b>kW</b>	1.1				1.3				3.7				5			
	400 V - 3 phases	<b>kW</b>	-				4				11				15			
<b>Rated making capacity AC-3</b>																		
10 x $I_e$ / AC-3																		
<b>Rated breaking capacity AC-3</b>																		
8 x $I_e$ / AC-3																		
<b>Short-circuit protection</b> for contactors																		
gG type fuse																		
		<b>A</b>	20				35				63				80			
<b>Rated short-time withstand current <math>I_{cw}</math></b>																		
at $40\text{ }^\circ\text{C}$ ambient temp., in free air, from a cold state																		
	10 s	<b>A</b>	72								176				240			
<b>Heat dissipation per pole <math>I_e</math>/AC-1/AC-7a</b>																		
		<b>W</b>	1				3				4				6			
<b>Max. electrical switching frequency</b>																		
	- for AC-1 / AC-7a	<b>cycles/h</b>	300															
	- for AC-3 / AC-7b	<b>cycles/h</b>	600															
<b>Electrical durability</b>																		
	- for AC-1 / AC-7a	<b>cycles</b>	150000				150000				150000				150000			
	- for AC-3 / AC-7b	<b>cycles</b>	150000				500000				170000				240000			
<b>Mechanical durability</b>																		
	- millions of operating cycles		1															



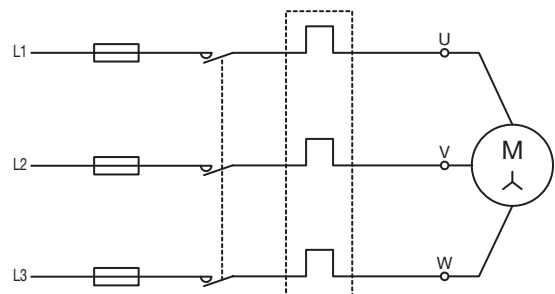
Single-phase (AC-1, AC-7a)



Three-phase (AC-1, AC-7a)



Single-phase (AC-7b)



Three-phase (AC-7b, AC-3)

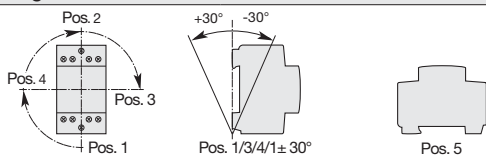
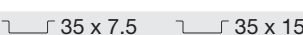
# ESB Installation Contactors

## Technical Data

### Main Pole - Utilization Characteristics according to UL/CSA

Contactor types:	AC operated		ESB20	ESB24	ESB40	ESB63
	AC / DC operated					
<b>General use rating</b>						
Amp rating	240 V	A	20	-	-	-
	480 V	A	-	24	40	63
<b>Motor rating</b>						
Amp rating						
	120 V - 1 phase	A	9.8	-	-	-
	240 V - 1 phase N.O.	A	9.8	9.6	22	28
	N.C.	A	8	9.6	22	30
	440 - 480 V - 3 phases N.O.	A	-	7.6	21	21
	N.C.	A		3.4	-	-
<b>Motor power</b>						
	120 V - 1 phase	hp	1/2	-	-	-
	240 V - 1 phase	hp	1	3	7.5	10
	440 - 480 V - 3 phases	hp	-	5	15	15
<b>Short-circuit protection</b> for contactors without thermal O/L relay - Motor protection excluded						
Fuse rating, 480 V		A	25	25 / K5	40 / K5	75 / K5
Fuse type, 600 V			-	-	-	-
<b>Max. electrical switching frequency</b>						
- for general use		cycles/h	300			
- for motor use		cycles/h	600			

### General Technical Data

<b>Rated insulation voltage <math>U_i</math></b>		V	400	500
according to IEC 60947-4-1		V	240	600
according to UL/CSA		kV	6	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>			IEC 60947-4-1 / EN 60947-4-1 and IEC 61095 / EN 61095, UL 508, CSA C22.2 N°14-05	
<b>Standards</b>			IEC 60947-4-1 / EN 60947-4-1 and IEC 61095 / EN 61095, UL 508, CSA C22.2 N°14-05	
<b>Air temperature</b> close to contactor		°C	-25 ... +55 (Type ESB24...63: for ambient temperature > 40 °C, add ESB-DIS (1/2 module) at every second contactor)	
- for operation at 0.85 ... 1.1 $U_c$		°C	-40 ... +80	
- for storage				
<b>Climatic withstand</b>			IEC 60068-2-30, UTE 63-100 execution 1*	
<b>Operating altitude</b>		m	≤ 2000	
<b>Shock withstand</b>			10 g / 4 ms / axes X Y Z	
<b>Mounting positions</b>				
Pos 1, 3, 4, 1±30°				
Pos 5 : not allowed for ESB20				
<b>Fixing</b>				
on rail acc. to IEC 60715 and EN 60715				

\* ESB20 only





# ESB Installation Contactors

## Technical Data

### Magnet System Characteristics

Contactor types:	AC operated AC / DC operated	ESB20				ESB24		ESB40		ESB63	
<b>Rated operational voltage <math>U_e</math> max.</b>		0.85 ... 1.1 x $U_c$ (at $\theta \leq 55$ °C)									
	- at 50 Hz	<b>V</b>	12 ... 400		12 ... 415		24 ... 415				
	- at 60 Hz	<b>V</b>	14 ... 380		12 ... 415		24 ... 415				
	- at 400 Hz	<b>V</b>	-		12 ... 415		24 ... 415				
	DC	<b>V</b>	-		12 ... 415		24 ... 415				
<b>Coil operating limits</b> acc. to IEC 60947-4-1		approx. 20 ... 75 %									
<b>Drop-out voltage in % of <math>U_c</math></b>		approx. 10 ... 75 %									
<b>Frequency range</b>		<b>Hz</b>		50/60		DC, 50 ... 400					
<b>Coil consumption</b>											
Average pull-in value		<b>VA/W</b>	8 / 5		4 / 4		5 / 5		65 / 65		
Average holding value		<b>VA/W</b>	3.2 / 1.2		4 / 4		5 / 5		4.2 / 4.2		
<b>Operating time</b>											
between coil energization and:											
	- N.O. contact closing	<b>ms</b>	12		40						
between coil de-energization and:											
	- N.O. contact opening	<b>ms</b>	12		40						

### Connecting Characteristics

Contactor types:	AC operated AC / DC operated	ESB20				ESB24		ESB40		ESB63	
<b>Connecting capacity</b> (min. ... max.)											
Main pole terminals											
	Rigid		1 x mm <sup>2</sup>		1.5 ... 10		1.5 ... 25				
			2 x mm <sup>2</sup>		1.5 ... 4		1.5 ... 10				
Capacity acc. to <b>UL/CSA</b>		<b>AWG</b>		14-8		16-8		16-4			
<b>Coil terminals</b>											
	Rigid		1 x mm <sup>2</sup>		0.5 ... 4		1 ... 4				
			2 x mm <sup>2</sup>		0.75 ... 2.5						
Capacity acc. to <b>UL/CSA</b>		<b>AWG</b>		18-14		16-10					
<b>Degree of protection</b>											
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529											
Protection against direct contact in acc. with EN 50274											
All terminals		IP20									
<b>Screwdriver type</b>											
Main poles		Flat Ø 5 / Pozidriv 1				Flat Ø 7.5 / Pozidriv 2					
Coil terminals		Flat Ø 5 / Pozidriv 1				Flat Ø 5 / Pozidriv 1					
<b>Stripping length</b>											
Main poles		<b>mm</b>	10		13						
Coil terminals		<b>mm</b>	7								
<b>Tightening torque</b>											
Main poles		<b>Nm</b>	1.2		1		2.5				
Coil terminals		<b>Nm</b>	0.9								

# ESB Installation Contactors

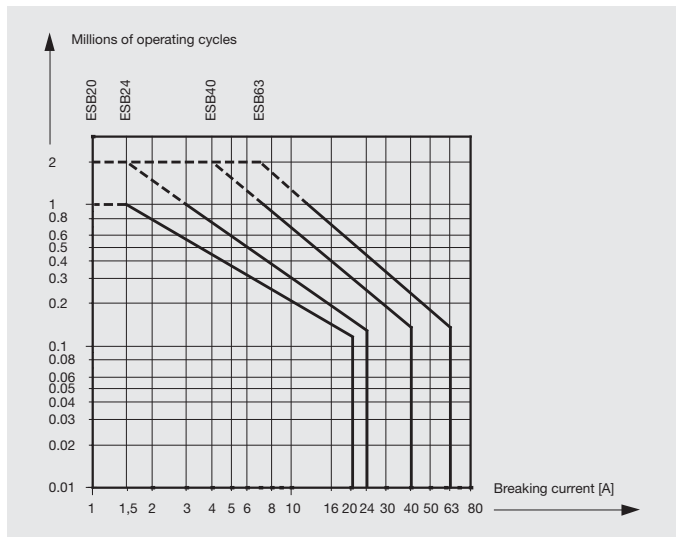
## Technical Data

### EH04... Auxiliary Contact Block - Utilization Characteristics according to IEC

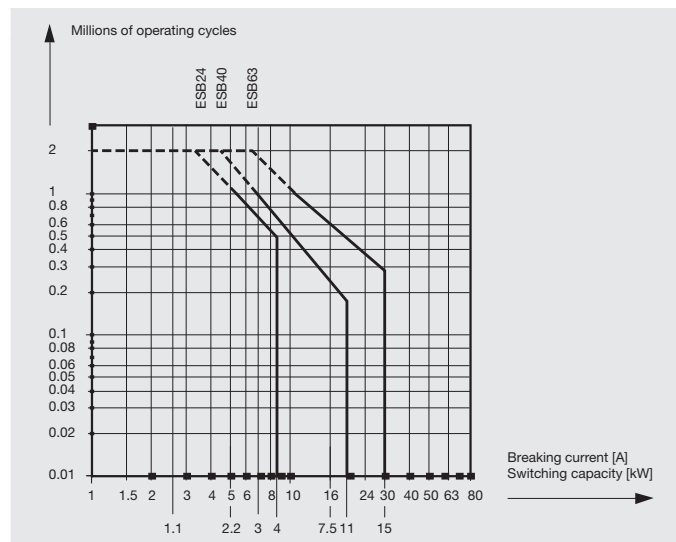
Contactor types:	AC operated AC / DC operated	ESB20	ESB24	ESB40	ESB63
Rated operational voltage $U_e$ max.	V	-	500		
Conventional free air thermal current $I_{th}$ $\theta \leq 40^\circ\text{C}$	A	-	6		
Rated frequency limits	Hz	-	50/60		
Rated operational current $I_e$ / AC-15					
acc. to IEC 60947-5-1	240 V 50/60 Hz	A	4		
	415 V 50/60 Hz	A	3		
	500 V 50/60 Hz	A	2		
Making capacity acc. to IEC 60947-5-1		-	11 x $I_e$ AC-15		
Breaking capacity acc. to IEC 60947-5-1		-	11 x $I_e$ AC-15		
Short-circuit protection gl type fuse	A	-	10		
Minimum switching capacity with failure rate acc. to IEC 60947-5-4	V/mA	-	17 / 5		
Heat dissipation per pole at 6 A	W	-	0.1		

### Electrical durability

#### AC-1 / 400 V / 3-phase for ESB20...63



#### AC-3 / 400 V / 3-phase for ESB24...63



# ESB Installation Contactors

## Technical Data

### DC-1/DC-3 switching DC with N.O. contacts (N.O.)

Type	Rated operating voltage $U_e$	DC-1 ( $L/R \leq 1 \text{ ms}$ )			DC-3 ( $L/R \leq 2 \text{ ms}$ )		
		1 current path	2 current paths in series	3 current paths in series	1 current path	2 current paths in series	3 current paths in series
ESB20-20	24 V DC	20 A	20 A	-	15 A	20 A	-
	48 V DC	15 A	20 A	-	7 A	15 A	-
	60 V DC	15 A	20 A	-	5 A	10 A	-
	110 V DC	5 A	15 A	-	1.5 A	5 A	-
	220 V DC	0.5 A	5 A	-	0.2 A	1.5 A	-
ESB24	24 V DC	24.0 A	24.0 A	24.0 A	16.0 A	24.0 A	24.0 A
	48 V DC	21.0 A	24.0 A	24.0 A	8.0 A	18.0 A	24.0 A
	60 V DC	17.0 A	24.0 A	24.0 A	4.0 A	14.0 A	24.0 A
	110 V DC	7.0 A	16.0 A	24.0 A	1.6 A	6.5 A	16.0 A
	220 V DC	0.9 A	4.5 A	13.0 A	0.2 A	1.0 A	4.0 A
ESB40	24 V DC	40.0 A	40.0 A	40.0 A	19.0 A	40.0 A	40.0 A
	48 V DC	23.0 A	40.0 A	40.0 A	10.0 A	20.0 A	40.0 A
	60 V DC	18.0 A	32.0 A	40.0 A	5.0 A	16.0 A	34.0 A
	110 V DC	8.0 A	17.0 A	30.0 A	1.8 A	7.0 A	18.0 A
	220 V DC	1.0 A	5.0 A	15.0 A	0.3 A	1.1 A	4.5 A
ESB63	24 V DC	50.0 A	63.0 A	63.0 A	21.0 A	44.0 A	63.0 A
	48 V DC	25.0 A	43.0 A	63.0 A	11.0 A	22.0 A	47.0 A
	60 V DC	20.0 A	35.0 A	60.0 A	5.5 A	18.0 A	38.0 A
	110 V DC	9.0 A	19.0 A	33.0 A	2.0 A	8.0 A	21.0 A
	220 V DC	1.1 A	5.5 A	17.0 A	0.3 A	1.2 A	5.0 A

### DC-1/DC-3 switching DC with N.C. contacts (N.C.)

Type	Rated operating voltage $U_e$	DC-1 ( $L/R \leq 1 \text{ ms}$ )			DC-3 ( $L/R \leq 2 \text{ ms}$ )		
		1 current path	2 current paths in series	3 current paths in series	1 current path	2 current paths in series	3 current paths in series
ESB20-02	24 V DC	14 A	20 A	-	6 A	10 A	-
	48 V DC	7 A	14 A	-	3 A	6 A	-
	60 V DC	4.5 A	10 A	-	2 A	4 A	-
	110 V DC	1.5 A	4.4 A	-	0.6 A	1.8 A	-
	220 V DC	0.2 A	1.5 A	-	0.1 A	0.6 A	-
ESB24	24 V DC	14.5 A	24.0 A	24.0 A	6.3 A	11.0 A	19.0 A
	48 V DC	7.5 A	12.5 A	22.0 A	3.1 A	5.4 A	9.4 A
	60 V DC	4.5 A	10.0 A	17.5 A	2.0 A	4.3 A	7.5 A
	110 V DC	1.6 A	4.4 A	9.5 A	0.7 A	1.9 A	4.1 A
	220 V DC	0.2 A	1.4 A	3.8 A	0.1 A	0.6 A	1.6 A

# ESB Installation Contactors - Lighting Application

## Technical Data

### Switching of lamp load

The following table shows the number of lamps which can be connected per phase at 230 V, 50 Hz. Air temperature, near the contactor, must be limited to 55 °C.

Please, note that the given capacitor load must not be exceeded, otherwise inadmissible high inrush current peaks could occur.

These are influenced by the length and cross section of the wire used, the type of power supply unit and specifications of the lamp brand.

For these reasons, values in the table are for information only.

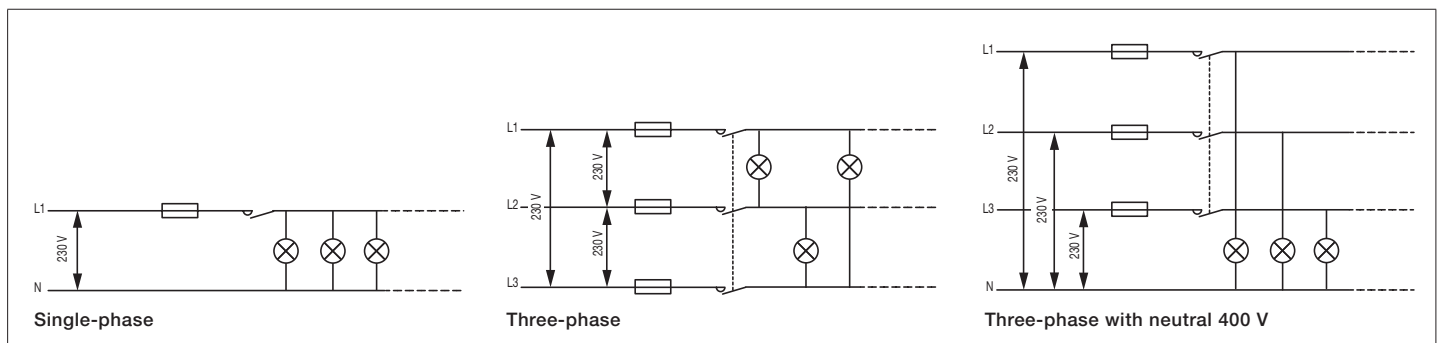
Numbers are given for a 230 V voltage distributed between phase and neutral: single phase (phase + neutral) or three-phases (3 phases + neutral), lamps are wired in star connection.

In the case of three-phase supply without neutral, 230 V phase-to-phase, the permissible number of lamps per phase will be that given in the table multiplied by 0.58.

Lamp type	Lamp data		Permissible number of lamps per phase (230 V, 50 Hz)				Capacitor µF
	Watt	I <sub>n</sub> A	ESB20	ESB24	ESB40	ESB63	
Incandescent lamps	60	0.26	21	25	54	83	
	100	0.43	13	15	32	50	
	200	0.87	7	7	16	25	
	300	1.30	4	5	11	16	
	500	2.17	3	3	6	10	
	1000	4.35	1	1	3	5	
Fluorescent lamps Uncompensated and series compensation	15	0.33	40	30	100	155	
	20	0.37	37	26	85	135	
	40	0.43	32	20	65	105	
	42	0.54	26	16	52	85	
	58	0.64	21	12	40	65	
	65	0.67	21	12	40	65	
	115	1.3	9	5	18	28	
	140	1.5	9	5	18	28	
Two-lamp circuit	2 x 20	2 x 0.13	2 x 22	2 x 26	2 x 85	2 x 140	
	2 x 40	2 x 0.22	2 x 17	2 x 20	2 x 65	2 x 105	
	2 x 42	2 x 0.24	2 x 13	2 x 16	2 x 52	2 x 65	
	2 x 58	2 x 0.34	2 x 10	2 x 12	2 x 40	2 x 65	
	2 x 65	2 x 0.34	2 x 10	2 x 12	2 x 40	2 x 65	
	2 x 115	2 x 0.65	2 x 4	2 x 5	2 x 18	2 x 28	
	2 x 140	2 x 0.75	2 x 4	2 x 5	2 x 18	2 x 28	
	Parallel compensation	15	0.11	16	8	16	67
20		0.13	16	8	16	67	4.5
40		0.22	16	8	16	67	4.5
42		0.24	13	6	12	50	6
58		0.34	11	5	10	43	7
65		0.34	11	5	10	43	7
115		0.65	4	2	4	17	18
140		0.75	4	2	4	17	18
High pressure mercury-vapor lamps Uncompensated	50	0.61	30	14	36	50	
	80	0.8	15	10	27	38	
	125	1.15	10	7	19	26	
	250	2.15	6	4	10	14	
	400	3.25	2	2	7	10	
	700	5.40	2	1	4	6	
	1000	7.5	1	1	3	4	
	2000/ 400 V	8	-	1	3	4	
Parallel compensation	50	0.28	4	5	10	43	7
	80	0.41	3	4	8	37	8
	125	0.65	2	3	6	26	10
	250	1.22	1	2	3	15	18
	400	1.95	-	1	3	10	25
	700	3.45	-	-	1	5	45
	1000	4.8	-	-	1	4	60
	2000/ 400 V	5.45	-	1	2	3	35
Lamps with electronic power supply units	1 x 18	-	15	24	55	76	
	2 x 18	-	8	18	34	48	
	1 x 36	-	12	16	34	47	
	2 x 36	-	7	11	20	29	
	1 x 58	-	11	14	32	46	
	2 x 58	-	6	8	17	24	

Lamp type	Lamp data		Permissible number of lamps per phase (230 V, 50 Hz)				Capacitor µF	
	Watt	I <sub>n</sub> A	ESB20	ESB24	ESB40	ESB63		
Halogen metal-vapor lamps Uncompensated	35	0.53	9	10	28	38		
	70	1	4	5	14	20		
	150	1.8	3	3	8	11		
	250	3	1	2	5	7		
	400	3.5	1	1	4	6		
	1000	9.5	-	-	1	2		
	2000	16.5	-	-	1	1		
	2000/ 3500/ 400 V	10.5	-	-	2	2		
	Parallel compensation	35	0.25	-	5	11	30	6
		70	0.45	-	3	5	18	12
150		0.75	-	1	3	9	20	
250		1.5	-	1	2	7	33	
400		2.5	-	-	2	6	35	
1000		5.8	-	-	-	2	95	
2000		11.5	-	-	-	1	148	
2000/ 3500/ 400 V		6.6	-	-	1	2	58	
Low pressure sodium-vapor lamps Uncompensated	35	1.5	10	8	22	30		
	55	1.5	10	8	22	30		
	90	2.4	5	5	13	19		
	135	3.5	3	3	10	13		
	150	3.3	3	3	10	14		
	180	3.3	3	3	10	14		
	200	2.3	3	5	14	20		
	Parallel compensation	35	0.31	-	1	4	15	20
55		0.42	-	1	4	15	20	
90		0.63	-	1	3	10	30	
135		0.94	-	-	2	7	45	
150		1.0	-	-	2	8	40	
180		1.16	-	-	2	8	40	
200	1.32	-	1	3	12	25		
High pressure sodium-vapor lamps Uncompensated	150	1.8	3	4	15	20		
	250	3.0	2	3	9	15		
	330	3.7	1	2	8	10		
	400	4.7	-	1	6	8		
	1000	10.3	-	-	3	4		
Parallel compensation	150	0.83	-	1	3	15	20	
	250	1.5	-	1	2	9	33	
	330	2.0	-	-	2	7	40	
	400	2.4	-	-	1	6	48	
	1000	6.3	-	-	-	2	106	
Transformers for halogen low voltage lamps (12 or 24 V AC)	Transformers for Watt		Permissible number of transformers per circuit (230 V, 50 Hz)					
	20	40	50	110	174			
	50	20	24	50	80			
	75	13	16	35	54			
	100	10	12	27	43			
	150	7	9	19	29			
	200	5	6	14	23			
	300	3	4	9	14			



1SB/C10307/30201



**20 A**  
**AC-1/AC-7a**

# EN20 Installation Contactors - Manually / Automatic Operated

## AC Operated



### Application

The EN contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.

### Certifications and Approvals



### Description

The **EN20** contactors are used for the control of single phase loads up to 20 A. They operate with an AC coil.

**EN contactors** have a built-in toggle switch to select between three function modes:

Off position, automatic run (normal contactor function), manual override with a return to Auto the next time the coil is energized.

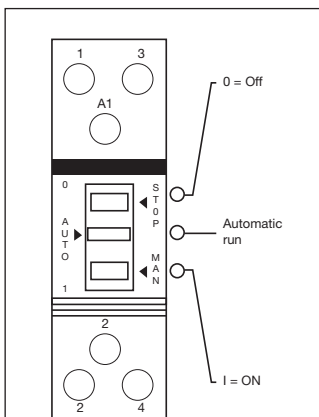
This offers many advantages as:

You can make functional test before installation start-up. It can be used for maintenance operation, to change lamps and test it. It provides higher safety and drop out as you can switch the application manually.

The toggle switch is also used for household application like water heating where double tariff of kWh is used.

### Ordering Details

Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(en)</sup> pieces	Weight kg (1 pce)
		50 Hz	60 Hz				
	1	24 V	28 V	EN20-20	<b>GHE3221101R0001</b>	10	0.14
		230 V	264 V		<b>GHE3221101R0006</b>	10	0.14

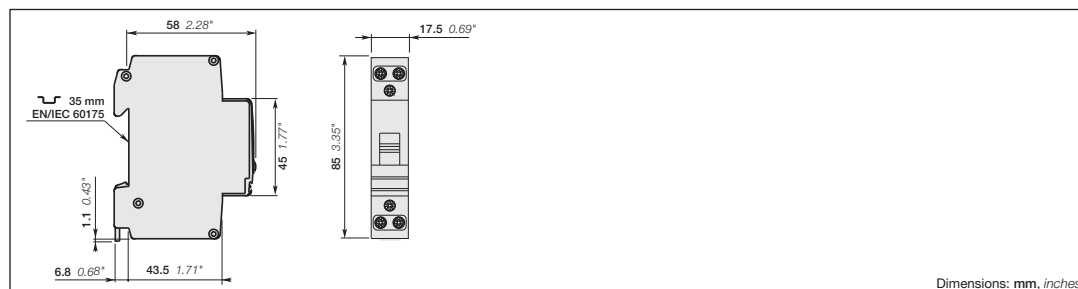
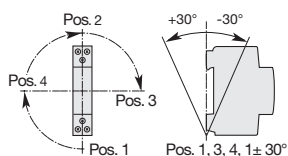


### Main Technical Data

For complete technical data see 1SBC103005S0201.pdf

<b>Main poles</b>	Rated operational voltage $U_e$	250 V
acc to IEC 60947-4-1 and IEC 61095	$I_e$ AC-1 / AC-7a Rated operational current (for air temperature close to contactor $\theta \leq 55$ °C)	20 A
	$P_e$ AC-1 Rated operational power	4 kW
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 $U_e$ (at $\theta \leq 55$ °C)
	Average pull-in coil consumption value	8 VA / 5 W
	Average holding coil consumption value	3.2 VA / 1.2 W
<b>Connecting capacity</b>	Main pole terminals	1 x 1.5 ... 10 mm <sup>2</sup>
		2 x 1.5 ... 4 mm <sup>2</sup>
	Coil terminals	1 x 0.5 ... 4 mm <sup>2</sup>
		2 x 0.75 ... 2.5 mm <sup>2</sup>

### Mounting positions



Dimensions: mm, inches





**24 A**  
**AC-1/AC-7a**

# EN24 Installation Contactors - Manually / Automatic Operated

AC / DC Operated



## Application

The EN contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.

## Certifications and Approvals



## Description

The EN24 contactors are used for the control of single and three-phase loads up to 24 A. They operate with a DC coil.

**EN contactors** have a built-in toggle switch to select between three function modes:

Off position, automatic run (normal contactor function), manual Override with a return to Auto the next time the coil is energized.

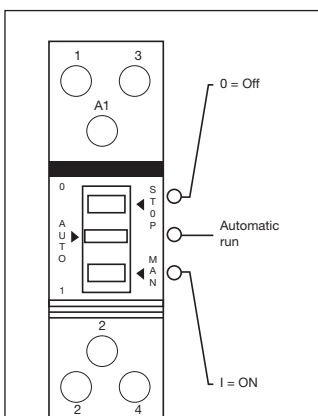
This offers many advantages as:

You can make functional test before installation start-up, it can be used for maintenance operation, to change lamps and test it, it provide higher safety and drop out as you can switch the application manually.

The toggle switch is also used for household application like water heating where double tariff of kWh is used.

## Ordering Details

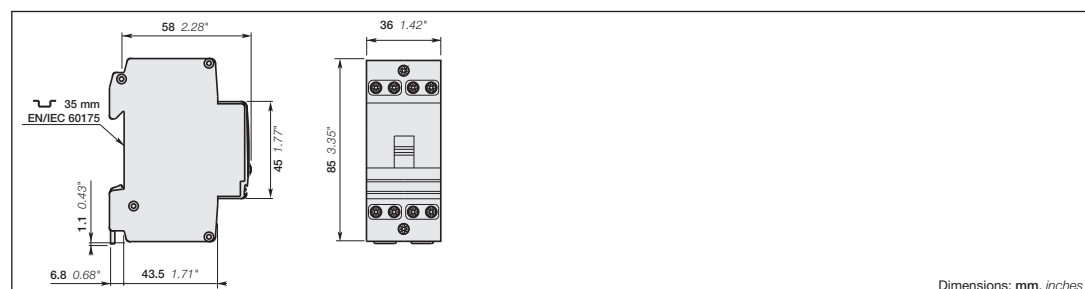
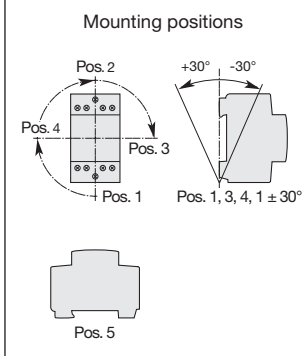
Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(in)</sup> pieces	Weight kg (1 pce)
		40...450 Hz	DC				
	2	24 V	24 V	EN24-40	<b>GHE3261101R0001</b>	5	0.24
		230/240 V	230/240 V				
	2	24 V	24 V	EN24-31	<b>GHE3261601R0001</b>	5	0.24
		230/240 V	230/240 V				
	2	230/240 V	230/240 V	EN24-30	<b>GHE3261501R0006</b>	5	0.23
		230/240 V	230/240 V				



## Main Technical Data

For complete technical data see 1SBC103005S0201.pdf

<b>Main poles</b> acc to IEC 60947-4-1 and IEC 61095	Rated operational voltage <b>U<sub>e</sub></b>	400 V
	<b>I<sub>e</sub></b> AC-1 / AC-7a Rated operational current (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	24 A
	<b>P<sub>e</sub></b> AC-1 Rated operational power	230 V: 5.3 kW 400 V: 16 kW
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 <b>U<sub>e</sub></b> (at $\theta \leq 55^\circ\text{C}$ )
	Average pull-in coil consumption value	4 VA / 4 W
	Average holding coil consumption value	4 VA / 4 W
<b>Connecting capacity</b>	Main pole terminals	1 x 1.5 ... 10 mm <sup>2</sup> 2 x 1.5 ... 4 mm <sup>2</sup>
	Coil terminals	1 x 1 ... 4 mm <sup>2</sup> 2 x 0.75 ... 2.5 mm <sup>2</sup>





**40 A**  
**AC-1/AC-7a**

# EN40 Installation Contactors - Manually / Automatic Operated

AC / DC Operated



## Application

The EN contactors are used mainly in buildings for switching and controlling lighting, heating, ventilation and pumps. They are part of the complete range of Din rail products and can be integrated easily in dedicated panels.

## Description

The EN40 contactors are used for the control of single and three-phase loads up to 40 A. They operate with a DC coil.

**EN contactors** have a built-in toggle switch to select between three function modes:

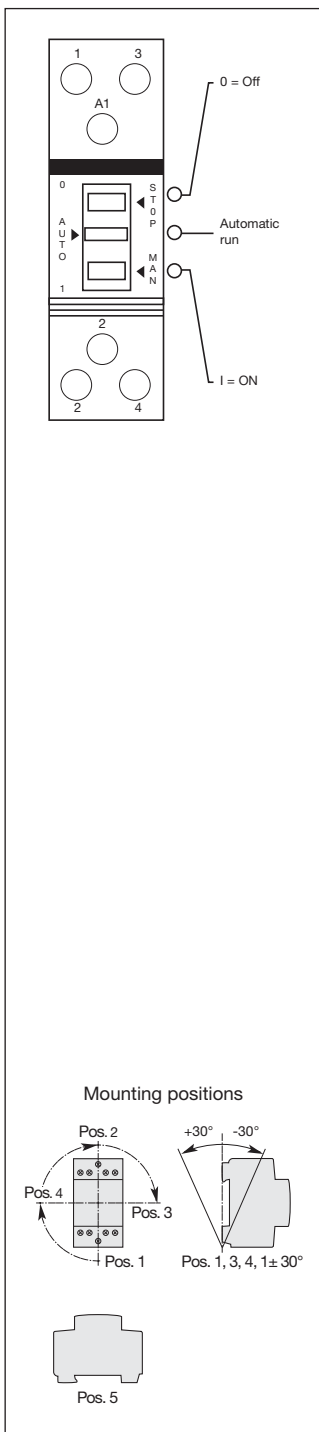
Off position, automatic run (normal contactor function), manual Override with a return to Auto the next time the coil is energized.

This offers many advantages as:

You can make functional test before installation start-up, it can be used for maintenance operation, to change lamps and test it, it provide higher safety and drop out as you can switch the application manually.

The toggle switch is also used for household application like water heating where double tariff of kWh is used.

## Certifications and Approvals



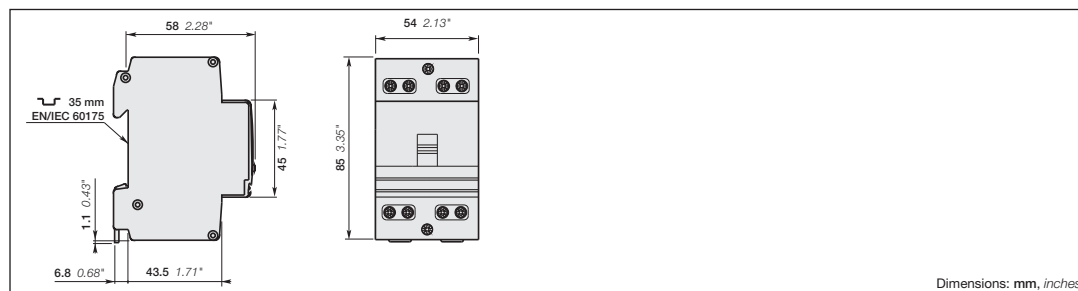
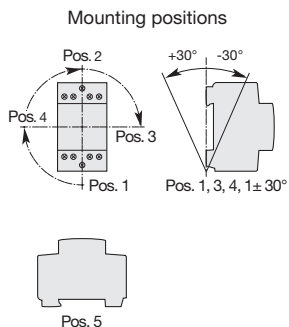
## Ordering Details

Main poles	Nb of modules	Control coil voltage		Type	Order code	Pack <sup>(ing)</sup> pieces	Weight kg (1 pce)
		40...450 Hz	DC				
	3	24 V	24 V	EN40-40	<b>GHE3421101R0001</b>	3	0.41
		110 V	110 V				
		230/240 V	230/240 V				
	3	24 V	24 V	EN40-31	<b>GHE3421601R0001</b>	3	0.41
		230/240 V	230/240 V				
	3	230/240 V	230/240 V	EN40-30	<b>GHE3421501R0006</b>	3	0.40
	3	230/240 V	230/240 V	EN40-20	<b>GHE3421401R0006</b>	3	0.30

## Main Technical Data

For complete technical data see 1SBC103005S0201.pdf

<b>Main poles</b> acc to. IEC 60947-4-1 and IEC 61095	Rated operational voltage $U_e$	400 V
	$I_e$ AC-1 / AC-7a Rated operational current (for air temperature close to contactor $\theta \leq 55^\circ\text{C}$ )	40 A
	$P_e$ AC-1 Rated operational power	230 V 8.8 kW 400 V 26 kW
<b>Magnet system</b>	Coil operating limits (acc. to IEC 60947-4-1)	0.85 ... 1.1 $U_e$ (at $\theta \leq 55^\circ\text{C}$ )
	Average pull-in coil consumption value	5 VA / 5 W
	Average holding coil consumption value	5 VA / 5 W
<b>Connecting capacity</b>	Main pole terminals	Rigid 1 x 1.5 ... 25 mm <sup>2</sup> 2 x 1.5 ... 10 mm <sup>2</sup>
	Coil terminals	Rigid 1 x 1 ... 4 mm <sup>2</sup> 2 x 0.75 ... 2.5 mm <sup>2</sup>



# EN Installation Contactors - Manually / Automatic Operated

## Technical Data

### Main Pole - Utilization Characteristics according to IEC

Contactor types:	AC operated		EN20	EN24	EN40
	AC / DC operated				
<b>Rated operational voltage U<sub>e</sub> max.</b>	<b>V</b>		250	400	
<b>Rated frequency limits</b>	<b>Hz</b>		50/60		
<b>Utilization category AC-1 / AC-7a</b>					
for air temperature close to contactor < 55 °C					
Max. rated operational current I <sub>e</sub> AC-1 / AC-7a					
	N.O.	<b>A</b>	20	24	40
	N.C.	<b>A</b>	-	24	30
<b>Short-circuit protection</b>					
for contactors gG type fuse					
		<b>A</b>	20	35	63
<b>Rated short-time withstand current I<sub>cw</sub></b>					
at 40 °C ambient temp.,					
in free air, from a cold state					
	10 s	<b>A</b>	72		176
<b>Heat dissipation per pole I<sub>e</sub> / AC-1 / AC-7a</b>					
		<b>W</b>	1		4
<b>Max. electrical switching frequency</b>					
– for AC-1 / AC-7a					
		<b>cycles/h</b>	300		
<b>Electrical Durability</b>					
– for AC-1 / AC-7a					
		<b>cycles</b>	150000		
<b>Mechanical durability</b>					
– millions of operating cycles					
			1		

### General Technical Data

Contactor types:	AC operated		EN20	EN24	EN40
	AC / DC operated				
<b>Rated insulation voltage U<sub>i</sub></b>	<b>V</b>		400	500	
according to IEC 60947-4-1					
<b>Rated impulse withstand voltage U<sub>imp.</sub></b>	<b>kV</b>		6		
<b>Standards</b>					
IEC 60947-4-1 / EN 60947-4-1 and IEC 61095 / EN 61095					
<b>Air temperature</b> close to contactor					
– for operation at 0.85 ... 1.1 U <sub>c</sub>					
		<b>°C</b>	-25 ... +55 (Type EN24...40: for ambient temperature > 40 °C, add ESB-DIS (1/2 module) at every second contactor)		
– for storage					
		<b>°C</b>	-40 ... +80		
<b>Climatic withstand</b>					
IEC 60068-2-30, UTE 63-100 execution 1*					
<b>Operating altitude</b>	<b>m</b>		≤ 2000		
<b>Shock withstand</b>					
10 g / 4 ms / axes X Y Z					
<b>Mounting positions</b>					
Pos 1, 3, 4, 1±30°					
Pos 5 : not allowed for EN20					
<b>Fixing</b>					
on rail acc. to IEC 60715 and EN 60715					

\* EN20 only





# EN Installation Contactors - Manually / Automatic Operated

## Technical Data

### Magnet System Characteristics

Contactor types:	AC operated		EN20	EN24	EN40
	AC / DC operated				
<b>Rated operational voltage <math>U_e</math> max.</b>					
- at 50 Hz	V		12 ... 400	12 ... 415	24 ... 415
- at 60 Hz	V		14 ... 380	12 ... 415	24 ... 415
	V DC		-	12 ... 415	24 ... 415
<b>Coil operating limits</b> acc. to IEC 60947-4-1			0.85 ... 1.1 x $U_c$ (at $\theta \leq 55$ °C)		
<b>Drop-out voltage in % of <math>U_c</math></b>			approx. 20 ... 75 %		approx. 10 ... 75 %
<b>Frequency range</b>		Hz	50/60	40 ... 450	
<b>Coil consumption</b>					
Average pull-in value	VA/W		8 / 5	4 / 4	5 / 5
Average holding value	VA/W		3.2 / 1.2	4 / 4	5 / 5
<b>Operating time</b>					
between coil energization and:					
- N.O. contact closing	ms		12	40	
between coil de-energization and:					
- N.O. contact opening	ms		12	40	

### Connecting Characteristics

Contactor types:	EN20		EN24	EN40
<b>Connecting capacity</b> (min. ... max.)				
Main pole terminals				
Rigid		1 x mm <sup>2</sup>	1.5 ... 10	1.5 ... 25
		2 x mm <sup>2</sup>	1.5 ... 4	1.5 ... 10
Capacity acc. to <b>UL/CSA</b>		<b>AWG</b>	14 ... 8	16 ... 4
<b>Coil terminals</b>				
Rigid		1 x mm <sup>2</sup>	0.5 ... 4	1 ... 4
		2 x mm <sup>2</sup>	0.75 ... 2.5	
Capacity acc. to <b>UL/CSA</b>		<b>AWG</b>	18 ... 14	16 ... 10
<b>Degree of protection</b>			IP20	
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529				
Protection against direct contact in acc. with EN 50274				
All terminals			IP20	
<b>Screwdriver type</b>				
Main poles			Flat Ø 5 / Pozidriv 1	Flat Ø 7.5 / Pozidriv 2
Coil terminals			Flat Ø 5 / Pozidriv 1	Flat Ø 5 / Pozidriv 1
<b>Stripping length</b>				
Main poles	mm		10	13
Coil terminals	mm		7	
<b>Tightening torque</b>				
Main poles	Nm		1.2	1
Coil terminals	Nm		0.9	2.5

# ESB, EN Installation Contactors

## Main Accessories

### Sealing cover



ESB-PLK40/63



ESB-PLK24

### Auxiliary Contact Blocks

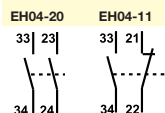


EH04-20



ESB24-40

#### Contact Blocks



### Labelling material



SZ-KZS...

### Distance piece



ESB-DIS

## Ordering Details

### Auxiliary Contact Blocks

Contactor type	Contact blocks	Type	Order code	Pack <sup>(n<sup>o</sup>)</sup> pieces	Weight kg (1 pce)
ESB24...63	2 -	EH04-20	GHE3401321R0001	10	0.004
EN24...40	1 1	EH04-11	GHE3401321R0002	10	0.004

### Sealing cover

Contactor type	Type	Order code	Pack <sup>(n<sup>o</sup>)</sup> pieces	Weight kg (1 pce)
ESB24, EN24	ESB-PLK24	GHE3201903R0001	10	0.002
ESB40...63, EN40	ESB-PLK40/63	GHE3401903R0002	10	0.009

### Distance piece

Contactor type	Type	Order code	Pack <sup>(n<sup>o</sup>)</sup> pieces	Weight kg (1 pce)
ESB24...63, EN24...40	ESB-DIS	GHE3201902R0001	10	0.002

### Labelling material

Contactor type	Type	Order code	Pack <sup>(n<sup>o</sup>)</sup> pieces	Weight kg (1 pce)
ESB20...63, EN20...40				
Label - unlabelled*	SZ-KZS	GHS2101946R0004	30	0.008
Label - numbering 1-40	SZ-KZS/1	GHS2101946R0005	30	0.008
Label - numbering 2 * 1-20	SZ-KZS/6	GHS2101946R0010	30	0.008
Label - numbering 4 * 1-10	SZ-KZS/9	GHS2101946R0013	30	0.008
Label - numbering 4 * 11-20	SZ-KZS/10	GHS2101946R0014	30	0.008
Label - labelled L1	SZ-KZS/11	GHS2101946R0015	30	0.008
Label - labelled L2	SZ-KZS/12	GHS2101946R0016	30	0.008
Label - labelled L3	SZ-KZS/13	GHS2101946R0017	30	0.008

Note: \* The unlabelled can be labelled by water-resistant and permanent marker or by means of computer-controlled labelling system (plotter).

Special labels on request: minimum quantities 50

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## Order codes

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GHE3201903R0001	ESB-PLK24	19	GHE3291302R0006	ESB24-22	5	GHE3691402R0001	ESB63-20	7
GHE3211102R0001	ESB20-20	4	GHE3291302R0007	ESB24-22	5	GHE3691402R0006	ESB63-20	7
GHE3211102R0002	ESB20-20	4	GHE3291302R1004	ESB24-22	5	GHE3691502R0006	ESB63-30	7
GHE3211102R0003	ESB20-20	4	GHE3291602R0001	ESB24-31	5	GHE3691502R0007	ESB63-30	7
GHE3211102R0004	ESB20-20	4	GHE3291602R0002	ESB24-31	5	GHE3691602R0004	ESB63-31	7
GHE3211102R0005	ESB20-20	4	GHE3291602R0003	ESB24-31	5	GHE3691602R0006	ESB63-31	7
GHE3211102R0006	ESB20-20	4	GHE3291602R0004	ESB24-31	5	GHE3691802R0006	ESB63-11	7
GHE3211102R0007	ESB20-20	4	GHE3291602R0006	ESB24-31	5	GHS2101946R0004	SZ-KZS	19
GHE3211102R1004	ESB20-20	4	GHE3291602R0007	ESB24-31	5	GHS2101946R0005	SZ-KZS/1	19
GHE3211102R1005	ESB20-20	4	GHE3291602R1004	ESB24-31	5	GHS2101946R0010	SZ-KZS/6	19
GHE3211202R0001	ESB20-02	4	GHE3291702R0001	ESB24-13	5	GHS2101946R0013	SZ-KZS/9	19
GHE3211202R0002	ESB20-02	4	GHE3291702R0002	ESB24-13	5	GHS2101946R0014	SZ-KZS/10	19
GHE3211202R0003	ESB20-02	4	GHE3291702R0003	ESB24-13	5	GHS2101946R0015	SZ-KZS/11	19
GHE3211202R0004	ESB20-02	4	GHE3291702R0004	ESB24-13	5	GHS2101946R0016	SZ-KZS/12	19
GHE3211202R0005	ESB20-02	4	GHE3291702R0006	ESB24-13	5	GHS2101946R0017	SZ-KZS/13	19
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GHE3211202R0007	ESB20-02	4	GHE3291702R1004	ESB24-13	5			
GHE3211202R1004	ESB20-02	4	GHE3401321R0001	EH04-20	19			
GHE3211202R1005	ESB20-02	4	GHE3401321R0002	EH04-11	19			
GHE3211302R0001	ESB20-11	4	GHE3401903R0002	ESB-PLK40/63	19			
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GHE3211302R0003	ESB20-11	4	GHE3421101R0004	EN40-40	16			
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GHE3211302R0005	ESB20-11	4	GHE3421401R0006	EN40-20	16			
GHE3211302R0006	ESB20-11	4	GHE3421501R0006	EN40-30	16			
GHE3211302R0007	ESB20-11	4	GHE3421601R0001	EN40-31	16			
GHE3211302R1004	ESB20-11	4	GHE3421601R0006	EN40-31	16			
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GHE3221101R0001	EN20-20	14	GHE3491102R0002	ESB40-40	6			
GHE3221101R0006	EN20-20	14	GHE3491102R0003	ESB40-40	6			
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GHE3261101R0006	EN24-40	15	GHE3491102R0006	ESB40-40	6			
GHE3261501R0006	EN24-30	15	GHE3491102R0007	ESB40-40	6			
GHE3261601R0001	EN24-31	15	GHE3491102R0008	ESB40-40	6			
GHE3261601R0006	EN24-31	15	GHE3491102R1004	ESB40-40	6			
GHE3291102R0001	ESB24-40	5	GHE3491302R0001	ESB40-22	6			
GHE3291102R0002	ESB24-40	5	GHE3491302R0006	ESB40-22	6			
GHE3291102R0003	ESB24-40	5	GHE3491402R0001	ESB40-20	6			
GHE3291102R0004	ESB24-40	5	GHE3491402R0006	ESB40-20	6			
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GHE3291102R1004	ESB24-40	5	GHE3491502R0007	ESB40-30	6			
GHE3291202R0001	ESB24-04	5	GHE3491602R0001	ESB40-31	6			
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GHE3291202R0006	ESB24-04	5	GHE3691102R0003	ESB63-40	7			
GHE3291202R0007	ESB24-04	5	GHE3691102R0004	ESB63-40	7			
GHE3291202R1004	ESB24-04	5	GHE3691102R0006	ESB63-40	7			
GHE3291302R0001	ESB24-22	5	GHE3691102R0007	ESB63-40	7			
GHE3291302R0002	ESB24-22	5	GHE3691102R0008	ESB63-40	7			
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	GHE3221101R0006	14		GHE3291702R1004	5		GHE3691102R0008	7
EN24-30	GHE3261501R0006	15	ESB24-22	GHE3291302R0001	5		GHE3691102R1004	7
EN24-31	GHE3261601R0001	15		GHE3291302R0002	5	ESB-DIS	GHE3201902R0001	19
	GHE3261601R0006	15		GHE3291302R0003	5	ESB-PLK24	GHE3201903R0001	19
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	GHE3261101R0006	15		GHE3291302R0006	5	SZ-KZS	GHS2101946R0004	19
EN40-20	GHE3421401R0006	16		GHE3291302R0007	5	SZ-KZS/1	GHS2101946R0005	19
EN40-30	GHE3421501R0006	16		GHE3291302R1004	5	SZ-KZS/6	GHS2101946R0010	19
EN40-31	GHE3421601R0001	16	ESB24-31	GHE3291602R0001	5	SZ-KZS/9	GHS2101946R0013	19
	GHE3421601R0006	16		GHE3291602R0002	5	SZ-KZS/10	GHS2101946R0014	19
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	GHE3421101R0006	16		GHE3291602R0006	5	SZ-KZS/13	GHS2101946R0017	19
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	GHE3211202R0006	4		GHE3291102R0004	5			
	GHE3211202R0007	4		GHE3291102R0006	5			
	GHE3211202R1004	4		GHE3291102R0007	5			
	GHE3211202R1005	4		GHE3291102R1004	5			
ESB20-11	GHE3211302R0001	4	ESB40-20	GHE3491402R0001	6			
	GHE3211302R0002	4		GHE3491402R0006	6			
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	GHE3211302R0004	4		GHE3491302R0006	6			
	GHE3211302R0005	4	ESB40-30	GHE3491502R0001	6			
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ESB20-20	GHE3211102R0001	4	ESB40-40	GHE3491102R0001	6			
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	GHE3211102R0007	4		GHE3491102R0008	6			
	GHE3211102R1004	4		GHE3491102R1004	6			
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	GHE3291202R0003	5	ESB63-22	GHE3691302R0007	7			
	GHE3291202R0004	5	ESB63-30	GHE3691502R0006	7			
	GHE3291202R0006	5		GHE3691502R0007	7			
	GHE3291202R0007	5	ESB63-31	GHE3691602R0004	7			
	GHE3291202R1004	5		GHE3691602R0006	7			
ESB24-13	GHE3291702R0001	5	ESB63-40	GHE3691102R0001	7			
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