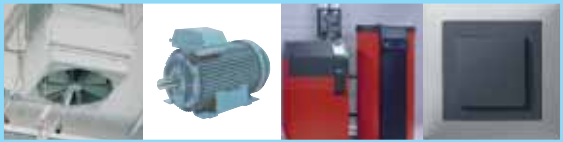


Installation Contactors ESB

Hum-free and more...





All over the world, office buildings, hospitals, hotels, public buildings, shopping centers, sport complexes and city lighting projects 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, e.g. for

- lighting,
- heating,
- ventilation,
- pumps and motors.

With System pro *M* compact® ABB offers a wide product range of Modular DIN Rail Components suitable for all applications in residential, industrial and commercial markets.





Highlights:

- Noiseless DC coil - hum-free
- Operation with AC or DC control voltage, protected against polarity reversal
- Low power consumption
- Integrated overvoltage protection



ESB installation contactors are designed to match the Modular DIN Rail Components for common use in panels. The DC coil operated ESB avoid AC vibrations – hum free – and bring big benefits such as comfort which is important for offices hospitals, wherever people live.



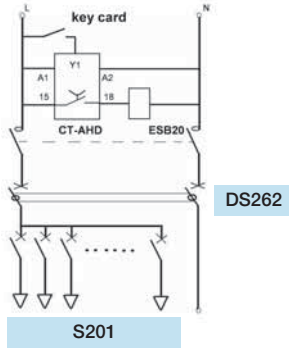
Applications

Opening systems and energy control

Hotel key card opening systems and energy control for hotel rooms



ESB20 in combination with off-delayed timer CT-AHD



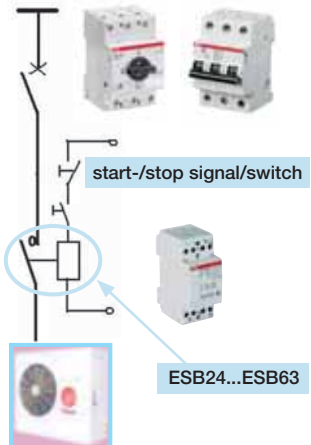
More and more buildings use automatic systems, door control, air conditioning and parts which need a lot of energy. Hotel rooms have to be powerless if nobody is inside and the power has to be switched on after entry of people. ESB do this remote function and release the power to supply the room.

Air conditioning control



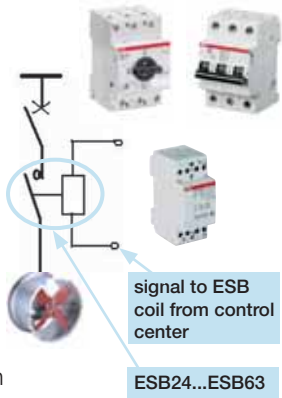
In this hotel application the function of ESB24 up to ESB63 is to control bigger sized heaters or air conditioning systems using large ventilators. That is mainly a motor application utilization category AC3. Protection can be realized with a manual motor starter MS325 or a MCB.

ESB24...ESB63 with direct switch or remote control



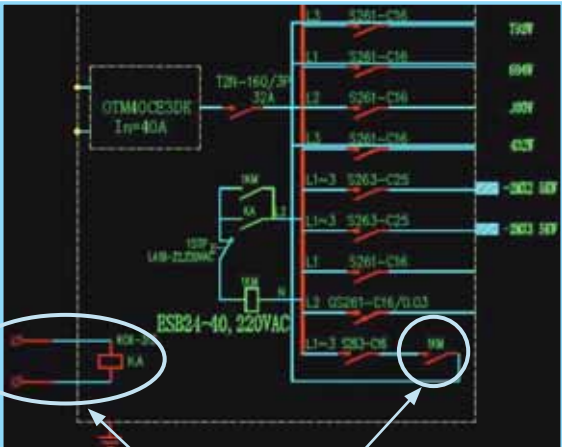
Ventilating systems control

In washing rooms and toilets a good ventilation is needed



Many areas in particular wash rooms must be provided for fresh and clean air. Powerful ventilators use 3-phase motors with AC3 utilization category which can be controlled by contactors, ESB24....ESB63. MS325 is the right product for a good motor protection.

Fire alarm and emergency light control



The central fire control sends control signals to the ESB

ESB24 for remote control of the emergency lighting

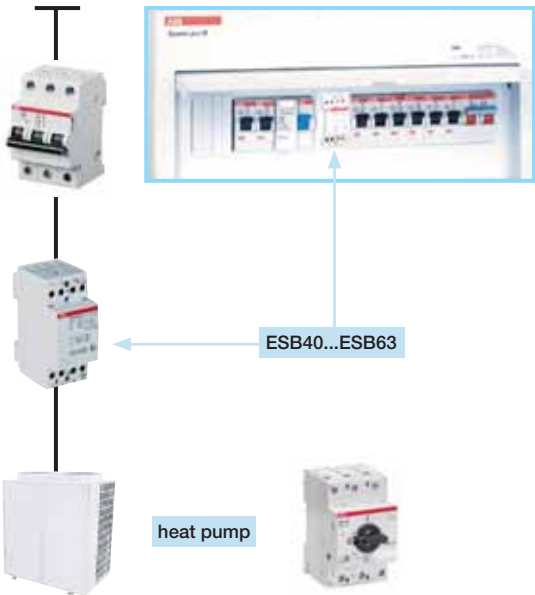
That's an emergency light application where power has to be switched over to emergency light by remote control from safety system.

Applications

Heat pump control



ESB40...ESB63 are used in combination with line protection devices for control and protection of heat pumps.



In commercial and residential installations heat pumps are more and more common. 3-pole ESB contactors are mainly used to control these powerful systems using motors with higher starting current.

Lighting control



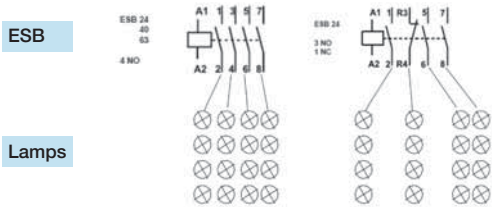
Installation contactors with hum free DC coils are the right products for lighting control. Different sizes and variations of ESB



ESB20...ESB63 for control of lamp rows

contactors can be used depending on room sizes and quantity of lamps. A right selection of contactor sizes is important because lamps produce current peaks by switching on which can overload the contactors. A lamp table helps to make selection and planning easier.

Lamp control



Conference rooms, shopping centers and official buildings use a lot of rows of lamps, which can be controlled by multipole contactors to save costs. ABB offers a flexible assortment of 3- and 4-pole devices with different variations of NO and NC contacts. Customers can realise special control strategies.

Installation Contactors ESB / EN

Order code	Type
20A	
ESB 20-20	2 NO contacts (no attachment of auxiliary contacts)
GHE3211102R0001	ESB 20-20 24V 50/60Hz
GHE3211102R0003	ESB 20-20 48V 50/60Hz
GHE3211102R0004	ESB 20-20 110V 50/60Hz
GHE3211102R0006	ESB 20-20 230V 50/60Hz
GHE3211102R0007	ESB 20-20 400V 50/60Hz
ESB 20-02	2 NC contacts (no attachment of auxiliary contacts)
GHE3211202R0001	ESB 20-02 24V 50/60Hz
GHE3211202R0003	ESB 20-02 48V 50/60Hz
GHE3211202R0004	ESB 20-02 110V 50/60Hz
GHE3211202R0006	ESB 20-02 230V 50/60Hz
GHE3211302R0007	ESB 20-02 400V 50/60Hz
ESB 20-11	1 NO contact & 1 NC contact (no attachment of auxiliary contacts)
GHE3211302R0001	ESB 20-11 24V 50/60Hz
GHE3211302R0006	ESB 20-11 230V 50/60Hz
GHE3211302R0007	ESB 20-11 400V 50/60Hz
24A	
ESB 24-40 A*)	4 NO contacts
GHE3291102R0001	ESB 24-40 24V AC/DC
GHE3291102R0003	ESB 24-40 48V AC/DC
GHE3291102R0004	ESB 24-40 110-120V AC/DC
GHE3291102R0006	ESB 24-40 230-240V AC/DC
GHE3291102R0007	ESB 24-40 400-415V AC/DC
ESB 24-04 A*)	4 NC contacts
GHE3291202R0001	ESB 24-04 24V AC/DC
GHE3291202R0003	ESB 24-04 48V AC/DC
GHE3291202R0004	ESB 24-04 110-120V AC/DC
GHE3291202R0006	ESB 24-04 230-240V AC/DC
GHE3291202R0007	ESB 24-04 400-415V AC/DC
ESB 24-22 A*)	2 NO contacts & 2 NC contacts
GHE3291302R0001	ESB 24-22 24V AC/DC
GHE3291302R0003	ESB 24-22 48V AC/DC
GHE3291302R0004	ESB 24-22 110-120V AC/DC
GHE3291302R0006	ESB 24-22 230-240V AC/DC
GHE3291302R0007	ESB 24-22 400-415V AC/DC
ESB 24-31 A*)	3 NO contacts & 1 NC contact
GHE3291602R0001	ESB 24-31 24V AC/DC
GHE3291602R0003	ESB 24-31 48V AC/DC
GHE3291602R0004	ESB 24-31 110-120V AC/DC
GHE3291602R0006	ESB 24-31 220-230V AC/DC
GHE3291602R0007	ESB 24-31 400-415V AC/DC
ESB 24-13 A*)	1 NO contact & 3 NC contacts
GHE3291702R0001	ESB 24-13 24V AC/DC
GHE3291702R0003	ESB 24-13 48V AC/DC
GHE3291702R0004	ESB 24-13 110-120V AC/DC
GHE3291702R0006	ESB 24-13 230-240V AC/DC
GHE3291702R0007	ESB 24-13 400-415V AC/DC
40A	
ESB 40-20 A*)	2 NO contacts
GHE3491402R0001	ESB 40-20 24V AC/DC
GHE3491402R0006	ESB 40-20 230V AC/DC
ESB 40-30 A*)	3 NO contacts
GHE3491502R0001	ESB 40-30 24V AC/DC
GHE3491502R0006	ESB 40-30 230V AC/DC
GHE3491502R0007	ESB 40-30 400V AC/DC

Info: NO = normally open contact; NC = normally closed contact

A*) = DC coil, hum-free

B*) = incl. slide switch with positions „Auto“ - „0“ - „1“

C*) = NO contacts: 40A; NC contacts: 30A AC-1/AC-7a

D*) = NO contacts: 63A; NC contacts: 30A AC-1/AC-7a

Order code	Type
40A	
ESB 40-40 A*)	4 NO contacts
GHE3491102R0001	ESB 40-40 24V AC/DC
GHE3491102R0003	ESB 40-40 48V AC/DC
GHE3491102R0004	ESB 40-40 110-120V AC/DC
GHE3491102R0006	ESB 40-40 230V AC/DC
GHE3491102R0007	ESB 40-40 400V AC/DC
ESB 40-31 A*), C*)	3 NO contacts & 1 NC contact
GHE3491602R0001	ESB 40-31 24V AC/DC
GHE3491602R0006	ESB 40-31 230V AC/DC
ESB 40-22 A*), C*)	2 NO contacts & 2 NC contacts
GHE3491302R0001	ESB 40-22 24V AC/DC
GHE3491302R0006	ESB 40-22 230V AC/DC
63A	
ESB 63-20 A*)	2 NO contacts
GHE3691402R0001	ESB 63-20 24V AC/DC
GHE3691402R0006	ESB 63-20 230V AC/DC
ESB 63-30 A*)	3 NO contacts
GHE3691502R0006	ESB 63-30 230V AC/DC
GHE3691502R0007	ESB 63-30 400V AC/DC
ESB 63-31 A*), D*)	3 NO contacts & 1 NC contact
GHE3691602R0004	ESB 63-31 110V AC/DC
GHE3691602R0006	ESB 63-31 230V AC/DC
ESB 63-40 A*)	4 NO contacts
GHE3691102R0001	ESB 63-40 24V AC/DC
GHE3691102R0003	ESB 63-40 48V AC/DC
GHE3691102R0006	ESB 63-40 230V AC/DC
GHE3691102R0007	ESB 63-40 400V AC/DC
20A	
EN 20-20 B*)	2 NO contacts (no attachment of auxiliary contacts)
GHE3221101R0001	EN 20-20 24V 50Hz
GHE3221101R0006	EN 20-20 230V 50Hz
24A	
EN 24-30 A*), B*)	3 NO contacts
GHE3261501R0006	EN 24-30 230-240V AC/DC
EN 24-31 A*), B*)	3 NO contacts & 1 NC contact
GHE3261601R0001	EN 24-31 24V AC/DC
GHE3261601R0006	EN 24-31 230-240V AC/DC
EN 24-40 A*), B*)	4 NO contacts
GHE3261101R0001	EN 24-40 24V AC/DC
GHE3261101R0006	EN 24-40 230-240 VAC/DC
40A	
EN 40-30 A*), B*)	3 NO contacts
GHE3421501R0006	EN 40-30 230V AC/DC
EN 40-40 A*), B*)	4 NO contacts
GHE3421101R0001	EN 40-40 24V AC/DC
GHE3421101R0004	EN 40-40 110V AC/DC
GHE3421101R0006	EN 40-40 230V AC/DC
EN 40-31 A*), B*)	3 NO contacts & 1 NC contact
GHE3421601R0001	EN 40-31 24V AC/DC
GHE3421601R0006	EN 40-31 230V AC/DC
Accessories	
GHE3401321R0001	EH 04-20 Aux. contact 2NO
GHE3401321R0002	EH 04-11 Aux. contact 1NO+1NC
GHE3201902R0001	ESB-DIS Spacer (10 pcs.)
GHE3201903R0001	ESBPLK24 Sealing cap
GHE3401903R0001	ESB-PLK 40/63 Sealing cap

Lamp type	Lamp data		Permissible number of lamps per electric circuit (230 V, 50 Hz) for contactor type				Load capacity
	Watts	I _n A	ESB	ESB	ESB	ESB	µF
			20	24	40	63	
Metal halide lamps, uncorrected	35	0.53	–	10	28	38	
	70	1	–	5	14	20	
	150	1.8	–	3	8	11	
	250	3	–	2	5	7	
	400	3.5	–	1	4	6	
	1000	9.5	–	–	1	2	
	2000	16.5	–	–	1	1	
	2000/ 3500/ 400 V	10.5 18 –	– – –	– – –	2 1 –	2 1 –	
Parallel correction	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	5	33
	400	2.5	–	1	2	4	35
	1000	5.8	–	–	–	1	95
	2000	11.5	–	–	–	–	–
	2000/ 3500/ 400 V	6.6 11.6 –	– – –	– – –	1 – –	2 1 –	58 100
Low-pressure sodium-vapour lamps, uncorrected	35	1.5	5	8	22	30	
	55	1.5	5	8	22	30	
	90	2.4	3	5	13	19	
	135	3.5	2	3	10	13	
	150	3.3	2	3	10	14	
	180	3.3	2	3	10	14	
	200	2.3	3	5	14	20	
Parallel correction	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-vapour lamps, uncorrected	150	1.8	–	4	15	20	
	250	3.0	–	3	9	15	
	330	3.7	–	2	8	10	
	400	4.7	–	1	6	8	
	1000	10.3	–	–	3	4	
Parallel correction	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 low-volt halogen lamps	Transformers for		Permitted number of transformers per electric circuit (230 V, 50 Hz)				
	watts						
	20		40	52	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	

Lamp type	Lamp data		Permissible number of lamps per electric circuit (230 V, 50 Hz) for contactor type				Load capacity	
	Watts	I _a A	ESB 20	ESB 24	ESB 40	ESB 63	µF	
Incandescent lamp	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, uncorrected and with series p.f. correction	15	0.33	25	30	100	155		
	20	0.37	22	26	85	135		
	40	0.43	17	20	65	105		
	58	0.67	10	12	40	65		
	65	0.67	10	12	40	65		
	115	1.5	4	5	18	28		
Twin-lamp circuit (lead-lag)	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 58	2 x 0.32	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 correction	15	0.11	6	8	16	67	4.5	
	20	0.13	6	8	16	67	4.5	
	40	0.22	6	8	16	67	4.5	
	58	0.32	4	5	10	43	7.0	
	65	0.34	4	5	10	43	7.0	
	115	0.65	1	2	4	17	18.0	
High-pressure mercury-vapour lamps, uncorrected	140	0.75	1	2	4	17	18.0	
	50	0.61	12	14	36	50		
	80	0.80	7	10	27	38		
	125	1.15	5	7	19	26		
	250	2.15	3	4	10	14		
	400	3.25	1	2	7	10		
700	5.40	–	1	4	6			
Parallel correction	1000	7.50	–	1	3	4		
	2000/400 V	8	–	1	3	4		
	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
Lamps with electronic ballast (ECG)	400	1.95	–	1	3	10	25	
	700	3.45	–	–	1	5	45	
	1000	4.80	–	–	1	4	60	
	2000/400 V	5.45	–	1	2	3	35	
	Lamps with electronic ballast (ECG)	Ballast for watts		Permissible number of ballasts per electric circuit (230 V, 50 Hz)				
		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		

Rated operating currents, power ratings, dimensions

AC-1 / AC-7a switching heatings	EN/ESB 20	EN/ESB 24	EN/ESB 40	EN/ESB 63
Rated operating current I_o (NO)	20 A	24 A	40 A	63 A
Rated operating current I_o (NC)	20 A	24 A	30 A	30 A
Connecting 2 current paths in parallel permits an operating current of 1.6 times the rated operating current I_o .				
Rated operating power (NO)				
230 V 1-	4 kW	5.3 kW	8.8 kW	13.8 kW
230 V 3-		9.0 kW	15.2 kW	24.0 kW
400 V 3-		16.0 kW	26.0 kW	41.0 kW
AC-3/AC-7b switching motors	EN/ESB 20	EN/ESB 24	EN/ESB 40	EN/ESB 63
Rated operating current I_o (NO)	9 A	9 A	22 A	30 A
Rated operating current I_o (NC)	9 A	6 A		
Rated operating power (NO)				
230 V 1-	1.3 kW	1.3 kW	3.7 kW	5.0 kW
230 V 3-		2.2 kW	5.5 kW	8.0 kW
400 V 3-		4 kW	11 kW	15 kW
Module height / width	90/18 mm	90/36 mm	90/54 mm	90/54 mm

EN series - excellent for service

EN type contactors have a 3-position selection switch integrated:

Automatic = Automatic control

„0“ = OFF position

„On“ = ON position



Advantages:

- Facilitates commissioning
- Functional test prior to start/commissioning
- Manual function is permanently available
- High degree of safety and availability in case of automation system failure



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